

APPENDIX A

Cultural Resources

A1 425 and 439–445 Washington Street
Historic Evaluation

**HISTORICAL EVALUATION of
425 and 439-445 WASHINGTON STREET, SAN FRANCISCO**

According to California Register Criteria



*Top row: 425 and 439-443 Washington Street in 1957
Bottom row: 425 and 439-445 Washington Street in 2016*

*Block/lot: 425 Washington: 206/14
439-445 Washington: 206/13*

by

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May 2017

Summary

The properties at 425 and 439-445 Washington Street lie between Battery and Sansome streets in San Francisco's Financial district. The two buildings were built for different owners in 1906-1907 as two-story brick masonry commercial buildings. The architect of each was S. H. Woodruff, and the construction was by the Woodruff Company. A third story was added to 425 Washington in 1928.

The buildings were occupied by numerous businesses over the years. During its first sixty years 425 Washington was occupied by an assayer and chemist (1907-1910), wholesale poultry businesses (1916-1940), and wholesale fisheries (1942-1965). During the same period, 439-445 Washington was occupied by wholesale grocers (1910-1931), a cigar factory (ca. 1913-1943), the Fulton Paper Company (1936-1965), and a series of restaurants (1944-2015). These buildings' uses as wholesale groceries, poultry, and fish businesses were very similar to the uses in the Produce district that once stood in blocks to the east.

In 1967 the front parts of both buildings were removed to allow for the widening of Washington Street, and new brick facades were built. The new front of #425 was designed by architects Harada and Meu and engineer Russell H. Fuller; while that of #439-445 was designed by architect Gilbert L. Oliver. After the new fronts were built, #425 was occupied by a lithography business (1967-1972) and audio sales (1973-1982), among others; while #439-445 was occupied by restaurants (1967-2015) and a photography studio (1968-1993).

Because these have always been separate properties, each building is being evaluated separately under the criteria of the California Register in this report. Due to loss of integrity neither building appears to be eligible for the California Register under criteria 1, 2 or 3. They also do not fall within a potential California Register historic district. Finally, it does not appear that the the nearby Jackson Square historic district could be extended to include this property. Please see a discussion of these issues in the "Evaluation" section of this report, on pages 16-20.

Description

The general vicinity

This property lies at the northernmost edge of the city's Financial district. Within a block radius are buildings of very diverse types. They include:

* The Golden Gateway Center, occupying several blocks to the east and northeast of the subject property. This is a collection of high-rise and low-rise apartment buildings developed during the 1960s on the site of the former Produce district.

* U. S. Custom House (built during 1906-1911) and the Appraiser's Building (1940-1941). These monumental U. S. government buildings are located directly north of the subject property,

in the block bounded by Washington, Jackson, Battery and Sansome streets. The granite-clad Custom House at 555 Battery is five stories in height and is a landmark example of Beaux-Arts classicism. It was listed on the National Register of Historic Places in 1975. The Appraiser's Building at 630 Sansome is a spare, Moderne style high-rise.

* Jackson Square, an official city historic district occupying several blocks to the northwest of the subject property. This is a collection of two or three story brick masonry buildings built during the 19th and early 20th centuries.

* Three tall office buildings in the block to the west, bounded by Sansome, Montgomery, Clay and Washington streets. These include the nine-story California Ink Building at 545 Sansome (Willis Polk and Company; 1930), the Transamerica Pyramid at 600 Montgomery (1971) and its redwood grove, and a high-rise at 505 Sansome Street (1978). Also in this block are a one-story retail building, 501-505 Washington Street (1977), and a paved lot with the preserved remnants of an old brick building.

The square block containing the subject property

This block is bisected by an alley, Merchant Street. Its early, pre-World War II character was greatly diminished in 1967, when Washington Street was widened by 23 feet to facilitate traffic from the Embarcadero Freeway. When the street was widened, two buildings, those at the southwest corner of Washington and Battery and at the southwest corner of Washington and Sansome, were demolished, and the fronts of two others, 425 and 439-445 Washington, were removed and were given new facades. Another change occurred in ca. 2001, when three old buildings were replaced by a hotel at the corner of Clay and Sansome. Now only three pre-World War Two buildings remain with good integrity. The eight buildings on this block include:

* 401-423 Washington Street (1983). This glassy office mid-rise was built on the narrow sliver of land that remained after Washington Street was widened. Its large windows are divided by muntins into many lights.

* 425 Washington Street (1906-1907). One of the subject properties; described below.

* 439-445 Washington Street (1906-1907). One of the subject properties; described below.

* The Jones-Thierbach Coffee Co. building, 447 Battery Street (1907). Three stories, brick masonry construction, with segmental arched window heads; its window sash has been removed. It is rated "B" in the book *Splendid Survivors*.

* SFFD Fire Station 13, 530 Sansome Street (John Portman, architect, ca. 1974). The plain exterior consists of metal panels and concrete. It was built to replace a fire station demolished when Portman's Embarcadero Center was built.

* Club Quarters Hotel, 424 Clay Street/425 Battery (ca. 2001). Seven to ten stories in height, its bay windows faintly evoke San Francisco's Edwardian-era architecture.

* 432 Clay Street (1912). Two stories in height, of reinforced concrete with restrained classical ornamentation. Rated "C" in *Splendid Survivors*.

* The Printers' Building, 500 Sansome Street (Frederick H. Meyer, 1929). Eight stories, of reinforced concrete. It features an ornate Romanesque entrance and a restrained Art Deco top, and is otherwise plain. It was not listed in *Splendid Survivors* due to its altered window sash and possible loss of ornament. However, the present writer, in his 2007 evaluation of a nearby building, noted its history: "Probably the largest printing building ever built in San Francisco. It was built expressly for the printing industry and held thirteen printers plus seven associated businesses in 1936. Many printers remained here at least through 1953."

Description of 425 Washington Street

This brick masonry building is three stories in height and fills its lot, which measures 40'-6" by 99 feet in depth. The first floor contains a chiropractic office (on the Washington Street side) and a restaurant (on the Merchant Street side); and the upper floors contain offices. The front is clad in olive-colored bricks dating to 1967, while the rear is clad variously in original (1907) bricks and stucco, also painted olive.

The symmetrical front facade is divided into two window and entrance bays. In each, the openings rise from the ground floor entrance to the third floor window and terminate in an arched window head. Each bay is surrounded by a single course of bricks that projects three inches beyond the wall plane. Corresponding brick piers near the east and west sides of the facade rise from the ground to a plain cornice that stretches across the top of the building.

Each bay is filled by recessed entrances with polished steel doors and transoms in the first story; windows of steel that is painted red in the upper stories; and spandrels of plaster, painted beige.

The 424 Merchant Street facade is clad in original bricks only at the second story level. Here, three windows are now filled with advertising, while three others have been filled with bricks. A shallow cornice of layered bricks stretches across the top of the second story and is reinforced with tie rods and plates. Both the first and third stories are clad in stucco. Windows in both of these stories have steel frames that are painted red. Those in the first story storefront are large, while those in the third story are small. Two entrances in the first story, both at left, are recessed. They contain steel doors, that to the restaurant with full-length glazing.

Description of 439-445 Washington Street

This building is two stories in height and fills its lot, which measures 47'-5" in width by 99 feet in depth. The construction type is brick masonry. The building contains two ground floor

storefronts, 439 Washington and 441 Washington; plus upstairs offices at #445. While the Washington Street facade is made of new red bricks, the Merchant Street facade is still principally composed of original bricks.

A cornice of three layers stretches across the top of the Washington Street facade. At each layer projecting bricks alternate with narrow recesses, adding texture to the facade. Shallow horizontal courses run along the top and bottom of this cornice composition.

Below, most of the facade is devoted to three large bays, each rising two stories from the ground to a segmental arched head defined by brick courses and dentils. Raised bricks around the perimeters of these bays create the impression of brick piers between them. These bays are filled by windows, entrances to the storefronts and offices, and signage. They are described below:

In the second story, each opening is filled by a window whose metal sash is divided by muntins into smaller lights. The frieze area between the stories is devoted to signage.

In the first story, the bay at left is filled by a door, transom, and a window, all of glass set in metal frames. These serve the storefront at #439. The middle bay is devoted to signage. The bay at right has paired wooden doors opening into the storefront at #441, and a wooden door with full-length glazing serving the second floor offices (#445). The entrances are slightly recessed within the building envelope and have concrete floors.

By stepping into these recessed entrances, one may observe the contrast between the original bricks of 1906-1907 and the newer bricks of 1967. The newer bricks of the facade are smooth, while the older bricks, in the visible side walls, have rougher texture and a darker hue.

The rear facade appears to be made of older red bricks, many or most of which show clear evidence of having been sandblasted. An extremely shallow cornice of layered bricks stretches across the top. In the second story six rectangular windows -- a group of three at left and a group of three at right -- pierce the wall. Each is topped by a rectangular panel colored bright blue-green. Panels such as these are unique to this building in San Francisco, and they may be an alteration. The sash within each window is made of the same metal as those in the Washington Street facade.

The first story is pierced by four large, evenly-spaced openings, each with segmental arched heads. Three of them have low sills and are now filled with flat stucco; they must have originally been windows or loading docks. The fourth opening, at far left, has a recessed entrance protected by a steel grille. Within, a glazed wooden door leads to the second floor offices and paired solid wooden doors serve the storefront at 441 Washington.

A non-original covering of unknown material spans the width of the building at the second floor area.

History

The Produce district, and the 400 block of Washington Street (south side)

San Francisco's Produce district was along Sacramento, Clay, and Washington streets, and on the adjacent blocks of Front, Davis, and Drumm. It was present before the earthquake and fire of 1906, was rebuilt in the same locale afterward, and persisted until it was demolished in 1963 to make way for the Golden Gateway Center. It then moved to new buildings in the Bayview district.

Dozens of growers of produce and other food items, wholesale buyers and sellers, and commission merchants occupied the two and three-story brick buildings in these blocks for about fifty-six years. The streets were congested by trucks that parked in front of buildings to deliver and pick up produce. Because of the demand for space, some produce dealers and commission merchants overflowed onto adjacent blocks to the west, to Battery and even to Sansome streets.

The south side of the 400 block of Washington Street was also composed of two and three story brick buildings, and during the first half of the 20th century these also housed a small number of wholesale meat and produce businesses. They also housed many other kinds of businesses, including manufacturing, dealers in supplies, and restaurants. General retail shopping (including stores of dry goods, clothing, furniture, and other household items) and offices were typically not located here.

The uses in this area changed little until the 1960s. In that decade the Produce district was replaced by the Golden Gateway Center, and Washington Street was widened to facilitate traffic from the Embarcadero Freeway (which had on and off-ramps at Clay and Washington streets). Widening Washington Street along its north side, where the Custom House and the Appraiser's Building were, was probably never considered. Instead, about eighteen feet were removed from the fronts of buildings along the south side of Washington Street, including from the two subject buildings.

History of 425 Washington Street

Construction and early ownership

This building was built during 1906-1907 for owner Rudolph Jordan. The architect was S. H. Woodruff, and the contractor was the Woodruff Company, which also built 439-445 Washington at the same time.

Rudolph Jordan came to California in 1849 and proceeded to Tuolumne County, where according to his obituary he mined gold successfully and "had many exciting adventures." He then opened a commission business in Sacramento, next moved to San Francisco, then went abroad, and returned to San Francisco permanently in 1875. By this time, it appears, he lived mainly off of

real estate investments. He owned several properties in San Francisco before the earthquake and fire of 1906, including at least two downtown, one on the site of 425 Washington Street. He also co-founded a mining company, and in 1891 was sued by an investor for fraud concerning a supposed gold mine in British Columbia. During the 1870s he was a vice-president of the German Hospital, and he was otherwise active in German social life in San Francisco.

In 1906-1907 he rebuilt on the site of his pre-earthquake building at 425 Washington. He died in 1910, aged 92, after years of illness. His estate continued to own this building until 1922.

Description of the building in 1957

An Assessor's photograph at the San Francisco Public Library, taken in 1957, shows what the facade of this building looked like before it was truncated ten years later. The surface bricks were painted. A simple, layered cornice stretched across the top. Second story windows were rectangular and were arranged as two groups of three. The ground floor had been generally remodeled in stucco, with large plate glass storefront windows, by 1957. At far left was an entrance leading to the staircase to the second floor. This entrance had a variation of an ogee arch at the top. The storefront entrance was recessed, with paired doors.

The third story, which had been added in 1928, was recessed from the front by a foot or two. It had a stepped parapet and two large windows divided by muntins into many lights.

Addresses of this building

The original address of this building was 425 Washington Street, which it remained through 1910. From 1913 to 1919 the address was 429-433 Washington, but from 1920 on it has always been 425 Washington.

Uses and occupants of the building

1907-1910: This was the laboratory of Abbot A. Hanks, assayer and chemist. Hanks was the son-in-law of Rudolph Jordan, his landlord. His father, Henry G. Hanks, founded the Pacific Chemical Works in 1866; it was a business that supplied chemicals and also served as an assayer. Henry Hanks also was the first State Mineralogist of California, founded the State Mineral Collection (still in existence), and was head of the State Mining Bureau from 1880-1886, among many other accomplishments. His son Abbot began working for him in 1888 and took over the chemistry and assaying business in 1896. From 1888 to 1899 the laboratory was at 718 Montgomery Street, a building that still stands in Jackson Square (now numbered 716-720 Montgomery). He next moved to 531 California, which was destroyed in 1906, hence Hank's need for a new laboratory at 425 Washington in 1907. His business incorporated in 1924, becoming owned mainly by his employees, and continued in existence at least into the 1960s.

1911-1915: Unknown occupants

1916-1919: Casini Poultry Company, New California Poultry Company, San Francisco Poultry Company. This wholesale poultry business was owned by Antonio Casini under different names during these years. It also dealt in butter, cheese, and eggs.

1920-1928: Harbaugh Poultry Company. Owned by Van O. Harbaugh (president), G. Odell Harbaugh (vice-president), and Florence Harbaugh (secretary), this wholesale firm sold whole, live, and dressed poultry, and eggs. The Harbaughs purchased the building from Rudolph Jordan's estate in 1922 and continued to own it through 1942. They added the third story in 1928.

1929-1940: Corriea Brothers, wholesale eggs and live and dressed poultry. In the early 1930s Charles Corriea was the president, and George Corriea was the vice-president and secretary. In 1940 the officers were Charles Corriea, Charles Corriea, Jr., and C. J. Ward.

Thus, this building held wholesale poultry firms for 24 years (1916-1940).

1942-1959: Consolidated Fisheries. This wholesale and retail fish business was owned by Ignacio Alioto (president), Salvatore Alioto (vice-president), and L. F. Hubbard (secretary-treasurer) during these seventeen years. The 1950 Sanborn map labels this building as a restaurant, and the 1957 Assessor's photograph shows signage for seafood cocktails, as well as Hamm's, Pabst, Lucky Lager, and Burgermeister beers, so evidently a lunch counter was part of this business then.

Ignacio Alioto and his wife owned the building from 1942 to 1969, and many other family members were part owners from then to 1998.

1960-1965: Tom Lazio Fish Company. Previous to 1960 Lazio had been the vice-president of the F. Alioto Fish Company at 440 Jefferson Street. This Alioto was no known relation to Ignacio Alioto of 425 Washington, nor to the Aliotos who owned the famous restaurant at 8 Fisherman's Wharf.

Thus, this building held wholesale fish firms for 23 years (1942-1965).

After this building was truncated for the widening of Washington Street, and its front was rebuilt, in 1966-1967, occupants included:

1967-1972: Copy Cats Lithographers.

1973-1974: Vacant

1975-1982: Sound Systems and Audio Excellence, two audio sales businesses.

History of 439-445 Washington/440 Merchant

Construction and early ownership

This building was built during 1906-1907 for owner Helen Stanford. The contractor was the Woodruff Company, and while the building permit did not list an architect, the building must have been designed under the supervision of S. H. Woodruff.

Helen Stanford (1830-1909) was the widow of Josiah Stanford, who was the brother of the “Big Four” railroad magnate Leland Stanford. For about forty years she had lived in Warm Springs, now a part of Fremont, where she and Josiah had extensive land holdings. They also owned property in downtown Oakland. Clearly, 439-445 Washington Street was merely one of her real estate investments.

She had also owned the building on this site before the earthquake and fire of 1906. It was also a two-story brick building and in 1899 it was occupied by commission merchants. There is no doubt that the current building on this site was a replacement for the pre-1906 building, instead of being a survivor. Maps showing the burned area in 1906 clearly show that Washington Street was the dividing line between the area that burned (to the south) and buildings that survived the fire (today’s Jackson Square and the Appraiser’s Building, to the north).

Helen M. Stanford’s estate continued to own and rent out this building until 1927. Owners over the next seventeen years were the Commercial Center Realty Co. (1927-1930) and James Basch (1930-1944). Basch managed and lived in the Bertram Apartments at 632 Hyde Street. He seems to have owned this building solely for income.

Description of the building in 1957

An Assessor’s photograph at the San Francisco Public Library, taken in 1957, shows what the facade of this building looked like before it was truncated ten years later. It was similar in appearance to its neighbor at 425 Washington, which had had the same architect and builder. The surface bricks were painted (or perhaps clad in stucco). A simple, layered cornice stretched across the top. Second story windows were rectangular and were arranged as two groups of three. Instead of a lintel, it appears that an incised recess could be found over each window. In all likelihood shallowly-projecting brick lintels once existed but had been shaved away at some time.

There were two storefronts, one at left for the Rainbow Club (#439) and one at right for the Fulton Paper Company (#441). The Rainbow Club’s storefront windows had clearly been altered before 1957, while the storefront of the paper company was closer to intact, with a great deal of glassy area. At far right was a narrow, recessed entrance (#445) leading to the second story loft.

The flanking buildings to the east (#425) and west (#447-453) were very similar to this one -- brick buildings with simple cornices, narrow upper story windows, and minimal or no ornament. Farther east, the corner building at 401-423 Washington was more architectural in its appearance, with a classical cornice and a shaped parapet. In brief, this was a typical block of small, unpretentious brick commercial buildings similar to those in the nearby Produce district, in parts of Jackson Square, and in other areas just north of the city's Financial district.

Addresses of this building

This building has usually had two ground floor storefronts and a second floor loft space. The address during 1907-1908 was 435-445 Washington. Through the 1910s and most or all of the 1920s the storefront addresses were 441 and 443, while afterward they were 439 and 441. The entrance and staircase to the loft space was always at 445 Washington, and during 1927-1947 the loft also had the address 440 Merchant.

Uses and occupants of the building

1907-1908: Cerruti Mercantile Company (Edward and Peter Cerruti) rented the storefront at 435 Washington. The city directory does not say what the firm sold then, but a later newspaper story on Edward Cerruti reveals this Italian immigrant sold cigars and wines at other locations before and after these years; so he probably did here, too.

1907: Paul Rieger and Company, manufacturers of flavoring extracts and perfumery, rented the other storefront in this building. He later moved his business to First Street and worked as a clerk in 1910.

1907-1909. Charles O'Connor, notary public, occupied a portion of the loft at #445 as his office. He seems to have leased the entire second floor and sub-let the balance of it to the shirt factory listed below.

1908: Quong Lung, shirt factory, in the second floor loft. In June the loft was divided into four rooms and a kitchen, with a new skylight and furnace, for this use. It appears likely that Chinese workers lived in this space.

1910-1923: Schiaffino, Musante, and Company (later, Schiaffino and Co.), wholesale groceries, at #443.

1924-1931: Vittorio Traverso and Co., wholesale groceries (first at #441, later at #443).

1913-1943. A cigar factory occupied the second floor loft at 445 Washington/440 Merchant. It was known as the Nevada Cigar Company and the proprietor was Doo Lee (sometimes listed as Lee Doo) during 1927-1943. The proprietor's name before 1927 is unknown. It appears that some Chinese workers lived in this space. This cigar business never advertised in the classifieds

of city directories and so must have sold its product to an established clientele of retail dealers. The 1950 Sanborn map lists the same use here, but it is not certain that the business lasted past 1943.

1936-1964. Fulton Paper Company, proprietor Renaldo J. Olivi, at #441. This wholesale firm sold wrapping papers. Its primary customers may have been the produce and poultry dealers in the nearby Produce district. It did not remain much past the closing of this district in 1963.

1944-1968. The Rainbow Club, a restaurant, at #439. The first owners were Alf Barsotti and Samuel Ferroni. In 1953 the owners were Louis Columbano and Joseph Luccese. A newspapers search reveals only that this restaurant served continental cuisine in 1961. It survived the truncating and construction of a new facade in 1967, though only by two years. (Note: The Barsotti family owned this property during 1944-1992, and the Columbanos owned it during 1992-2015).

1953-1954. Alfred L. and Edna A. Lemos, bookbinders, at #445. Lemos also sold paper rulers from the printers' building at 500 Sansome Street nearby.

1968-1993. Sansome Photos, photographers, at #439; proprietor Herbert H. Simmons (1921-2011). Simmons' obituary on the SF Gate website gives an account of his dramatic survival and travels as a Jewish refugee from Nazi Germany. Its mention of his photography business is brief: "Given his mechanical aptitudes, Herbert apprenticed himself in a photography business on Sansome Street, which he later bought and owned until he retired." No references to Simmons as a fine arts photographer could be found.

1970-1971. 441 Restaurant, at #441.

1973-1981. The European Farmer, a restaurant, at #441.

1982-1989. The Iron Pot, a restaurant, at #441. Because this restaurant was well-known at its previous location, it is discussed at some length below.

1993-2015. Il Massimo del Panino, an Italian restaurant, at #441.

1993. Wells Fargo Bank occupied the storefront at #439 in that year, and probably did so for some time thereafter.

1969-present. Office use of the second floor. A building permit that documents the remodeling of this space for office use is dated 1969. Multiple businesses have usually occupied this space at a given time, and the occupants changed frequently. They included Carrol and Reed, Inc. (1971), Trafco Freight Consultants (1971), Richard J. Smart and Associates (1971), Advance Systems Consultants, computer consultants (1971), Rockey-Peterson Public Relations (and its successor firm, 1976-1978), Chiat-Day Advertising (1976), California Association of Utilities

(1978), Rivkens Mal Advertising (1978), CIS Equipment Leasing Company (1980-1982), immigration lawyers (present) and Hispanic defense lawyers (present).

The widening of Washington Street and the shortening of these buildings in 1967

Several years after the Embarcadero Freeway was completed, Washington Street and Clay Street were widened in order to accommodate traffic to and from its on and off-ramps. The south side of Washington Street, between Sansome and Battery, was widened by 23 feet in 1967. To accomplish this widening, the two buildings at the corners were demolished, and two other buildings, 425 and 439-445 Washington, were shortened. The fronts were sliced off, and new facades were built onto these two buildings.

The architect for the new work at 425 Washington was Harada and Meu and the engineer was Russell H. Fuller, both of San Francisco. The architect for the new work at 439-445 Washington was Gilbert L. Oliver. These architects are profiled below.

The architects of these buildings

S. H. Woodruff, the original architect of 425 and 439-445 Washington Street

Sidney H. Woodruff (1876-1961) worked as an architect and builder in Buffalo, New York before moving to San Francisco immediately after the earthquake and fire of 1906 to participate in the rebuilding of the city. He provided complete services, including architectural design and engineering, under his name as architect; and construction, as the Woodruff Company. For two years, 1906-1908, he and his staff were busy in the design and construction of commercial buildings.

His works included the Santa Marina Building, at the northeast corner of California and Drumm (1906-1907; demolished); 33 Sutter Street (1906-1907); the Dividend Building at 348-354 Pine Street (1907); 77 Battery Street (1907); the New Mission Bank, 3060 Sixteenth Street (1907); the First United Presbyterian Church at 1455 Golden Gate Avenue (1907); and the Bellevue Hotel, 505 Geary Street (1908). The default style for all of these was Classical Revival, and it was occasionally carried out with conviction. The lower two floors of the Dividend Building, designed in a Doric order, is the best of these. The mansard roof of the Bellevue Hotel, and the pediment of the New Mission Bank, are also pleasing. Mostly, though, Woodruff's work was uninspired.

During these two years Woodruff was involved in lawsuits that severely questioned his ability, experience, and honesty. The owner of the Bellevue Hotel charged that Woodruff had estimated the cost of its construction at half the true cost in order to get the commission to build it.

In 1911 Woodruff headed a group that wanted to resume blasting at the former Gray Brothers' quarry at 26th and Douglass streets, and met vigorous opposition from nearby residents. In 1912

he moved to New York to accept a new position that did not work out and that led to another lawsuit. He next moved to Arizona, where he hoped to bring underground water at the Gila River to the surface for irrigation. He moved to Los Angeles in 1918, and there met with some success. In 1923 he was part of a syndicate that developed Hollywoodland, a tract of fine houses designed by architect John DeLario in French Norman, Tudor, Mediterranean and Spanish styles. The original “Hollywoodland” sign was erected to advertise these houses. (The sign became deteriorated, the last four letters were removed, and in 1978 it was reconstructed as today’s famous Hollywood sign.) The Dana Point (Orange County) development began well, but only thirteen houses were built before construction stopped due to the stock market crash. Woodruff and his Dana Point partners limped on for a decade before going bankrupt in 1939. No work of his after that date is known.

Harada and Meu, architects of 425 Washington Street’s new facade

George Meu graduated with a B. Arch. from the University of California in 1938, worked briefly for Richard Neutra in the same year, became registered as an architect in 1948, and had his own architectural office from 1952 to 1958. In the latter year he became partners with Walter Harada, who had previously worked as a designer and architect. They remained together as Harada and Meu at 575 Mission Street until 1968, after which George Meu worked on his own again through at least the 1980s. The firm is still in existence as George Meu and Associates, under principal Lester Meu, in Oakland.

No references to their work could be found in several architectural guides to San Francisco that include modern-era buildings. However, an internet search does identify several works by Harada and Meu. The largest was an expansion of the Nugget casino in Sparks, Nevada, in 1961-1962. This expansion included a 500-seat theater and restaurant plus Roof Garden “roomettes.” Other known works by this firm were restaurants -- the Blue Fox and Yamato Suki-Yaki House in San Francisco, and the Coral Reef Restaurant in Hawaii. One residence by Meu, at 561 Marina Boulevard (1957) is known.

Gilbert L. Oliver, the architect of 439-445 Washington Street’s new facade

Gilbert Lee Oliver (b. 1933) served in the U. S. Navy, attained a bachelor of architecture degree from Stanford University in 1956 and a graduate degree from the University of Oklahoma in 1959, and worked in San Francisco as an architect for the firm of Knorr and Elliot in 1961. He began working on his own in 1962 and was last listed in telephone directories in 1998. For many years his office was in the Mechanics’ Institute building.

No references to him or his work could be found in several architectural guides to San Francisco that include modern-era buildings. An internet search lists one house that was designed by him, at 101 Maple Street (1971). The internet also lists these commercial works by Oliver (in San Francisco, unless otherwise indicated):

Coffee Cantata (1967)

Patisserie Edelweiss (1968)

Trans-World Airlines ticket office (1968-1969). Note: TWA had four ticket offices in downtown San Francisco in 1971. Which one was by Oliver is unknown.

Perry's restaurant (1969)

San Mateo Mutual Savings and Loan building, in Burlingame (1969)

It seems likely that most of these were remodelings within existing buildings.

The Iron Pot restaurant, at 441 Washington during 1982-1989

The Iron Pot was founded as the Florence Restaurant in 1928 at 639 Montgomery Street. From the beginning, and continuing into the 1980s, the proprietors were Italian or Italian-American and served mainly Italian cuisine. The change in name to The Iron Pot was gradual. Certainly by 1946, and probably earlier, that name was commonly used. A 1940s or 1950s menu (viewable on the internet) used both the "Florence" and "Iron Pot" names. The restaurant then served Italian food, seafood, beef and pork dishes, wine, and cocktails. City directories continued to use the Florence Restaurant name until 1948-1949 and switched to The Iron Pot only in 1951.

The restaurant became a hangout for Bohemian or artist types, just as other Italian restaurants -- Sanguinetti's, Campi's, and Coppa's -- had a generation earlier. In his book *Baghdad-by-the-Bay* (1951), Herb Caen mentioned The Iron Pot along with the Black Cat and No. 12 Adler Place as the city's three "arty" restaurants. At The Iron Pot this came about when the French entrepreneur Henri Lenoir, for a salary plus a one-third cut of the sale price, organized shows and sales of modern paintings by local artists. This was during 1941-1946. Among the artists that Lenoir promoted, and who later became well-known, were Hilaire Hiller, Charles Surrendorf, Dong Kingman, and Hassel Smith. Once "outsiders" began to visit the place to see the art and the artists, the menu posted this information: "Notice to tourists: The bohemian atmosphere here is strictly phony. For real bohemian atmosphere go to Bohemia. The male customers who need haircuts are not artists. The paintings here are for sale. Limit: one dozen to a customer. But don't ask the help to explain them to you. They don't understand them either."

Much later, in 1980, Allan Temko wrote an article about Lenoir and mentioned The Iron Pot, which was then still at 639 Montgomery: "The present owners, serving a new clientele, prefer photographs of baseball players to avant-garde paintings. The murkily lit dining room seems as remote from the vanished Iron Pot...."

As the result of a proposed new high-rise, the proprietors of The Iron Pot moved the restaurant from 639 Montgomery to the subject building, re-opening in April 1982.

Despite a search of historic literature on San Francisco and the internet, only one reference to The Iron Pot at 441 Washington Street could be found: in his column of May 16, 1984 Herb

Caen mentioned that it was the latest hang-out of Joe DiMaggio. No other references regarding its atmosphere, events, or cuisine could be found.

Regarding commercial buildings that evoke Bohemian or artists' hangouts in San Francisco from the 1940s-1950s, the best examples may be 708 Montgomery Street (where the Black Cat was located); Vesuvio's, at 255 Columbus Avenue; Spec's, at 12 Adler Place; and Caffè Trieste, at 609 Vallejo Street. The last three of these are still in business as bars and a coffee house.

Integrity

Because these buildings would have potential for historic significance if their early appearances were retained, their integrity is being discussed here.

For the period 1907-1966:

Both buildings retain integrity of location. Both have lost integrity of design, materials, workmanship, feeling, association, and setting as a result of the widening of Washington Street and the construction of new facades in 1967. Regarding the rear facades on Merchant Street, only the second story of 425 Washington remains intact, and three windows in that story have been filled in. At 439-445 Washington, the Merchant Street facade also remains partially intact, but its second story window sash has been altered, three of the first story openings have been filled in, and doors in the remaining opening have been altered. The lintels above the second story windows also do not appear to be original. Thus, for each building, the Merchant Street facade, which was a secondary facade to begin with, is not intact enough to overcome the complete remodeling of the Washington Street side and to thus convey the pre-1967 aspects of each building's history.

For the period 1967:

For both buildings, the Washington Street facades are probably mostly intact as built in 1967. At 425 Washington, the polished steel doors and transoms may, or may not, be original, but the balance of the facade, including the brickwork and spandrels, probably is.

At #439-445, the brickwork also remains unchanged. Whether its metal window sash (in the second story) and metal storefront frames (in the bay at left) also date to 1967 is unknown, but it seems likely that they do. The coloration and materials of the signage in the middle bay and along the second floor level have most likely been changed frequently. The doors in the bay at right (a pair of solid doors and a wooden door with glazing) are dissimilar, and at least one of these is probably the result of a change since 1967.

On balance, the 1967 facades of both buildings should probably be considered to retain integrity in all areas -- location, design, materials, workmanship, feeling, association, and setting -- though integrity of materials in the openings may be somewhat diminished.

Evaluation of 425 Washington Street

Evaluation under Criterion 1 of the California Register: Resources that are associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

This building housed wholesale poultry and fish businesses for 50 years, from 1916 through 1965, and thus was related to the wholesale Produce district to the east, which was demolished in 1963. Because the Produce district was very important in San Francisco's history, and because 425 Washington is one of the few buildings in downtown San Francisco that shares that history, this building would be eligible for the California Register if it retained integrity. However, its integrity is extremely low for the period it held such businesses, and thus this building is not eligible for the California Register under this theme.

This building was one of many small brick commercial buildings that were built north of the Financial district during the several years after 1906. The great majority of such buildings that once stood have been demolished since the 1950s. A moderate number still stand to the southwest (around Commercial, Leidesdorff, Clay, and Sansome streets), to the northwest (in Jackson Square), and to the north (in the block bounded by Jackson, Battery, Sansome, and Pacific streets). Because a fair number still stand, and because this building lacks integrity for the period before 1967, it is not eligible for the California Register under this theme.

No other historical themes related to this building come to mind. Thus, the building does not appear to be eligible for the California Register under Criterion 1.

Evaluation under Criterion 2 of the California Register: Resources that are associated with the lives of persons important to local, California, or national history.

One person of some note had a business in this building: Abbot A. Hanks, a chemist and assayer whose laboratory was in this building during 1907-1910. His father, Henry G. Hanks, however, had a statewide reputation and was much more important in this field. A building in Jackson Square at 716-720 Montgomery, where their laboratory was located during 1888-1899, retains good integrity and represents their history in ways that the heavily altered subject building cannot. Thus, this building cannot be eligible for the California Register under this theme.

The owners of the various poultry and fish businesses at this address do not appear to have been especially important in their fields, and at any rate this building has lost integrity for the period they were here. Post-1967 occupants are unknown by name, and at any rate their history here is only fifty years old or less.

For these reasons, this building does not appear to be eligible for the California Register under Criterion 2.

Evaluation under Criterion 3 of the California Register: Resources that embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master, or possess high artistic values.

The original facade of this building lacked distinction, and at any rate has been removed. The mostly surviving rear facade also lacks distinction. Thus, the building is not eligible for the California Register under this criterion for its original architecture.

The 1967 facade survives mostly intact. Its best features are 1) the original second story cornice of layered bricks on the Merchant Street facade, and 2) on the main facade of 1967, the tall bays outlined by a course of bricks. These are fairly minor design elements; other notable features are lacking; and overall, the design lacks distinction.

For these reasons, and because the architects of the 1967 re-design, Harada and Meu, are very little-known in San Francisco's architectural history, this property does not appear to be individually eligible for the California Register under this criterion.

Evaluation of 439-445 Washington Street

Evaluation under Criterion 1 of the California Register: Resources that are associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

This building housed wholesale groceries businesses for 21 years, from 1910 to 1931, and thus could have been considered part of the Produce district to the east, which was demolished in 1963. It also housed a Chinese-owned cigar factory for over thirty years, a wholesale paper business (for 28 years), and shorter-lived businesses.

It was thus a typical small brick commercial building housing wholesale and light-manufacturing businesses, one of many that were built north of the Financial district during the several years after 1906. The great majority of such buildings that once stood have been demolished since the 1950s. A moderate number still stand to the southwest (around Commercial, Leidesdorff, Clay, and Sansome streets), to the northwest (in Jackson Square), and to the north (in the block bounded by Jackson, Battery, Sansome, and Pacific streets).

Because buildings of this type once occupied a large percentage of downtown San Francisco, and are now few in number; and because they housed most of the city's wholesale and many of its light industrial businesses; survivors with high integrity have a strong potential for historical significance under this criterion. The Period of Significance would be wide, from the 19th century through the 1930s. This building, however, has very low integrity for the period before 1967. Thus, it does not appear to be eligible for the California Register under this theme.

This building also housed many restaurants from 1944 through 2015. The longest lasting was the Rainbow Club, which was not renowned and which at any rate lasted for only two years after the front of the building was rebuilt. It also housed The Iron Pot from 1982 through 1989. This restaurant had been renowned at its original location on Montgomery Street, but was not nearly as well-known at its Washington Street location. At any rate, that history is fairly recent. Thus, this building does not appear to be eligible for the California Register for its restaurant-related history.

The longest-lasting business in this building after the front was changed was Sansome Photos, here from 1968 to 1993. This business was not known for fine art photography nor historically important in other ways. Thus, this building does not appear to be eligible for the California Register for its photography-related history.

No other historical themes related to this building come to mind. Thus, the building does not appear to be eligible for the California Register under Criterion 1.

Evaluation under Criterion 2 of the California Register: Resources that are associated with the lives of persons important to local, California, or national history.

No historically-significant persons are associated with this building in meaningful ways. Herb Caen once wrote that Joe DiMaggio had made The Iron Pot his “latest” hang-out in 1984, but many places in San Francisco are associated with DiMaggio, most significantly his various residences. Thus, this building does not appear to be eligible for the California Register under this criterion.

Evaluation under Criterion 3 of the California Register: Resources that embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master, or possess high artistic values.

The original facade of this building lacked distinction, and at any rate has been removed. The mostly surviving rear facade also lacks distinction. Thus, the building is not eligible for the California Register under this criterion for its original architecture.

The 1967 facade survives mostly intact. Its best features are 1) the layered cornice where projecting bricks alternate with recesses, and 2) the raised course of bricks that line the perimeter of each large bay, and which creates an impression of piers between each bay. On the other hand, the areas within the openings -- containing windows, storefronts, signage, and entrances -- are poorly done, of inexpensive materials. These areas make up a large percentage of the overall facade.

For this reason, and because the architect, Gilbert L. Oliver, is essentially unknown in San Francisco's architectural history, this property does not appear to be individually eligible for the California Register under this criterion.

Investigation of a potential historic district in the vicinity

In November 2016 the author of this report walked the area surrounding the subject building and to the east of the Jackson Square historic district. The purpose was to determine whether 439-445 Washington should be considered to fall within a historic district; more specifically, whether Jackson Square could be extended to include the building. The discussion below is arranged by square block. Recommended additions to the Jackson Square historic district are in red. (Please see a map of the area that illustrates the findings, below.)

** The block bounded by Jackson, Pacific, Battery and Sansome streets. This block should qualify as an extension of Jackson Square.* Eight of the ten buildings in this block would be contributors to the district. At least two of the contributing buildings are important: The O. W. Nordwell warehouse at 633 Battery (Sutton and Weeks, 1906), and the Legallet Building at 603-615 Battery (Albert Pissis, 1906).

** The block bounded by Pacific, Broadway, Battery, and Sansome streets. Most of this block should qualify as an extension of Jackson Square.* Only the northernmost lot (along Broadway) and 735-749 Battery should be excluded.

** The block bounded by Pacific, Broadway, Front and Battery streets. Only one building, the Old Ship Saloon at 298 Pacific, should be included within an extension of Jackson Square.*

** The block bounded by Jackson, Pacific, Front, and Battery streets.* It is possible, but doubtful, that Jackson Square should be extended to include this block. Four of the six buildings on Front Street could qualify as contributors to the district. Wrapping around them, however, is a lightly-ornamented, two-story reinforced concrete building at 600-650 Battery/653 Front (1927) that occupies half the block. Unless the character-defining features of Jackson Square are broadened to include reinforced concrete buildings from the 1920s, this building should not count as a possible contributor, and the block should be excluded from the district.

** The block bounded by Washington, Jackson, Battery and Sansome streets.* This block contains two buildings owned by the Federal government: the five-story Beaux Arts-styled Custom House (1906-1911) and the high-rise Moderne-style Appraiser's Building (Gilbert Stanley Underwood, 1940). The Appraiser's Building acts as a major visual barrier between Jackson Square and the Custom House. Additionally, the Custom House is a major civic building that itself is out of scale with the smaller commercial buildings in Jackson Square. It is already listed individually on the National Register. For these reasons, it seems best to exclude this block from an extension of Jackson Square.

* *The block bounded by Clay, Washington, Sansome, and Montgomery streets.* The four buildings on this block include the Transamerica Pyramid (1971), another high-rise at 505 Sansome (1978), and 501-505 Washington (one-story; 1977). Thus, Jackson Square could not be extended to include this block. The only older building here is a reinforced concrete mid-rise lacking in ornamentation, the California Ink Company Building at 545 Sansome Street (Willis Polk and Company, 1930). In a 2007 evaluation this writer found it to be eligible for the California Register for its printing history. It would not, however, be a contributor to Jackson Square.

* *The block bounded by Clay, Washington, Battery, and Sansome streets,* which includes the subject building, 439-445 Washington. Of the eight buildings in this block, only two could qualify as contributors to an extended Jackson Square district: 447 Battery Street and 432 Clay Street. These two are so far separated from Jackson Square that they could not be plausibly included in that district. The same is true for a handsome, reinforced concrete mid-rise at 500 Sansome Street (Frederick H. Meyer, 1929). It could be considered historic in its own right, for its printing industry history (see its description on page 4 above), but probably could not be considered as a contributor to Jackson Square.

To summarize:

The only way the Jackson Square historic district could be extended to include part of the subject block would be to include the block containing the Appraiser's Building and the Custom House in Jackson Square; and then to extend the district further south to include 401-423 Washington (as a non-contributor) and 447 Battery (as a contributor). Since the Appraiser's Building and the Custom House should probably not be included in Jackson Square, such extension of the district seems implausible. Even if this was done, the altered buildings at 425 and 439-445 Washington would not be in the enlarged district.

In sum, the subject building cannot plausibly be considered to lie within an extended Jackson Square. It is, however, across the street from the U. S. Custom House, which is on the National Register.

References

1894, 1901, 1906, 1909 block books, at the San Francisco History Center, Main Library. The owners' name are given as Rud Jordan and Helen M. Stanford, respectively, for each year.

Sales Ledgers 1914-1999 for sales of these properties. At the Recorder's Office, City Hall.

San Francisco city directory listings 1907-1982 for occupants and owners of these buildings, and for the Florence Restaurant and The Iron Pot at 639 Montgomery.

San Francisco city directories 1850s-1960 for Henry G. Hanks, Abbot A. Hanks, and their businesses at various locations in San Francisco.

1899 Sanborn insurance map, volume 1, page 18.

1913, 1929, and 1950 Sanborn insurance maps, volume 1, page 24.

Building permits for 425 Washington Street. At the Department of Building Inspection, 1660 Mission Street.

Permit #4111, October 1906. Original permit to build. Owner: R. Jordan. Architect: S. H. Woodruff. Contractor: The Woodruff Company. \$15,000.

Permit #68253, March 1916. Replace flooring, remove partitions, repair glass, plaster, and roof. Owner: Jordan Estate.

Permit #72438, October 1916. Change window glass in #s 429 and 435. Put doors in entrance.

Permit #169721, April 1928. Add third story. Owner: Harbaugh Company. Contractor: A. Legault. \$6,000.

Permit #32818, Feb. 1938. Fill all openings in partition walls with brick.

Permit #67919, Feb. 1942. Interior alterations for use as a fish market. Owner: I. Alioto.

Permit #71680, May 1943. Reinforce floor, build refrigerator ceiling. Owner: Consolidated Fisheries.

Permit #165773, June 1954. Install steel beams. Engineer: L. F. Robinson.

Permit #328676, April 1966. Remove all interior partitions.

Permit #337733, Dec. 1966. Remove northerly 23' of building. Add new floor structures; brick veneer and plaster front; new freight elevator. Owner: Joe Alioto. Design: Harada and Meu. Structural engineer: Russell H. Fuller. Use: Vacant. Proposed use: blueprinter.

Permit #348876, October 1967. Interior partitions for Copy Cat.

Permit #8500225, Jan. 1985. Interior improvements (ceilings, partitions, mechanical, etc.)

Permit #8505100, June 1985. Brace parapets.

Permit #8507857, Sept. 1985. Same as January 1985, above.

Note: The owner in December 1966 was listed as Joe Alioto. There were multiple Joseph Aliotos in San Francisco at the time. Per a title search, this was Joseph I. Alioto, not the future mayor of the city, Joseph L. Alioto.

Building permits for 439-445 Washington Street. At the Department of Building Inspection, 1660 Mission Street. All permits in this address range were searched.

Permit #17469, June 1908. Partition loft into four rooms for a shirt factory. Add a kitchen, skylight, and furnace. Owner: Quong Lung, of 445 Washington.

Permit #77899, October 1944. Two new entrances (for the Rainbow Club).

Permit #214539, August 1958. Remove sidewalk door.

Permit #78871, Jan. 1949. Neon sign for Rainbow Club.
Permit #241449, October 1960. Sign for Rainbow Club.
Permit #254069, August 1961. Remodel dining room of Rainbow Club.
Permit #344202, June 1967. Remove and set back front of building to make way for widening of Washington Street. Convert top floor from loft to offices. Expand restaurant to occupy all of ground floor. Owners: Mr. and Mrs. Alfredo Barsotti. Architect: Gilbert Oliver. Contractors: Lambert and Wells. (Permit attached.)
Permit #356449, May 1968. New partitions for dark room (Sansome Photos). Owner: H. H. Simmons.
Permit #362413, October 1968. Sign for Sansome Photo.
Permit #355333, January 1969. Partitions in second floor.
Permit #377111, November 1969. Bar and restaurant fixtures, kitchen plumbing, etc. (for the 441 Restaurant).
Permit #377948, December 1969. \$500 of work (illegible) for second floor offices.
Permit #382198, October 1974. Sign for European Farmer restaurant.
Permit #781673, November 1978. Interior work for second floor offices.
Permit #8404509, April 1984. Partitions for second floor offices.
Permit #8507892, October 1985. Brace existing parapet walls.
Nine permits in 1993. Sign and interior work for Massimo restaurant, sign and ATMs for Wells Fargo Bank, "URM upgrade," re-roofing, more signage, replace sheetrock.

Articles pertaining to 425 Washington Street:

"Another Pioneer Summoned by Death." *San Francisco Chronicle*, July 27, 1919, p. 10. Obituary of Rudolph Jordan.

"An Alleged Mining Swindle." *San Francisco Chronicle*, August 19, 1891. Rudolph Jordan is sued for \$5,000 over a fraudulent British Columbia mine.

San Francisco Call, May 11, 1908, and other issues: Advertisements for Abbot A. Hanks, assayer and chemist, at 425 Washington Street.

San Mateo Times, October 13, 1961; and *Reno Gazette-Journal*, July 2 and September 8, 1962. Articles on the expansion of the Nugget casino by Harada and Meu. Their other works are also mentioned.

Mary Brown. *San Francisco Modern Architecture and Landscape Design, 1935-1970, Historic Context Statement*. San Francisco Department of City Planning, 2010. For information on George Meu and Associates.

Articles pertaining to 439-445 Washington Street:

San Francisco Examiner, September 28, 1906, page 5. Building contract for this 443-445 Washington. The owner was Helen M. Stanford, the contractor was the Woodruff Company, and the construction cost was \$5,000.

Edward's Abstracts from Records, April 1 and 13, 1907, documented the completion of #439-445.

"An Italian Boy's Successful Struggle...." *San Francisco Chronicle*, January 6, 1914, p. 22. On Edward Cerruti, of the Cerruti Mercantile Company.

"Mrs. Helen M. Stanford is Called by Death." *San Francisco Call*, May 21, 1909.

"Herbert Simmons." Obituary, SF Gate website. From the *San Francisco Chronicle*, December 11, 2011.

George Green. "The Enduring Henri Lenoir." *California Living*, in *San Francisco Examiner*, March 19, 1972.

"Herb Caen." *San Francisco Chronicle*, December 10, 1946, mentions Henri Lenoir being fired as promoter of art at The Iron Pot.

"Herb Caen." *San Francisco Chronicle*, December 16, 1981 and March 9, 1982, mention that The Iron Pot will close at 639 Montgomery and re-open on Washington Street.

"Herb Caen." *San Francisco Chronicle*, May 16, 1984, mentions that The Iron Pot is Joe DiMaggio's latest hang-out.

Rand Richards. *Historic Walks in San Francisco* (2001), pp. 341-342, mentions that artifacts from the old Iron Pot are on display at 655 Montgomery Street.

About S. H. Woodruff:

"Barron Estate Gets Reversal of Action." *San Francisco Call*, August 21, 1912. Regarding the Bellevue Hotel at 505 Geary Street.

Joseph B. Pecora. *The Storied Houses of Alamo Square*. Norfolk Press, pp. 138-140.

Michael Corbett. *Splendid Survivors*. A California Living Book, 1979. Lists the Dividend Building by Woodruff.

Photographs of the south side of the 400 block of Washington Street in 1957

(All three photos from SFPL Assessor's Negatives, Block 206)



At left: 425 Washington Street. Its third story is slightly recessed from the lower two stories. Consolidated fisheries is the occupant.

Below: 439-445 Washington. Occupants include the Rainbow Club and the Fulton Paper Co. At far right is 447-453 Washington, where SFFD Station 13 now stands.

Both buildings were reduced in depth when Washington Street was widened.





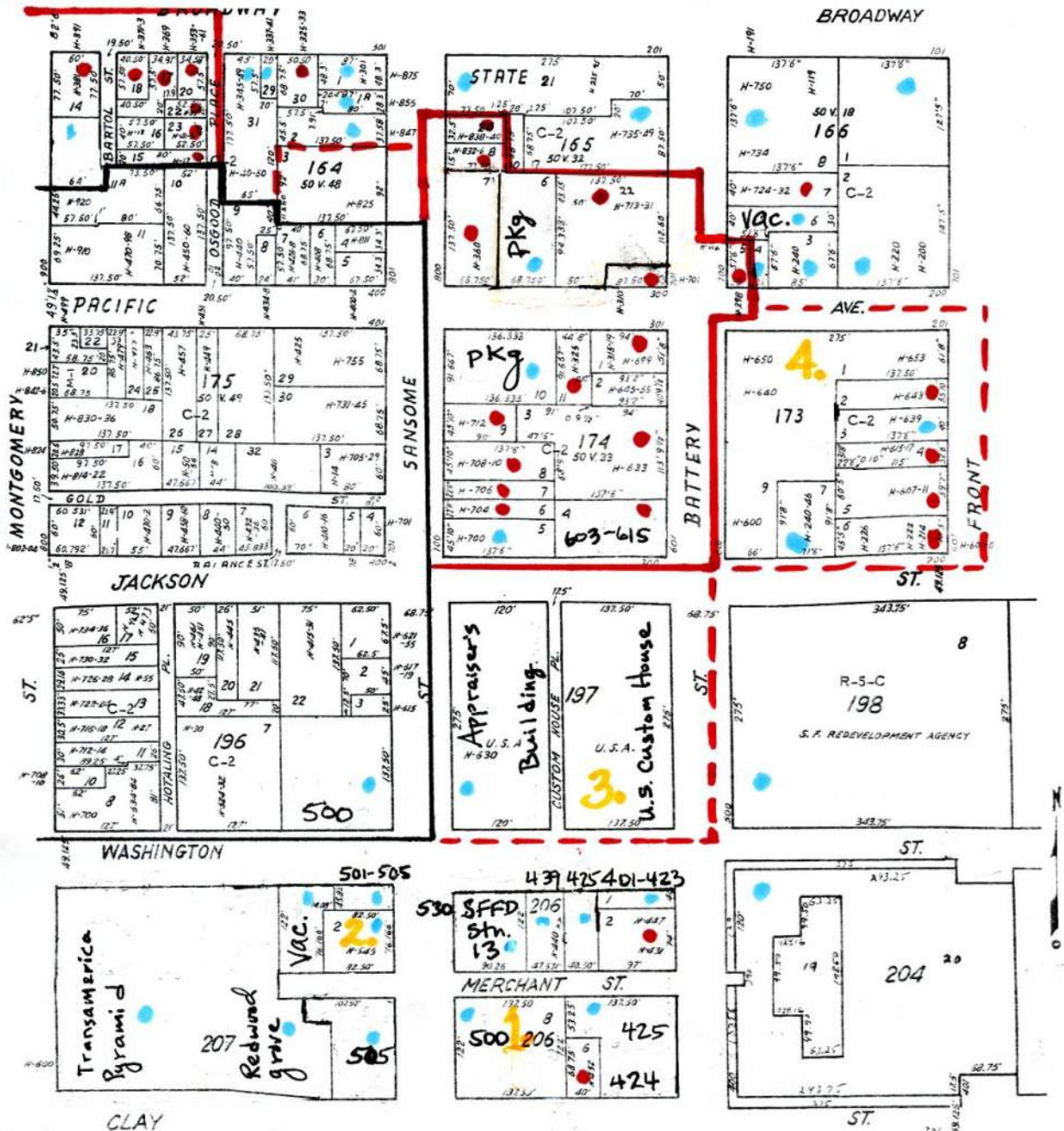
View looking SW at 401-423 Washington Street. It was demolished in 1967 when Washington Street was widened. The Jones-Thierbach Coffee Co. building, at 447 Battery, is at far left.

Photograph of the Produce District in 1938



SFPL photo AAD-5456

Map showing possible extensions of the Jackson Square historic district



Original north, south, and east boundaries of Jackson Square

Likely extensions of Jackson Square

Doubtful or uncertain extensions of Jackson Square

Notations re: Jackson Square map:

- These buildings would be contributors in an extended Jackson Square.
- These buildings would not be contributors in an extended Jackson Square.

The U. S. Custom House and three buildings built in the 1920s-1930 are noted on the map above and are discussed below, in order to help determine whether they should be counted as contributors in an extended Jackson Square.

1. The Printers' Building, 500 Sansome (1929) and **2.** The California Ink Building, 545 Sansome (1930) are both fairly old, but as reinforced concrete mid-rises probably could not qualify as contributors to Jackson Square, if one considered extending that district to include these blocks.

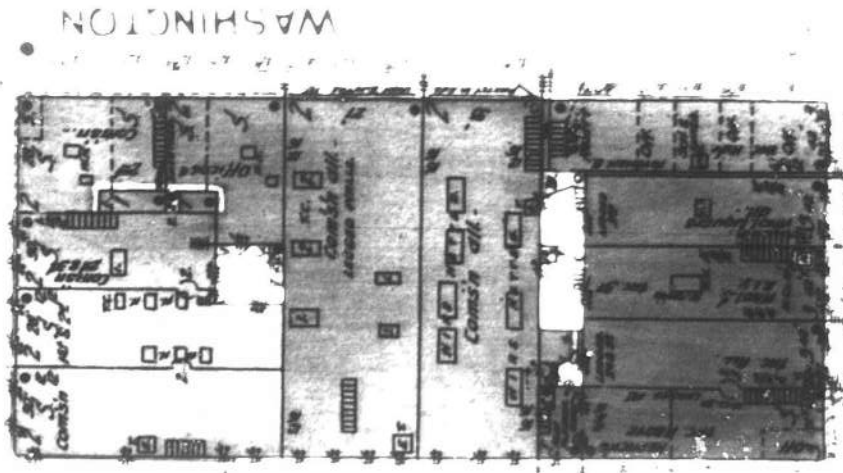
3. The U. S. Custom House is old (1906-1911), and ornate, but at five stories in height and a half-block in area it is out of scale with buildings in Jackson Square. It is already protected with National Register status. The adjacent Appraiser's Building high-rise "hides" the Custom House from the current Jackson Square. For these reasons, the block containing these two buildings probably should not be included in Jackson Square.

4. At two stories in height, 600-650 Battery/653 Front (1927) matches the height of most Jackson Square buildings. However, it is built of reinforced concrete, is extremely spare in its ornamentation, and covers half a block, more area than any Jackson Square building does. If it is not considered to be a contributor to an extended Jackson Square, then the entire block probably should not be included in Jackson Square.

Jackson Square should probably be extended to include the buildings along Broadway, Osgood, and Montgomery Street. (This extension is not discussed in the text above.)

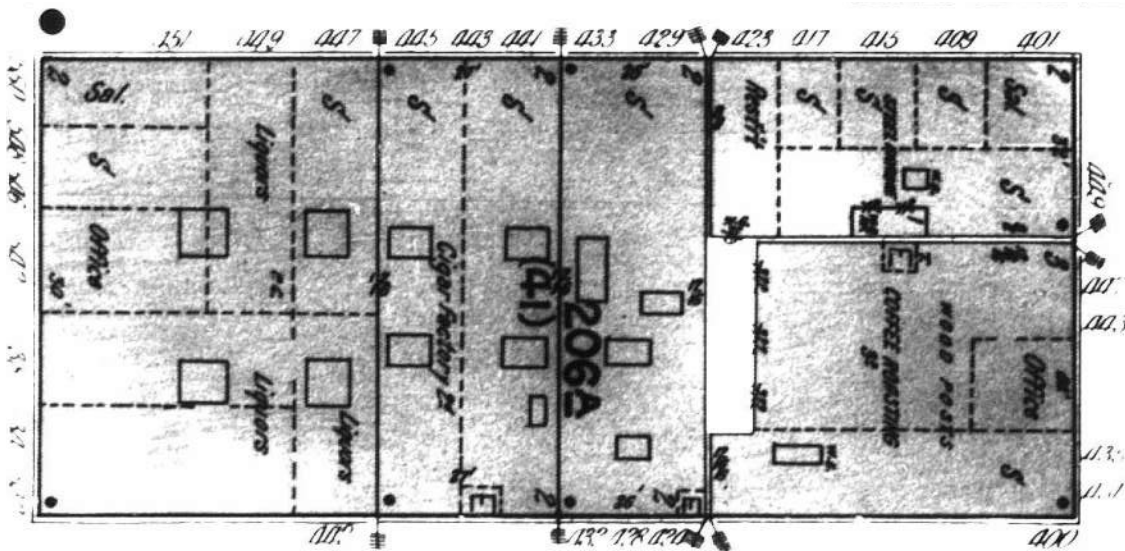
From this map, one can see that it would not be plausible to extend Jackson Square to include the subject building, and it would be very difficult to extend the district to include any part of the block it is in.

Sanborn insurance maps

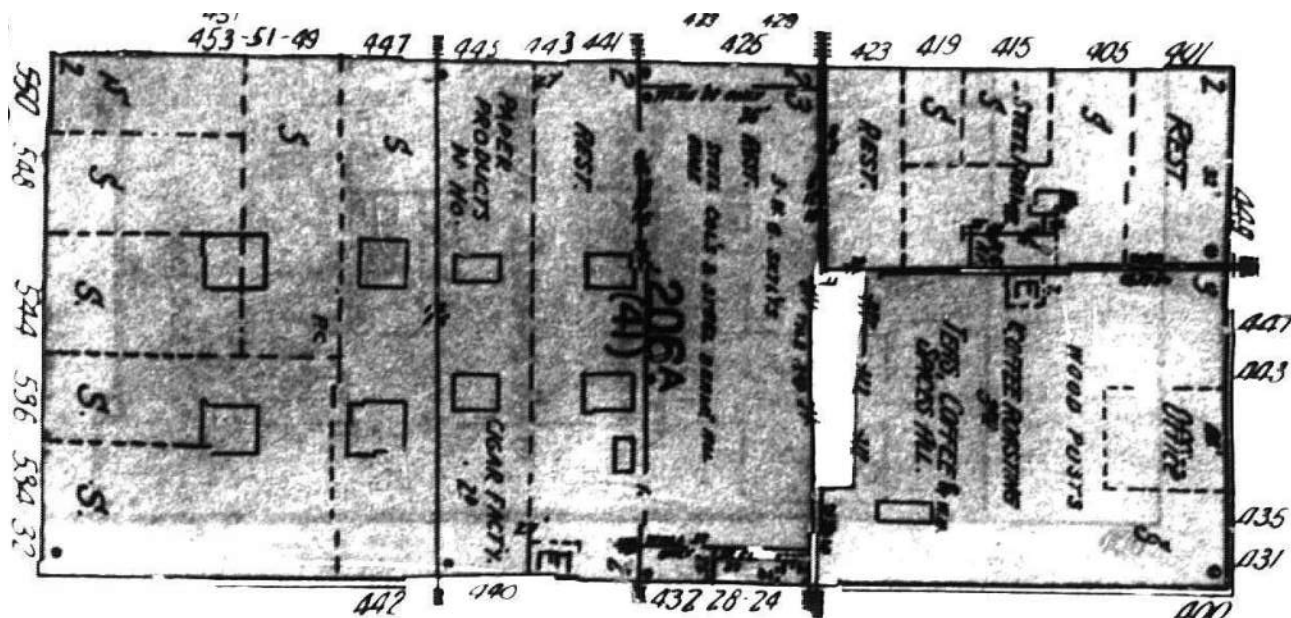


1899 Sanborn map. The red arrow points to the pre-earthquake building at today's 439-445 Washington Street, and the green arrow points to the building where 425 Washington now stands. Both were occupied by commission merchants then.

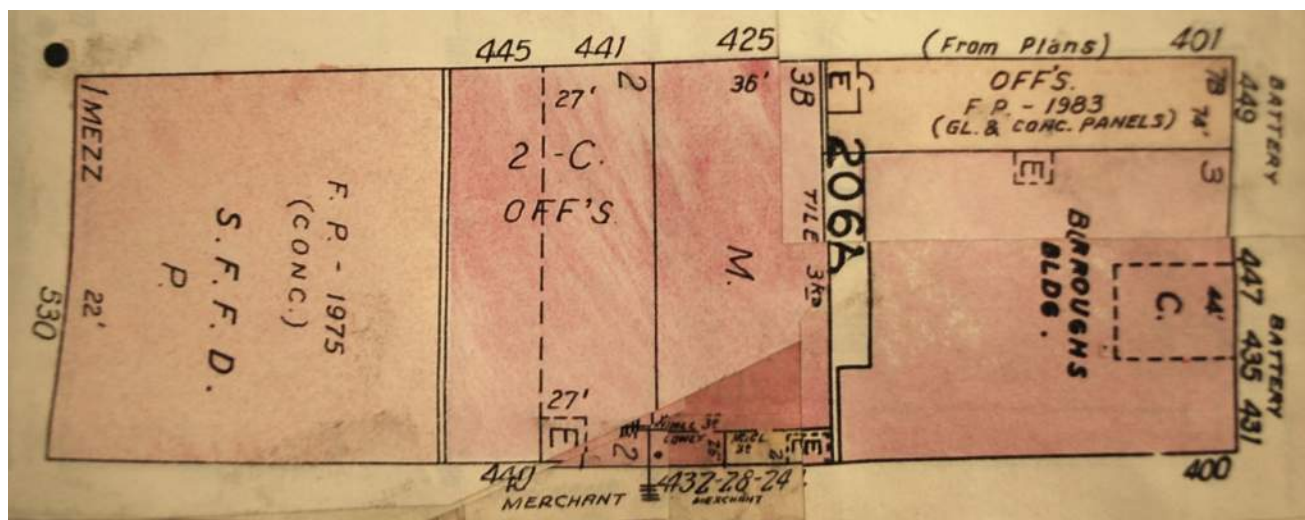
Neither building survived the earthquake and fire of 1906. A building permit and a published building notice for the 1906-1907 buildings both indicate new construction.



1913 Sanborn map. 441-445 Washington is occupied by two ground floor storefronts and a second story cigar factory. 429-433 Washington (now #425) is labeled simply as a "store."

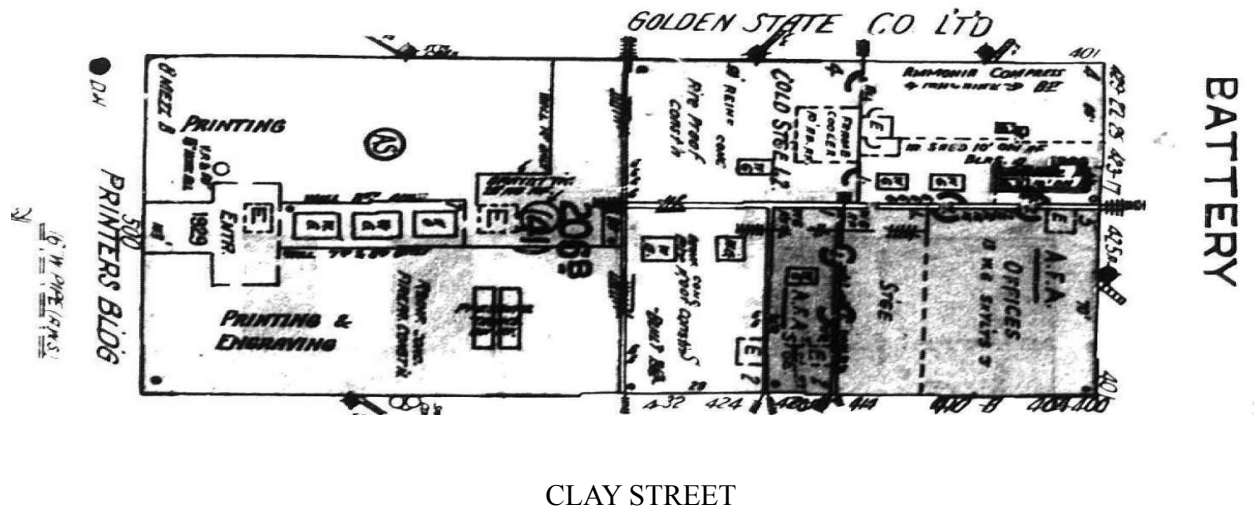
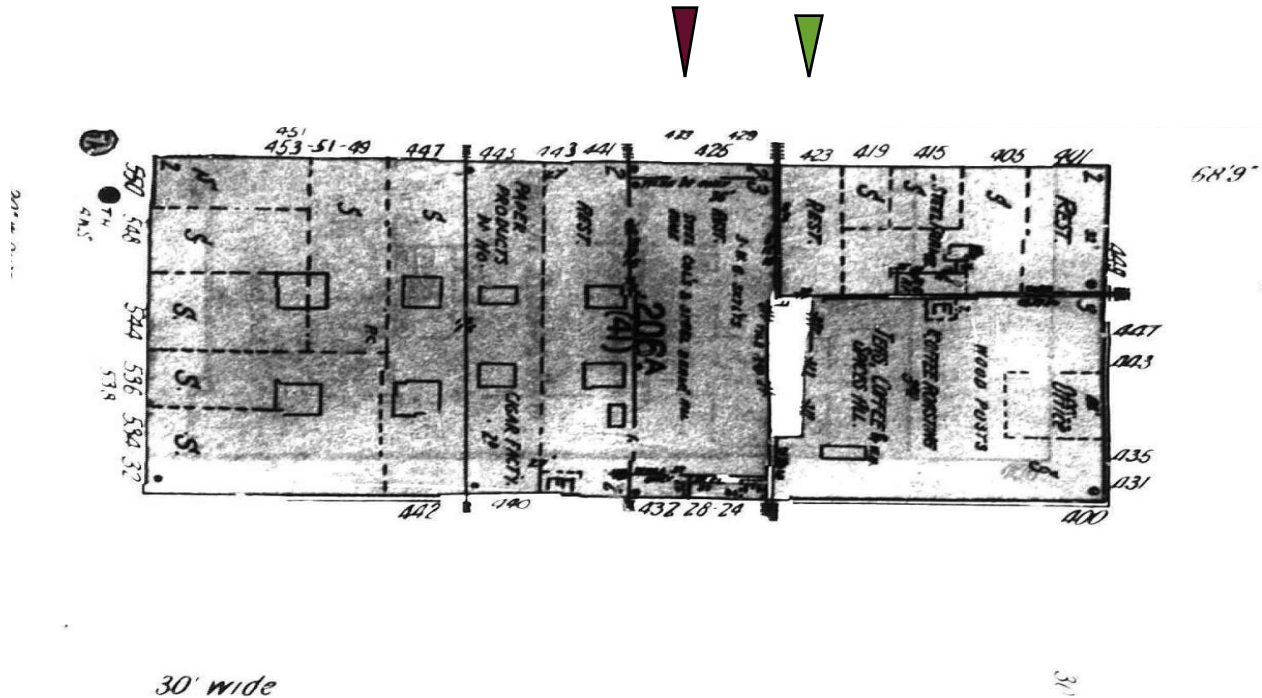


1950 Sanborn map. 425 Washington is occupied by a “restaurant” -- actually, Consolidated Fisheries, which must have had a lunch counter then. 441-445 Washington is occupied by a restaurant (Rainbow Club), paper products (Fulton Paper Company), and a cigar factory in the loft.



1980s Sanborn map, showing 425 and 441-445 Washington after they had been shortened. A seven story office building stands at #401, on the sliver of land where the old 401-423 Washington once stood. SFFD Station #13 is at far left.

WASHINGTON STREET



The 1950 Sanborn map (again), showing the full block. Merchant Street runs through the middle of the block.

Photographs of 425 Washington Street





At left: The top of the building, including its plain cornice.



At right: Second and third story windows, within the arched bay formed by a single course of bricks.



At left: second story steel-sash window. At right: Second floor spandrel.



At left: Doors, transom, and sidelights in the west entrance. The east entrance is identical, save that it lacks sidelights.



The Merchant Street facade. Above: The third story windows and the cornice above the second story.
Below: detail of the cornice.



Above and at right: The steel-framed restaurant entrance and storefront window.



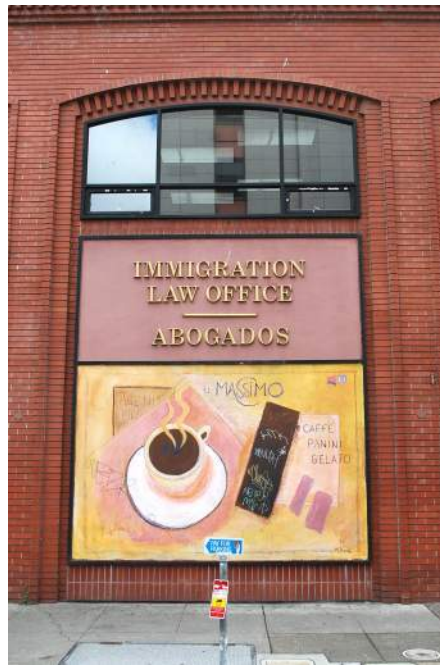
Photographs of 439-445 Washington Street



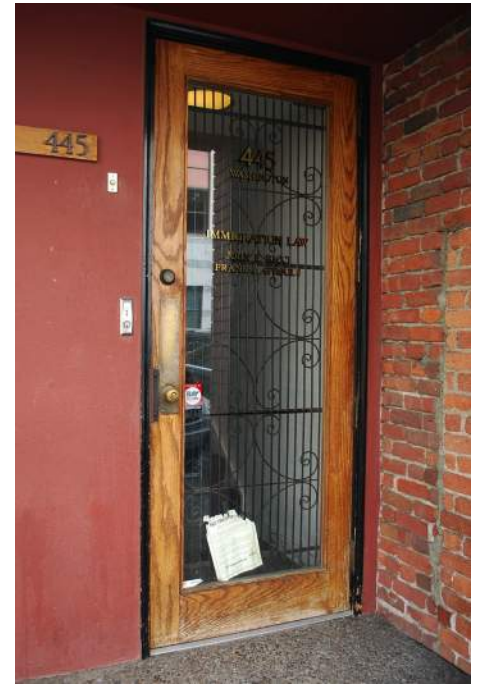
Top: The main facade, on Washington Street. Above: Cornice detail.



The top of the building, centered on the second story window with its metal sash.



Left to right, each of the three bays, showing predominance of signage and entrances.



At left: The metal-framed door, transom, and windows to the storefront at #439. Center: Doors to the restaurant at #441. At right: Door to the second floor offices at #445.



A comparison between the new brick of 1967 (far left) and the old brick of 1906-1907 (at right). This view is in one of the recessed entrances of the main facade.



Above: Rear (Merchant Street) facade

Below: Rear facade, closer. The blue-green lintels are unusual, and are probably not original.





Top left: Rear facade, cornice detail, with added steel reinforcing beam

Middle left: Second through fourth bays, all now filled in

Middle right: Sandblasted brick in the rear facade

Bottom row: Doors and metal-sash window in the rear facade.



Other buildings in the block of Washington, Clay, Battery and Sansome streets



Top: South side of the 400 block of Washington. From left to right: 401-423, 425, and 439-445 Washington; and SFFD Station #13, 532 Sansome, by architect John Portman, ca. 1974.

At left: 401-423 Washington, built in 1983.



At left: Jones-Thierbach building, 447 Battery Street, built in 1907. The north side of the 400 block of Merchant Street is seen at left.



Middle row, at left: Club Quarters Hotel, 424 Clay/NW corner Battery (2001)

Middle row, at right: 432 Clay (1912)



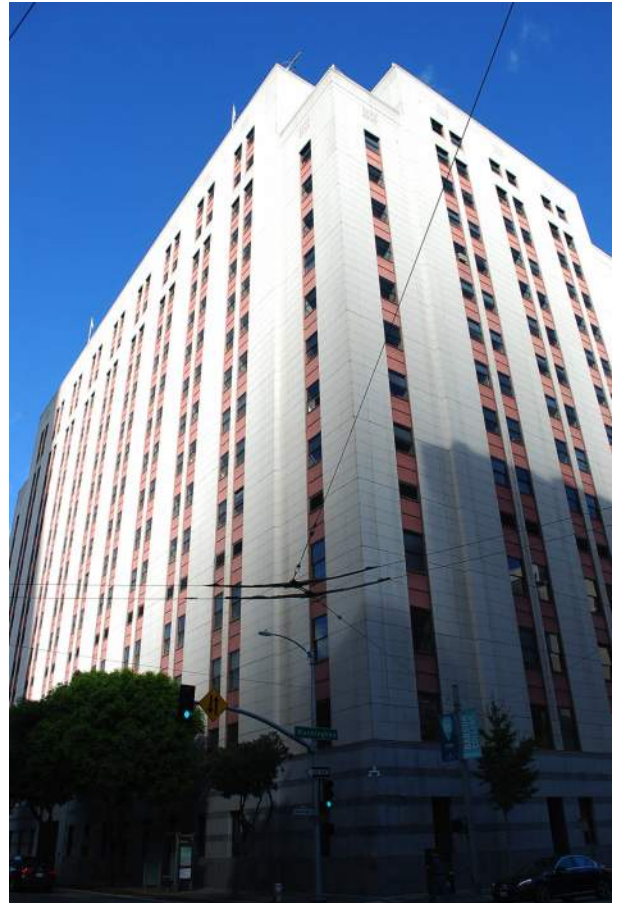
Bottom row: The Printers' Building, 500 Sansome Street, with entrance (Frederick H. Meyer, architect, 1929)

Other buildings in the environs

Block of Jackson, Washington, Battery and Sansome streets

Appraiser's Building, 630 Sansome Street, with
Moderne entrance

This building stands between the Custom House (to
the east) and Jackson Square (to the west).



U. S. Custom
House, 555
Battery Street

Block of Clay, Washington, Sansome and Montgomery streets



Left to right: The Transamerica Pyramid, 600 Montgomery; 505 Sansome Street; the California Ink Company building, 545 Sansome Street.

At right: Window of the California Ink Company building, 545 Sansome Street

Below: 501 Washington Street



Block of Jackson, Pacific, Battery and Sansome streets



Jackson Square could be extended to include this square block, most of the block to the north (not shown here), and the Old Ship Saloon, at 298 Pacific Avenue (also not shown).

At left: The east side of Sansome Street, from Jackson to Pacific. The corner building is modern, but the four buildings to the north are old and would be contributors to an extended Jackson Square.



The four older buildings are shown again here. Left to right: 712, 710, 706, and 704 Sansome.



At left: The Legallet Building at 603-615 Battery (Albert Pissis, 1906), and to its right, the O. W. Nordwell warehouse at 633 Battery (Sutton and Weeks, 1906).

Buildings on this square block that are not shown: 645-655 Battery (uncertain historic status), 699 Battery (contributor), and 325 Pacific (contributor).

FRANCISCO

WRITE IN INK—FILE TWO COPIES

Applicant
with str
ETMENT OF
ING INSPECTION proposed

Applicant must indicate in ink correctly and distinctly on the back of this sheet, a diagram of the lot with street, alleys, location of existing buildings on the lot, if any, and location and dimensions of proposed buildings. Plans and Specifications must be fastened together.

APPLICATION FOR BUILDING PERMIT.

BRICK BUILDING

Application is hereby made to the Board of Public Works of the City and County of San Francisco for permission to build a two story brick building on lot 1 situated between Washington & Merchant Streets & fronting on both in accordance with the plans and specifications submitted herewith.

All provisions of the building laws shall be complied with in the erection of said building, whether specified herein or not. Estimated cost of building \$ 15,000 Building to be occupied as Stores & offices by families
Size of Lot 40 1/2 feet front 40 1/2 feet rear 122 feet deep.

Size of proposed building. 40 1/2 x 122

Extreme height of building **28' 0" above sidewalk**

If party walls are to be used, give thickness and height of stories. 17" - 17" - 13"

7 - 6 basement 13.6 first floor 10'0" clear second floor.....

Are foundations to be on solid or filled ground?.....Solid.....

Footings will be of brick on timber..... Foundation walls will be of Brick.....

Concrete will be made of.....cement one part/ Sand.....3.....parts. Broken stone.....5.....parts

Stone work laid in.....mortar.....

Brick work laid in.....Lime.....mortar.....

Face brick work laid in cement mortar

Face brick work. How bonded?

Headers every 6th course

	WALLS				PIERS OR COLUMNS		JOISTS		GIRDERS			
	Height	Material	Thickness Side Front	Material	Size	Material	Size	Longest Span	Material	Size	Longest Span	
Footings	on	Brick Timber	30 30	Stone								
Foundations												
Basement			17' 17"	O.Pine	10x10							
1st story			17' 17"	"	10x10	O.Pine	3x12	20' 0"	O.Pine	8x10	9' 0"	
2nd story			13' 13"	"	8x8	"	2x12	20' 0"	"	12x14	18' 0"	
3rd story												
4th story												
5th story												
6th story												
7th story												
8th story												
9th story												
10th story												
State size of bearing partitions on each floor.												
						Material			Sizes			
								None				

The original
permit to build,
page 2 of 3.

PERMIT TO BUILD

1. Construction of..... Timber, Girders & Joists.....

2. Construction of..... as above..... Covered with..... 3x Ply Tar Gravel Roof.....

3. Steep roof, construction of..... Covered with.....

4. Walls coped with..... Rowlock brick in cement..... Cornices of..... Cement.....

5. Partition, of..... 2 x 4 studs & plaster..... Stair partitions, of..... Studs & Plaster.....

6. Light court walls, of.....

7. Exterior columns, of..... reinforced concrete..... Protected with.....

8. Interior columns, of..... wood posts..... Protected with.....

9. Trusses supporting roofs, if of iron, describe.....

10. Flue linings, of..... height of chimneys above roof.....

11. Boiler flue of..... lined with..... height of flue above roof.....

12. No. of stairways, width and construction..... Two basement to 1st floor 3.6 wide - wood.....

..... Two first floor to 2nd 4.0 wide - wood.....

13. Boiler-room location..... walls of boiler-room.....

14. Ceiling and floor over boiler-room..... doors to boiler-room.....

15. Fire shutters.....

16. Bay windows, covered with.....

17. Towers, domes or spires, size and extreme height above..... level.....

18. Sky-lights, material, number and size.....

19. No. of elevators..... one..... where located..... adjacent to exterior wall of Merchant St......

20. Elevator enclosures, of..... 2 x 4 studs & plaster.....

21. Vaults under sidewalk.....

22. Retaining walls of..... height..... thickness at bottom..... thickness at top.....

23. Areas, coal holes, etc., state if any, and where.....

I hereby agree to save, indemnify and keep harmless the City and County of San Francisco against all liabilities, judgments, costs and expenses which may in anywise accrue against said city and county in consequence of the granting of this permit, or from the use or occupancy of any sidewalk, street or sub-sidewalk place by virtue thereof and will in all things strictly comply with the conditions of this permit.

Architect..... S. H. Woodruff..... Owner..... R. Jordan.....

Address..... 1557 Franklin Street, City..... Address..... 2563 Washington Street, City.....

Builder..... The Woodruff Co......

Address..... 1557 Franklin Street, City..... By.....

[NOTE:—The owner's name must be signed by himself, or by his Architect or authorized Agent.]



ALTERATION BLANKS

WRITE IN INK—FILE TWO COPIES

TO THE HONORABLE

THE BOARD OF PUBLIC WORKS

OF THE CITY AND COUNTY OF SAN FRANCISCO

Gentlemen:

The undersigned respectfully petition your Honorable Board for permission to do the following work at corner

~~at~~ # 425 Washington street feet
of street

WRITE PLAINLY FULL DESCRIPTION OF WORK TO BE DONE

one story addition to a 2 story Brick
Building Lofts - frame to be of steel to
Basement. foundation - Exterior walls 8"
Hollow tiles - 2 1/2 wood joists 2 x 8. Plaster
Prof. 5 Ply. Tar and Gravel - Extend
Elevator 1 story -

Estimated cost of work, \$ 6000

Building to be used as: Poultry

I hereby agree to save, indemnify and keep harmless the City and County of San Francisco and its officials against all liabilities, judgments, costs and expenses which may in anywise accrue against said city and county in consequence of the granting of this permit, and all costs and damages which may accrue from the use or occupancy of any sidewalk, street or sub-sidewalk place by virtue thereof and will in all things strictly comply with the conditions of this permit.

Name of Architect

Address

Name of Builder Alfred Legault

Address 1260 - 14th St

Report favorably

Hightough Co Owner

425 - Washington Address

Per Alfred Legault

Engineer to Check



Chas. H. Kuiper
Inspector
April 10 1928

1928 permit to add a third story.

CENTRAL PERMIT BUREAU F455
Write in Ink—File Two Copies

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF PUBLIC WORKS
CENTRAL PERMIT BUREAU
BLDG. FORM 3
APPLICATION FOR BUILDING PERMIT
ADDITIONS, ALTERATIONS OR REPAIRS

9 December 1966

Application is hereby made to the Department of Public Works of San Francisco for permission to build in accordance with the plans and specifications submitted herewith and according to the description and for the purpose hereinafter set forth:

(1) Location 425 Washington Street, San Francisco, California
(2) Total Cost (\$) 75,000.00 (3) No. of Stories 3 (4) Basement or Cellar Yes
(5) Present Use of building Empty (6) No. of families yes or no
(7) Proposed Use of building Blueprinter (8) No. of families yes or no
(9) Type of construction 3 1/2 (10) 16-2 Proposed Building Code Classification
(11) Any other building on lot no (must be shown on plot plan if answer is yes.)
(12) Does this alteration create an additional story to the building? no
(13) Does this alteration create a horizontal extension to the building? no
(14) Does this alteration constitute a change of occupancy yes or no
(15) Electrical work to be performed separate contract (16) Plumbing work to be performed yes
(17) Automobile runway to be altered or installed no
(18) Sidewalk over sub-sidewalk space to be repaired or altered see below
(19) Will street space be used during construction? yes
(20) Write in description of all work to be performed under this application:
(Reference to plans is not sufficient)
Removed northerly 23'-0" of building facing Washington Street; add new floor structure (steel and wood) 1st and 2nd floors; new toilet rooms and partitions; new steel frame, plaster and brick veneer front (North) wall; new steel stud wall and wood frame roof at 3rd floor rear; new steel stairs (2); new freight elevator, new plumbing system and fixtures; reinforce existing structural steel frame. Interior office partitions and all electrical work by tenant - not in this contract.

(21) Supervision of construction by Harada & Meu Address 553 Mission St., S.F.
(22) General Contractor Not selected California License No.
Address
(23) Architect or Engineer Harada & Meu California Certificate No. C-1098
(for design) Address 553 Mission St., San Francisco, California
(24) Architect or Engineer Russell H. Fuller California Certificate No. S-602
(for construction) Structural Engineer Address 171 Second St., San Francisco, Calif.

(25) I hereby certify and agree that if a permit is issued for the construction described in this application, all the provisions of the permit and all laws and ordinances applicable thereto will be complied with. I further agree to save San Francisco and its officials and employees harmless from all costs and damages which may accrue from use or occupancy of the sidewalk, street or sub-sidewalk space or from anything else in connection with the work included in the permit. The foregoing covenant shall be binding upon the owner of said property, the applicant, their heirs, successors and assignees.

(26) Owner Joe Alioto c/o Architect, Harada & Meu (Phone 434-4911)
Address 553 Mission Street, San Francisco, California
By John M. Williams Address 553 Mission Street, San Francisco
Owner's Authorized Agent to be Owner's Authorized Architect, Engineer or General Contractor.

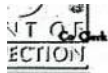
CERTIFICATE OF FINAL COMPLETION AND/OR PERMIT OF OCCUPANCY MUST BE OBTAINED ON COMPLETION OF WORK OR ALTERATION INVOLVING AN ENLARGEMENT OF THE BUILDING OR A CHANGE OF OCCUPANCY PURSUANT TO SEC. 808 AND 809, SAN FRANCISCO BUILDING CODE, BEFORE BUILDING IS OCCUPIED.

Pursuant to Sec. 304, San Francisco Building Code, the building permit shall be posted on job. Owner is responsible for approved plans and application being kept at building site.

APPROVAL OF THIS APPLICATION DOES NOT CONSTITUTE AN APPROVAL FOR THE ELECTRICAL WIRING OR PLUMBING INSTALLATIONS. A SEPARATE PERMIT FOR THE WIRING AND PLUMBING MUST BE OBTAINED.

THIS IS NOT A BUILDING PERMIT. NO WORK SHALL BE STARTED UNTIL A BUILDING PERMIT IS ISSUED.

December 1966 permit to remove the original front 23 feet and add a new plaster and brick front. The architects were Harada and Meu, and the structural engineer was Russell H. Fuller.



WRITE IN INK—FILE 2 COPIES

To the Honorable

THE BOARD OF PUBLIC WORKS
Of the City and County of San Francisco

Gentlemen:—

The undersigned respectfully petition your Honorable Board for permission to do the following work at

South corner side of Washington street feet
of 445 Washington Street

WRITE PLAINLY FULL DESCRIPTION OF WORK TO BE DONE

Partitioning loft into four rooms
x kitchen one skylight-6x4
also one brick furnace

Estimated cost of work, \$ 100.00

Building to be used as Shirt factory

In consideration of the granting of the foregoing Application, I hereby agree to save the City and County of San Francisco harmless from all costs and damages which may accrue from the use or occupancy of the sidewalk, street or subsidewalk space in the said work.

Name of Builder Ah Mon } Quong Lung owner
Address Chinatown } 445 Washington St address
Name of Architect } Per R. Williams
Address }

REPORT favorably

Louis Bailey

Inspector

June 13

1908

**Building
Permits for 425
Washington
Street**

June 1908
building permit
for partitioning
the second floor
loft as a shirt
factory.

CENTRAL PERMIT BUREAU F. NO. 68
OF
TO
BLDG. FORM

Write in Ink—File Two Copies

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF PUBLIC WORKS
CENTRAL PERMIT BUREAU

APPLICATION FOR BUILDING PERMIT

3

ALTERATION

10/25/44

19

Application is hereby made to the Department of Public Works of the City and County of San Francisco for permission to build in accordance with the plans and specifications submitted herewith and according to the description and for the purpose hereinafter set forth:

- (1) Location 439 Washington St
(2) For what purpose is present building now used? Storage house
(3) For what purpose will building be used hereafter? Soloan and Restaurant
(4) Total Cost \$ 200.00

(5) Description of work to be done The two entrance fronts to be new as shown on plans and new men toilet and ladies toilet to be built on 2x4 studs. Button Board and cement plaster on the inside of them, on plaster outside

(6) APPLICANT MUST FILL OUT COMPENSATION INSURANCE DATA ON REVERSE SIDE.

- (7) Supervision of construction by Alf Barsotti
Address 2029 Stockton St

I hereby certify and agree, if a permit is issued, that all the provisions of the BUILDING LAW, THE BUILDING ZONE ORDINANCES, SET BACK LINE REQUIREMENTS AND THE FIRE ORDINANCES OF THE CITY AND COUNTY OF SAN FRANCISCO and the STATE HOUSING ACT OF CALIFORNIA will be complied with, whether herein specified or not; and I hereby agree to save, indemnify and keep harmless the City and County of San Francisco against all liabilities, judgments, costs and expenses which may in anywise accrue against said city and county in consequence of the granting of this permit, or from the use or occupancy of any sidewalk, street or sub-sidewalk placed by virtue thereof, and will in all things strictly comply with the conditions of this permit.

- (8) Architect
Certificate No. _____ License No. _____
State of California _____ City and County of San Francisco
Address _____

- (9) Engineer
Certificate No. _____ License No. _____
State of California _____ City and County of San Francisco
Address _____

- (10) Plans and specifications prepared by Dante Herroni
Other than Architect or Engineer
Address 3110 Laguna St

- (11) Contractor Day's work
License No. _____ License No. _____
State of California _____ City and County of San Francisco
Address _____

- (12) Owner Alf Barsotti
Address 2029 Stockton St
By Dante Herroni

Owner's Authorized Agent.

THE DEPARTMENT WILL CALL UP TELEPHONE NO. WET 1541
IF ANY ALTERATIONS OR CHANGES ARE NECESSARY ON THE PLANS SUBMITTED.

Alf Barsotti purchased this building in 1944 and opened his Rainbow Club restaurant later the same year. This is his October 1944 building permit to build two new entrances and perform interior work.

CENTRAL PERMIT BUREAU F435

Write in Ink—File Two Copies

CITY AND COUNTY OF SAN FRANCISCO

DEPARTMENT OF PUBLIC WORKS
BLDG. FORM

CENTRAL PERMIT BUREAU

3

APPLICATION FOR BUILDING PERMIT
ADDITIONS, ALTERATIONS OR REPAIRS

9 June 1967

Application is hereby made to the Department of Public Works of San Francisco for permission to build in accordance with the plans and specifications submitted herewith and according to the description and for the purpose hereinafter set forth:

(1) Location 29 Washington Street

(2) Total Cost \$1.50,000 (3) No. of Stories 2 (4) Basement or Cellar yes
yes or no

(5) Present Use of building Restaurant and loft (6) No. of families yes
yes or no

(7) Proposed Use of building Restaurant and offices (8) No. of families yes
yes or no

(9) Type of construction 3-1 hr. (10) 12-2 and 16-2
1, 2, 3, 4, or 5 Proposed Building Code Classification

(11) Any other building on lot no (must be shown on plot plan if answer is yes.)
yes or no

(12) Does this alteration create an additional story to the building? no
yes or no

(13) Does this alteration create a horizontal extension to the building? no
yes or no

(14) Does this alteration constitute a change of occupancy no
yes or no

(15) Electrical work to be performed yes (16) Plumbing work to be performed yes
yes or no yes or no

(17) Automobile runway to be altered or installed no
yes or no

(18) Sidewalk over sub-sidewalk space to be repaired or altered yes
yes or no

(19) Will street space be used during construction? yes
yes or no

(20) Write in description of all work to be performed under this application:
(Reference to plans is not sufficient)

Remove and set back front of building to make way for widening of Washington
Street. Renovate top floor to convert from loft space to finished offices.
Expand portion of restaurant to occupy all of ground floor.

(21) Supervision of construction by Gilbert Oliver, AIA Address 3322 Steiner Street

(22) General Contractor Lambert & Wells California License No.
Address 1375 Sansome Street

(23) Architect or Engineer Gilbert Oliver, AIA California Certificate No. C3988
(for design) Address 3322 Steiner Street

(24) Architect or Engineer Same California Certificate No.
(for construction) Address

(25) I hereby certify and agree that if a permit is issued for the construction described in this application, all the provisions of the permit and all laws and ordinances applicable thereto will be complied with. I further agree to save San Francisco and its officials and employees harmless from all costs and damages which may accrue from use or occupancy of the sidewalk, street or sub-sidewalk space or from anything else in connection with the work included in the permit. The foregoing covenant shall be binding upon the owner of said property, the applicant, their heirs, successors and assignees.

Architect

(26) Owner Mr. & Mrs. Alfredo Barsotti & the Architect (Phone 346-5169)
For contract by Bureau

Address 3322 Steiner Street

By Lambert & Wells Construction Co. Address 1375 Sansome Street
Owner's Authorized Agent to be Owner's Authorized Architect, Engineer or General Contractor.

CERTIFICATE OF FINAL COMPLETION AND/OR PERMIT OF OCCUPANCY MUST BE OBTAINED ON COMPLETION OF WORK OR ALTERATION INVOLVING AN ENLARGEMENT OF THE BUILDING OR A CHANGE OF OCCUPANCY PURSUANT TO SEC. 808 AND 809, SAN FRANCISCO BUILDING CODE, BEFORE BUILDING IS OCCUPIED.

Pursuant to Sec. 304, San Francisco Building Code, the building permit shall be posted on job. Owner is responsible for approved plans and application being kept at building site.

APPROVAL OF THIS APPLICATION DOES NOT CONSTITUTE AN APPROVAL FOR THE ELECTRICAL WIRING OR PLUMBING INSTALLATIONS. A SEPARATE PERMIT FOR THE WIRING AND PLUMBING MUST BE OBTAINED.

THIS IS NOT A BUILDING PERMIT. NO WORK SHALL BE STARTED UNTIL A BUILDING PERMIT IS ISSUED.

June 1967 permit application to "remove and set back front of building to make way for widening of Washington Street." The architect was Gilbert Oliver, A.I.A.

A2 425 and 439–445 Washington Street
Preservation Team Review Form



SAN FRANCISCO PLANNING DEPARTMENT

PRESERVATION TEAM REVIEW FORM

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

Preservation Team Meeting Date:		Date of Form Completion	2/11/2018
--	--	--------------------------------	-----------

PROJECT INFORMATION:		
Planner:	Address:	
Justin Greving	425 and 439-445 Washington Street	
Block/Lot:	Cross Streets:	
0206/014 and 0206/013	Sansome and Battery streets	
CEQA Category:	Art. 10/11:	BPA/Case No.:
B	n/a	2015-015553ENV

PURPOSE OF REVIEW:		PROJECT DESCRIPTION:	
<input checked="" type="radio"/> CEQA	<input type="radio"/> Article 10/11	<input type="radio"/> Preliminary/PIC	<input type="radio"/> Alteration
		<input checked="" type="radio"/> Demo/New Construction	

DATE OF PLANS UNDER REVIEW:	
------------------------------------	--

PROJECT ISSUES:	
<input checked="" type="checkbox"/>	Is the subject Property an eligible historic resource?
<input type="checkbox"/>	If so, are the proposed changes a significant impact?
Additional Notes:	
Submitted: Historic Resource Evaluation prepared by William Kostura (dated May, 2017)	

PRESERVATION TEAM REVIEW:	
Category:	<input type="radio"/> A <input type="radio"/> B <input checked="" type="radio"/> C
Individual	Historic District/Context
Property is individually eligible for inclusion in a California Register under one or more of the following Criteria:	Property is in an eligible California Register Historic District/Context under one or more of the following Criteria:
Criterion 1 - Event: <input type="radio"/> Yes <input checked="" type="radio"/> No	Criterion 1 - Event: <input type="radio"/> Yes <input checked="" type="radio"/> No
Criterion 2 -Persons: <input type="radio"/> Yes <input checked="" type="radio"/> No	Criterion 2 -Persons: <input type="radio"/> Yes <input checked="" type="radio"/> No
Criterion 3 - Architecture: <input type="radio"/> Yes <input checked="" type="radio"/> No	Criterion 3 - Architecture: <input type="radio"/> Yes <input checked="" type="radio"/> No
Criterion 4 - Info. Potential: <input type="radio"/> Yes <input checked="" type="radio"/> No	Criterion 4 - Info. Potential: <input type="radio"/> Yes <input checked="" type="radio"/> No
Period of Significance: <input type="text" value="n/a"/>	Period of Significance: <input type="text" value="n/a"/>
	<input type="radio"/> Contributor <input type="radio"/> Non-Contributor

Complies with the Secretary's Standards/Art 10/Art 11:	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
CEQA Material Impairment to the individual historic resource:	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
CEQA Material Impairment to the historic district:	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Requires Design Revisions:	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Defer to Residential Design Team:	<input checked="" type="radio"/> Yes	<input type="radio"/> No	

PRESERVATION TEAM COMMENTS:

According to the Historic Resource Evaluation prepared by William Kostura (dated May 2017, HRE) and information found in the Planning Department files, the project site contains two buildings, 425 Washington Street and 439-445 Washington Street. 425 Washington is a 3-story painted brick masonry commercial building located on a through lot between Washington and Merchant streets in the Financial District. The building was constructed in 1906-1907 for Rudolph Jordan and was designed by S.H. Woodruff. Abbot A. Hanks, an assayer and chemist, ran his laboratory out of the building from 1907-1910. From 1915-1965, the upper floors of the building housed offices for a variety of wholesale poultry and fish distributors, while the ground floor contained their retail (and sometimes restaurant), space. During this period a permit was filed for the conversion and expansion of the attic space to a full third story (1928). As part of the Golden Gateway redevelopment project, Washington Street was widened and in 1966 the first 23' feet of the Washington side of the building was demolished and the façade reconstructed. This work was designed by Harada and Meu and the owner at the time was Joe Alioto. After completion of the Golden Gateway Redevelopment project that took place starting in 1965, tenants of 425 Washington reflected the transformation of the area into San Francisco's financial district and the building housed at various times a lithography company and a sound system business.

425 Washington does not appear to be eligible for listing in the California Register under Criterion 1. While it is likely that the building would be significant as one of the few remaining structures associated with San Francisco's wholesale produce market, it has seen substantial alterations on both street-facing elevations such that it does not retain sufficient integrity to convey this significance (see p. 15 of the HRE for a more detailed integrity analysis). None of the owners or occupants have been identified as having made lasting contributions to local, state, or national history or cultural heritage (Criterion 2). While Abbot Hanks was the son of a prominent mineralogist, there is no indication that this specific location had any direct association with either person's importance in the profession of mineralogy. The building does not appear to be significant for its architecture as an early twentieth century commercial building due to the substantial alterations that have taken place on both street-facing facades. Nor has the 1966 modernization effort taken on significance as there are many other adjacent properties that are better representations of this architectural era in the neighborhood. (see continuation sheet)

Signature of a Senior Preservation Planner / Preservation Coordinator:	Date:
Allison K. Vanderslice Digitally signed by Allison K. Vanderslice Date: 2021.02.12 17:24:33 -08'00'	

Based upon a review of information in the Departments records, 425 Washington Street is not significant under Criterion 4 since this significance criterion typically applies to rare construction types when involving the built environment. The subject building is not an example of a rare construction type. Assessment of archeological sensitivity is undertaken through the Department's Preliminary Archeological Review process and is outside the scope of this review.

439-445 Washington is a 2-story unpainted brick masonry commercial building also located on a through lot between Washington and Merchant streets. The building was constructed in 1906-1907 for Helen Stanford by the Woodruff Company (likely indicating that S.H. Woodruff was the architect). Stanford kept the property as an investment up until 1927 and rented it out to various tenants including the Cerruti Mercantile Company (likely selling cigars and wine), a notary public, and a shirt factory. A number of different restaurants also operated out of the two ground floor storefronts including The Rainbow Club (serving continental cuisine out of 439 from 1944-1968). The storefront at 441 has also operated as a restaurant continually from 1970 to 2015, the most well-known restaurant being the Iron Pot which operated from 1982-1989 after moving out of its Montgomery Street location. Permitted alterations to 439-445 Washington Street include renovation of the ground floor storefronts by Alf Barsotti prior to opening of the Rainbow Club (1944), and removal of the first 23' feet of the Washington Street side of the building and façade reconstruction that was designed by Gilbert Oliver (1967).

439-445 Washington Street does not appear to be individually eligible for listing in the California Register under Criterion 1. While the early merchants did have some tangential relationship to the neighboring produce market, the connection is not as direct or continuous as is the case with 425 Washington Street. Although The Iron Pot was a well-known restaurant in San Francisco it does not rise to the level of being individually eligible nor did the restaurant operate from the Washington Street location during its heyday. None of the owners or occupants have been identified as having made lasting contributions to local, state, or national history or cultural heritage (Criterion 2). 439-445 Washington would not be considered individually eligible for its architecture. The Washington Street façade is a reconstruction from 1966 that has not taken on significance, and the Merchant Street elevation has also seen alterations within most bay openings. While the brickwork on the Washington Street side has some fine detailing around the cornice line and at the window arches, the facade itself would not rise to the level of being individually eligible for its architecture. Furthermore, Gilbert Oliver has also not been recognized as a master architect. Based upon a review of information in the Departments records, the subject building is not significant under Criterion 4 since this significance criterion typically applies to rare construction types when involving the built environment. The subject building is not an example of a rare construction type. Assessment of archeological sensitivity is undertaken through the Department's Preliminary Archeological Review process and is outside the scope of this review.

The subject property is not located within the boundaries of any identified historic district. The subject property is located in the Financial District just south of the Jackson Square Article 10 Landmark District. The Department agrees with the assessment by William Kostura in the HRE that the Landmark District would not have extended boundaries to include the subject property. There is a distinct lack of visual connection between the subject property with the adjacent district that is emphasized by buildings in the immediate surrounding that are out of scale and size with the historic district. The aesthetic separation is further emphasized by widening of Washington Street that has dramatically altered its scale and relationship to the surrounding buildings. Whereas the Jackson

Square Article 10 district features compact rows of low scale brick structures within narrow streets and alleys, this intimate scale ends at Washington Street which is significantly wider than the other streets to the north such as Jackson and Gold streets.

Therefore, the subject property, including both 425 Washington and 439-445 Washington, is not eligible for listing in the California Register under any criteria either individually or as part of a historic district.

Photographs of the south side of the 400 block of Washington Street in 1957
(All three photos from SFPL Assessor's Negatives, Block 206)



At left: 425 Washington Street. Its third story is slightly recessed from the lower two stories. Consolidated fisheries is the occupant.

Below: 439-445 Washington. Occupants include the Rainbow Club and the Fulton Paper Co. At far right is 447-453 Washington, where SFFD Station 13 now stands.

Both buildings were reduced in depth when Washington Street was widened.



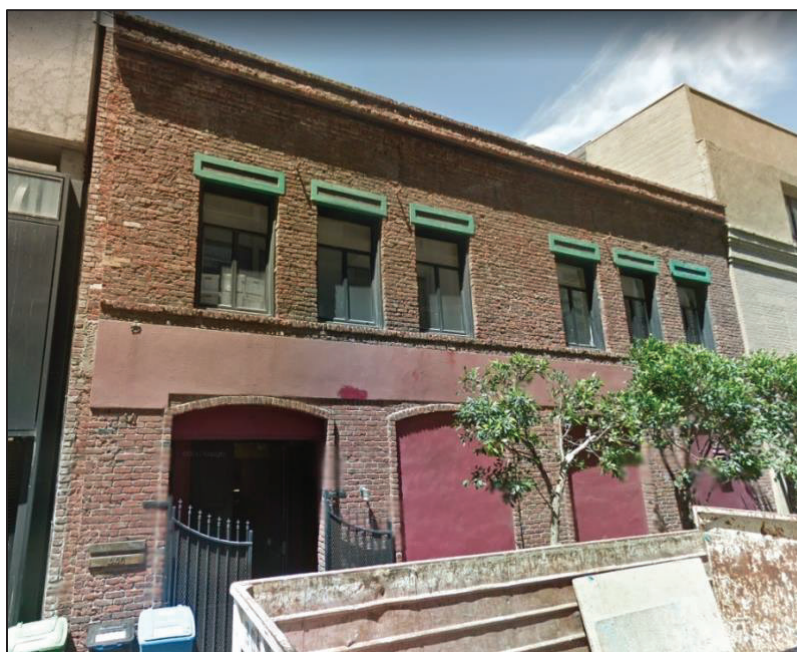
Excerpt from p. 24 of the HRE by William Kostura showing photographs of the Washington Street façades before they were altered in 1966.



425 and 439-445 Washington Street – The north elevations of both 425 Washington (left), and 439-445 Washington Street (right) were reconstructed in 1966 as a result of a street widening.



425 Washington Street – View northeast of the south Merchant Street-facing elevation.



439-445 Washington Street – View northeast of the south Merchant Street-facing elevation.

A3 530 Sansome Street Historic Resource
Evaluation Report

Final

HISTORIC RESOURCE EVALUATION REPORT, PART 1

530 Sansome Street
San Francisco, California

Prepared for
San Francisco Planning Department

September 2020



Final

HISTORIC RESOURCE EVALUATION REPORT, PART 1

530 Sansome Street
San Francisco, California

Prepared for
San Francisco Planning Department

September 2020

550 Kearny Street
Suite 800
San Francisco, CA 94108
415.896.5900
www.esassoc.com



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Los Angeles	San Diego	
Oakland	San Francisco	

201901423.00

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HISTORIC RESOURCE EVALUATION, PART 1

1 Introduction

Environmental Science Associates (ESA) was engaged by EQX Jackson SQ Holdco LLC to prepare a Historic Resource Evaluation, Part 1 report for a proposed project at 530 Sansome Street (APN 206/017, alternately addressed 532 Sansome Street) in San Francisco, California. The subject property is located in the Financial District. It measures 8,936 square feet and is zoned C-3-O (Downtown – Office). The subject property is occupied by the Brutalist-style San Francisco Fire Station No. 13, which was constructed in 1975 and is less than 50 years old. Additionally, an extant sculpture is mounted on the building's north façade and was constructed and installed in 1976.

This report includes: a summary of the current historic status of the subject property; an architectural description; a site history; a building permit history; historic contexts of the Financial District (focused on the immediate vicinity around the subject property as well as the San Francisco Fire Department), the Embarcadero Center, and Brutalist architecture in San Francisco; a list of previous owners and occupants; biographies of known design professionals; and an evaluation of the individual historical significance of the subject property. Planning staff does not require an analysis of the surrounding area as a potential historic district.¹ 530 Sansome Street is not a San Francisco City Landmark, and it is likewise not located within a designated historic district (Article 10) or within a conservation district (Article 11). **Appendix A** contains completed building permits on file at the Department of Building Inspection for 530 Sansome Street.

Methodology

This report was initiated after Governor Gavin Newsom issued Executive Order N-33-20, a statewide shelter-in-place order. This has limited travel and forced the closure of publicly accessible archives, and conducting in-person research at various repositories therefore is not possible. On April 21, 2020, the San Francisco Planning Department issued the following changes to its standard Historic Resource Evaluation (HRE) requirements:

- A. A combination of photos from the applicant along with online mapping and other online sites with dated recent photos can be used instead of a site visit if the property and its surroundings can be accurately understood, described, and evaluated in the HRE using these resources.
- B. [Department of Building Inspection (DBI)] permit records are not currently available and will not be required. Please use other sources in order to identify architect/

¹ Jørgen Cleemann, San Francisco Planning Department, email to Johanna Kahn, ESA. January 2, 2020.

builder, year built, property owners, and changes to the property. Please identify other sources you will use to research this information.

- C. Both [the San Francisco Public Library] and City Hall are currently closed. Assessor photos are currently not available and will not be required.
- D. The Department is working to provide consultants with electronic access to BMI Digital Reel from the Office of the Assessor-Recorder.²

Research conducted for this report includes:

- Reviews of building permits on file at DBI. ESA requested and received hard copies of all available building permits for the subject building, which are included in Appendix A. Because DBI is currently closed to the public and in-person research cannot be performed, a review of any architectural drawings was not possible;
- Review of property ownership records available online through the Digital Reel of the City and County of San Francisco Assessor-Recorder's Office;
- Historical aerial photographs available online;
- Sanborn Fire Insurance Co. maps (Sanborn maps) available online;
- Historical photographs available online from the San Francisco Historical Photograph Collection and Calisphere;
- Historical newspapers and periodicals available online; and
- Other online research (e.g. *Internet Archive*, *Guardians of The City*).

ESA staff completed an intensive-level pedestrian survey on May 30, 2020. ESA senior architectural historian Johanna Kahn, M.Ar.H., is the author of this report and meets the Secretary of the Interior's Professional Qualifications Standards for architectural history, architecture, and historic architecture. Becky Urbano, M.S., who meets the Secretary of the Interior's Professional Qualification Standards for architectural history, provided quality assurance and review.

Current Historic Status

In 2000, the San Francisco Landmarks Preservation Advisory Board (precursor to the Historic Preservation Commission) adopted the National Register of Historic Places (National Register) and California Register of Historical Resources (California Register) criteria of evaluation for use in all historic resource surveys in San Francisco.³ 530 Sansome Street is not listed in the California Office of Historic Preservation's Built Environment Resource Directory (BERD) for San Francisco County. The building was recorded in 2011 when it was only 36 years old and assigned a California

² Allison Vanderslice, San Francisco Planning Department. "Historic Resource Evaluation Guidance During Shelter in Place." Memo to San Francisco Historic Resource Consultants, April 21, 2020.

³ In 2003, the California Office of Historic Preservation released new California Historical Resource Status Codes (formerly known as the National Register Status Codes) to be assigned to evaluated historic resources during local surveys.

Historical Resource Status Code of “6Z,” meaning that it was found ineligible for listing in the National Register, California Register, or as a San Francisco City Landmark.⁴

According to the San Francisco Planning Department’s Property Information Map (PIM), 530 Sansome Street is currently identified as a “Category B” property, meaning that further consultation and review is required for evaluating whether it is a historical resource for the purposes of CEQA. The subject property is not located within any known historic districts, and Planning staff does not require an analysis of the surrounding area as a potential historic district.⁵ The subject property is not identified in the 1968 Junior League of San Francisco Architectural Survey, *Here Today*, or the 1976 San Francisco Department of City Planning (DCP) Architectural Survey. 530 Sansome Street was identified in the 1979 San Francisco Architectural Heritage Survey, *Splendid Survivors*, but it was not assigned a survey rating.⁶

2 Building and Property Descriptions

The following section includes an architectural description of the subject property, a brief site history, and a summary of the building permit search. The architectural description is based on a pedestrian site survey that occurred on May 30, 2020.

Architectural Description

Fire Station No. 13

The subject property at 530 Sansome Street is an 8,937-square-foot, rectangular parcel on the east side of Sansome Street between Washington and Merchant streets. It is occupied by the subject building, a fire station designed in the Brutalist style by architect John C. Portman, Jr. The building’s rectangular footprint occupies the entire parcel. It is constructed of poured-in-place, reinforced concrete and is capped by a flat roof. The lower portion of the façades (first floor and mezzanine) is clad in vertically oriented metal panels, and the exposed concrete structure composes the upper portion. The subject property contains no landscaping or other site features.

The primary façade faces west on Sansome Street (**Figure 1**). The first floor is composed of three structural bays. The north and center bays each feature a roll-up metal door that provides access into and out of the apparatus bays where vehicles are parked and maintained. Each doorway is flanked by concrete bollards. The south bay is clad in metal panels and features two bands of metal-sash windows: one at the first floor and one at the mezzanine level. (**Figure 2** shows the mezzanine’s location in the south portion of the building.) Some, if not all, of the upper band of windows are awning sash. A glazed, metal-frame door with a fixed sidelight is also located in the south bay. Above the mezzanine level, a recessed channel spans the width of the façade, creating a horizontal shadow. The exposed concrete structure at the second floor above features no window or door openings. A circular metal emblem at the north end of the second floor reads “SFFD” and

⁴ Page & Turnbull. *San Francisco Fire Stations Historic Resource Study*. February 21, 2012.

⁵ Jørgen Cleemann, San Francisco Planning Department, email to Johanna Kahn, ESA. January 2, 2020.

⁶ Michael R. Corbett et al. *Splendid Survivors: San Francisco’s Downtown Architectural Heritage* (San Francisco, CA: California Living Books, 1979), p. 218.



SOURCE: ESA

530 Sansome Street

Figure 1
Primary (West) Façade on Sansome Street



SOURCE: ESA

530 Sansome Street

Figure 2
View Showing the Location of the Mezzanine

identifies the building as a fire station. At the south end of the second floor are two vertical flag poles that rise above the roofline. The façade terminates in metal coping at the roofline.

The secondary façade faces north on Washington Street (**Figure 3**). The first floor is clad entirely in metal panels and features two bands of metal-sash windows: one at the first floor and one at the mezzanine level. There are no doors on this façade.

The south façade faces Merchant Street (**Figure 4**). Its design is similar to the north façade. The main difference is that the south façade features a roll-up metal door at the east end of the first floor and a tall, vertical duct that rises above the roofline.



SOURCE: ESA

530 Sansome Street

Figure 3
North Façade on Washington Street



SOURCE: ESA

530 Sansome Street

Figure 4
South Façade on Merchant Street

***Untitled* (1976)**

At the west end of the subject building's north façade is a wall-mounted sculpture by artist Henri Marie-Rose named *Untitled*. The three-dimensional copper sculpture depicts firefighters with a hose next to the letters "SFFD" (**Figure 5**).



SOURCE: ESA

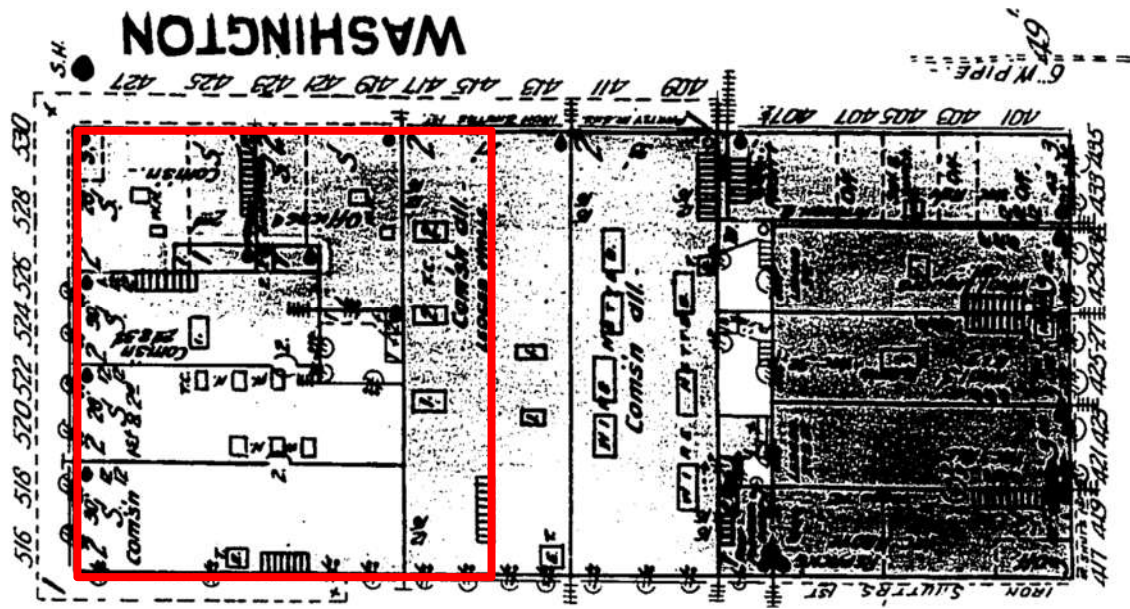
530 Sansome Street

Figure 5
Untitled (1976) by Henri Marie-Rose

Site History

Before the 1906 Earthquake and subsequent fires caused widespread destruction in downtown San Francisco, the subject property was occupied by a group of adjacent two-story commercial and office buildings (**Figure 6**). By 1907, the subject property was redeveloped with a two-story brick building with multiple commercial businesses and offices (**Figures 7 and 8**).⁷

⁷ Figure 7 shows the newly constructed buildings on the subject property in 1907. Building permit application no. 22431, issued March 22, 1909, for alterations to an extant two-story brick building, is the earliest building permit on file for the subject property.

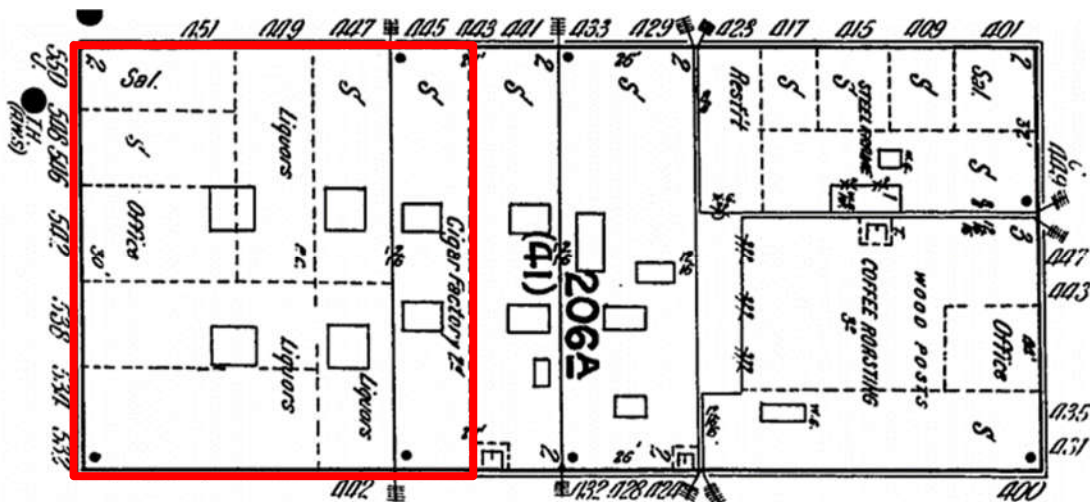


North is up. The subject property is outlined in red.

SOURCE: ProQuest

530 Sansome Street

Figure 6
1899 Sanborn Map



North is up. The subject property is outlined in red.

SOURCE: ProQuest

530 Sansome Street

Figure 7
1913 Sanborn Map



View of storefronts along Sansome Street. Visible signs for businesses include A. Galli Fruit Co. (516-518 Sansome Street), D. Biagi & Co. (520-522 Sansome Street), and V. Chiuda Commission Merchants (524-526 Sansome Street). Addresses for these businesses found in city directories correspond to the address convention seen in the 1899 Sanborn map.

SOURCE: Roy D. Graves Pictorial Collection Bancroft Library, UC Berkeley, Photo ID #291

530 Sansome Street

Figure 8

Earlier Building on the Subject Property, 1907

By 1909, alterations had already been made to the recently constructed building. That year, the southernmost commercial space was given a new storefront, and the saloon within was enlarged to accommodate a restaurant.⁸ The building appears largely unchanged in the 1950 Sanborn map and a 1965 aerial photograph, and it existed on the subject property until it was demolished in 1974.

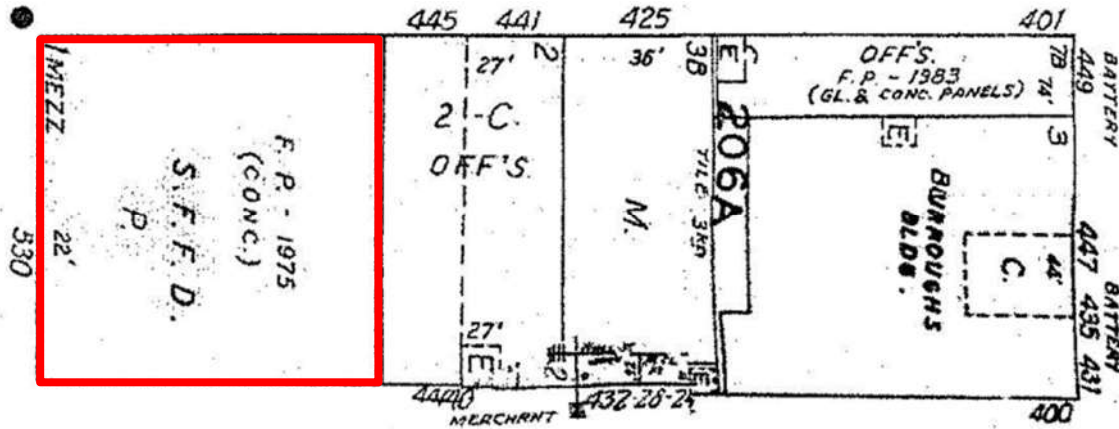
The City of San Francisco has owned the subject property since October 1967.⁹ The application for the original building permit for the present firehouse was filed on January 11, 1974, and the earlier building on the subject property had been demolished by that time. The permit described a new three-story-plus-basement fire station at an estimated cost of \$1,500,000. The building permit was issued on August 14, 1974,¹⁰ and the fire station was completed and opened in September 1975 (**Figures 9, 10, and 11**).¹¹

⁸ Building permit application no. 22431, issued March 22, 1909.

⁹ Deed. October 4, 1967. Book of records 182, p. 400. Digital Reel from the City and County of San Francisco Office of the Assessor-Recorder, 2020.

¹⁰ The application for Building permit no. 391562 was filed on January 11, 1975, for the construction of a new fire station. It includes the note "no other buildings on lot."

¹¹ "Engine Company No. 13." *Guardians of the City* (website of the San Francisco Fire Department Museum). Accessed May 13, 2020, at <https://www.guardiansofthecity.org/sffd/companies/engines/engine13.html>.



North is up. The subject property is outlined in red.

SOURCE: San Francisco Property Information Map

530 Sansome Street

Figure 9
Mid-1990s Sanborn Map



SOURCE: San Francisco Historical Photograph Collection,
Photo ID #AAD-8198

530 Sansome Street

Figure 10
Newly Constructed Fire Station No. 13 and
Engine No. 13, 1976



SOURCE: San Francisco Historical Photograph Collection,
Photo ID #AAD-8199

530 Sansome Street

Figure 11
Fire Station No. 13 and Engine No. 13, 1976

Building Permit History and Alterations

All building permits on file at the San Francisco Department of Building Inspection that have been issued and completed for the subject property are summarized in **Table 1**. Appendix A contains copies of all building permits on file at the Department of Building Inspection. Additionally, from October 2001 to September 2002, the subject building underwent a seismic retrofit.¹²

¹² “Engine Company No. 13.” *Guardians of the City* (website of the San Francisco Fire Department Museum). Accessed May 13, 2020, at <https://www.guardiansofthecity.org/sffd/companies/engines/engine13.html>.

TABLE 1
BUILDING PERMIT HISTORY FOR 530 SANSOME STREET

Permit #	Description of Work	Active Dates
391562	Construct a three-story-over-basement fire station measuring 8,930 square feet. Architects: John C. Portman, Jr. (Embarcadero Center) and Charles W. Griffith (City of San Francisco) Valuation: \$1.5 million	Filed: January 11, 1974; Issued: August 14, 1974
712987	Alter existing boot room to create new women's toilet and shower room. Construct new boot/locker room and repair suspended acoustical ceiling. Alter plumbing/electrical work for new spaces, miscellaneous painting work as needed. Architect: Norman Karasick, Bureau of Architecture, Department of Public Works Builder: C&L Construction Valuation: \$64,700	Filed: Dec. 8, 1992; Completed: Oct. 8, 1993
929069	Provide disabled access at first-floor entry, communication room and toilet, upgrade electrical and mechanical systems. Perform hazardous material abatement, upgrade finishes throughout and perform miscellaneous repairs. No structural work. Reroofing on entire building. Architect: Tara Lamont Valuation: \$979,123	Filed: Nov. 12, 1999; Completed: Mar. 12, 2003
1292705	Reroofing in-kind Builder: Benito Olgvin Valuation: \$105,000	Filed: Jul. 20, 2012; Completed: Dec. 11, 2013
1311084	Shower renovation inclusive of encapsulation of shower stalls with 1/4-inch solid surface shower pan, walls, dividers, sills, and edge trimming. Replacement of water control valves, shower heads, floor drains, P-trap, and new glass doors. Valuation: \$132,000	Filed: Oct. 10, 2013; Completed: Sept. 29, 2015
1318722	Install new secondary containment plate over existing fuel supply piping. No concrete removal required. All work done in existing pipe routes. Builder: Jerry Brown Valuation: \$1,500	Filed: Mar. 7, 2014
1361044	Shower replacement at one stall inclusive of tile removal and replacement, drain and valve replacement, widening of existing stall opening, and new glass shower door. Installation of new waterproofing throughout. Builder: Vito Vanoni Valuation: \$30,000	Filed: Jun. 2, 2015; Completed May 5, 2016
1458176	Replacement of existing apparatus bay door (telescoping door) with new coiling door. Builder: Vito Vanoni Valuation: \$40,000	Filed: Mar. 28, 2018; Completed: Feb. 2, 2019

SOURCE: San Francisco Department of Building Inspection

3 Historical Context

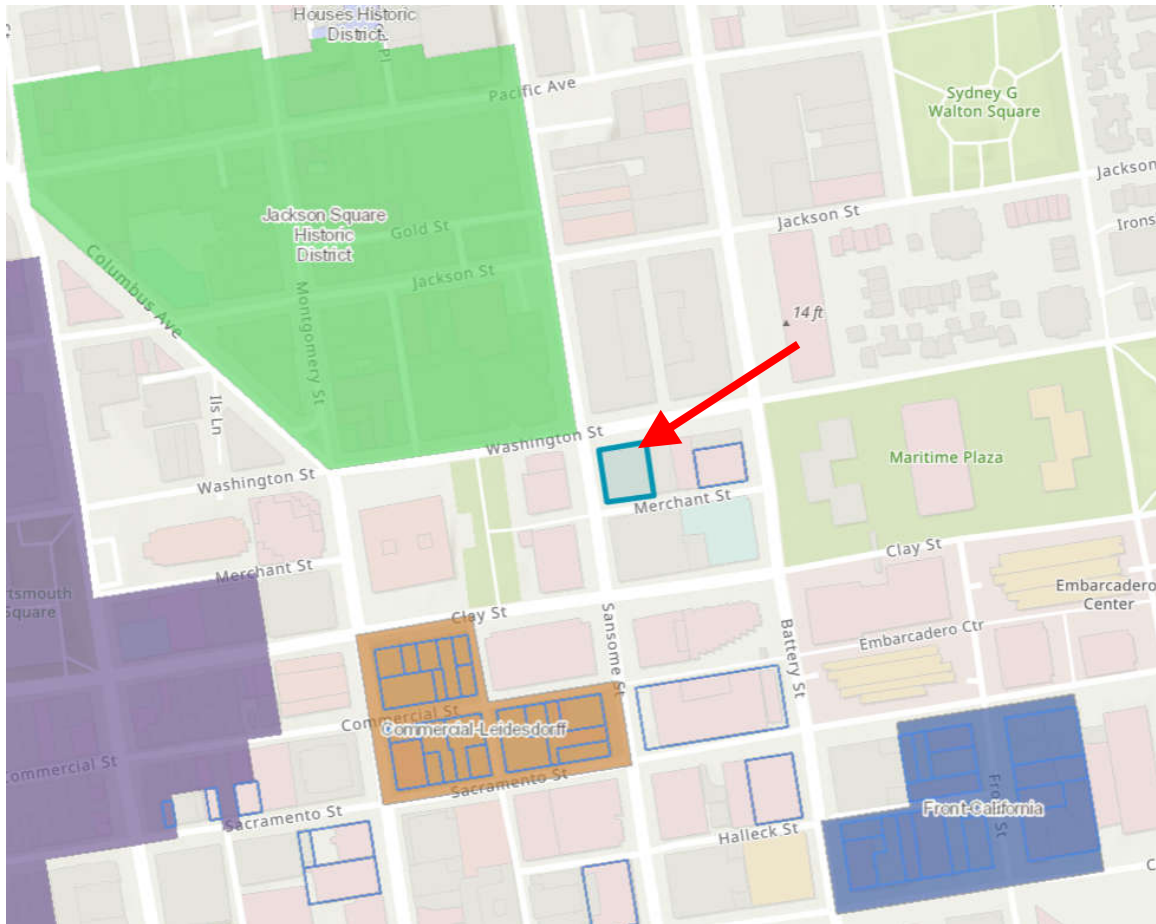
Financial District

The subject property is located in the Financial District, which is bordered by Broadway on the north; San Francisco Bay on the east; Folsom Street on the south; and Kearny, Stockton, and Fourth streets on the west. According to the PIM, a recent Historic Resource Evaluation Response (HRER) for nearby 447 Battery Street (located on the subject block) includes the following description of the surrounding neighborhood:

The subject block is built on landfill that sits beyond the natural shoreline of San Francisco, in the middle of the historical Yerba Buena Cove. Currently considered part of the Financial District, until the mid-twentieth century this area hosted a wide range of stores, warehouses, and other mercantile establishments associated with the nearby produce market and working waterfront. Starting in 1959, much of this historic marketplace neighborhood was razed in connection with the Golden Gateway Redevelopment Project, a massive urban renewal scheme that was completed over the course of the subsequent decades. The results of this project are visible today as the collection of apartment towers, townhouses, office buildings, hotels, parks, plazas, parking garages, and shopping areas that occupy the blocks to the immediate east of the subject property.

The blocks on the west side of Battery Street, including the subject block, have been absorbed into the Financial District, and include many buildings constructed in the late twentieth century, although there is nothing on the massive urban scale of the Golden Gateway Project to the east. The Transamerica Pyramid, San Francisco's tallest building from the time of its construction in 1972 until 2017, stands [one block] west of [530 Sansome Street]. The subject block and the block to the south across Merchant Street include several buildings constructed in the aftermath of the 1906 earthquake and fires (447 Battery Street, 1907; 439 Washington Street, 1907; 425 Washington Street, 1907 (altered); 432 Clay Street, 1912), a 1920s office building (500 Sansome Street, 1929), a modernist fire station (530 Sansome Street, [1975]), and a contemporary hotel building (425 Battery, early 2000s). Nearby historic buildings include the 1911 U.S. Customs House (555 Battery Street), the 1944 U.S. Appraisers Building (630 Sansome Street), and 545 Sansome Street, built in 1930. The identified historic district that is closest to the subject building is the Article 10 Jackson Square Historic District, known for its nineteenth century commercial buildings. Other nearby historic districts include the Article 11 Commercial-Leidesdorff and Front-California Conservation Districts, which contain commercial buildings from the early twentieth century [(Figure 12)].¹³

¹³ Rachel Schuett and Jørgen Cleemann, San Francisco Planning Department. "Historic Resource Evaluation Response: 447 Battery Street (Case No. 2014-1036ENV)." December 18, 2017.



The subject property is identified with the red arrow. The Jackson Square Historic District (green), Commercial-Leidesdorff Conservation District (brown), Front-California Conservation District (blue), and Chinatown Historic District (purple) are shown for reference.

SOURCE: San Francisco Property Information Map

530 Sansome Street

Figure 12
Map of the Financial District

San Francisco Fire Department in the Financial District

The subject building, which has historically functioned as Fire Station No. 13, replaced an earlier fire station that was demolished as part of the Embarcadero Center development (discussed in more detail below). The earlier fire station was located at 115 Drumm Street (at the southwest corner of Drumm and Commercial streets) and was home to Engine Company No. 12 and Truck Company No. 13. The three-story, reinforced-concrete building was formally dedicated on July 28, 1915, and was considered to be the city's "largest and most modern equipped fire station."^{14,15} The fire station at 115 Drumm Street was rebuilt several decades later as part of the

¹⁴ City and County of San Francisco. "Dedication of New Fire House." *Municipal Record*, Vol. 8, No. 1 (January 7, 1915), p. 251.

¹⁵ "New Fire Station in San Francisco." *Fire and Water Engineering*, Vol. 58, No. 22 (December 1, 1915), p. 339.

1952 Firehouse Bond Act (Proposition H, File No. 9395-3; Ordinance No. 7493),¹⁶ and it officially reopened in the same location on April 1, 1957 (**Figure 13**).¹⁷



SOURCE: *Guardians of The City*

530 Sansome Street

Figure 13
Fire Station at 115 Drumm Street, ca. 1957

In the 1959 *Redevelopment Plan for the Golden Gateway: Embarcadero-Lower Market Approved Redevelopment Project Area E-1*, the recently reconstructed Drumm Street fire station was planned to remain intact and in use.¹⁸ In 1963, the entire block in which the fire station was located (i.e., block no. 232) with the exception of the fire station itself was “scheduled for [commercial and office building development] but [is] not being marketed at the present time,”¹⁹ and in 1966, the purchase price for the entire block (save for the fire station) was \$2,066,522.²⁰ The Embarcadero Center master plan was unanimously approved by the San Francisco Redevelopment Agency and the San Francisco Planning Commission in April 1967.^{21, 22}

¹⁶ Page & Turnbull. *676 Howard Street Historic Resource Evaluation*. May 2010. Pp. 27, 55.

¹⁷ “Former Firehouses: 115 Drumm Street.” *Guardians of the City* (website of the San Francisco Fire Department Museum). Accessed April 7, 2020, at https://www.guardiansofthecity.org/sffd/firehouses/former/115_drumm.html.

¹⁸ San Francisco Redevelopment Agency. *Redevelopment Plan for the Golden Gateway: Embarcadero-Lower Market Approved Redevelopment Project Area E-1*. San Francisco, CA: Redevelopment Agency of the City and County of San Francisco, 1959. Pp. 6, 9, 12.

¹⁹ San Francisco Redevelopment Agency. *Commercial Development in the Golden Gateway, San Francisco*. San Francisco, CA: Redevelopment Agency of the City and County of San Francisco, 1963. P. 3.

²⁰ San Francisco Redevelopment Agency. *Golden Gateway Commercial Parcels*. San Francisco, CA: Redevelopment Agency of the City and County of San Francisco, 1966.

²¹ “Embarcadero Center Gets a First OK.” *San Francisco Chronicle*, April 5, 1967, pp. 1, 9.

²² Mel Wax. “Planners OK Embarcadero Center.” *San Francisco Chronicle*, April 14, 1967, pp. 1, 18.

In 1969, the earlier exclusion of the City-owned Drumm Street fire station from the redevelopment area proved to be “very shortsighted planning” and a “profitable blunder” for the City of San Francisco. The fire station had become an obstruction to the Embarcadero Center development (specifically Three Embarcadero Center), and the developer – David Rockefeller & Associates – was forced to purchase the land from the San Francisco Redevelopment Agency for the price of \$360,000.²³ Additionally, the developer was required to pay for the construction of a new fire station at 530 Sansome Street, a City-owned property located one block west of the redevelopment area.^{24, 25} The Drumm Street fire station was demolished in May 1975.²⁶

Engine Company No. 13

San Francisco Engine Company No. 13 was organized in 1883 and assigned to quarters at 1458 Valencia Street (extant). From 1958 to 1973, the company was quartered at 3880 26th Street (extant). After being quartered in the Mission District for 90 years, the company relocated to 115 Drumm Street in the Financial District, where it remained for less than two years before that fire station was demolished, as described above.²⁷

Engine Company No. 13 moved into the new fire station at 530 Sansome Street on September 25, 1975. With the exception of a period from October 2001 to September 2002, during which time 530 Sansome Street was seismically retrofitted, the company has remained at this location until the present day.²⁸

Truck Company No. 13

San Francisco Truck Company No. 13 was organized in 1915 and assigned to quarters at 115 Drumm Street (demolished). Truck 13 was temporarily quartered at 676 Howard Street (demolished) during construction of the new fire station at 115 Drumm Street (1956-57), after which the company returned to 115 Drumm Street, where it remained until April 1975. (115 Drumm Street was demolished the following month.²⁹) Following another temporary (five-month) stay at 676 Howard Street, Truck Company No. 13 relocated to the new Station No. 13 at 530 Sansome Street (project site) on September 25, 1975, where it has remained until the present day except during the above-noted seismic retrofit of 2001-02, when the company was temporarily quartered at 2150 California Street.³⁰

²³ Donald Canter. “Rocky May Buy New Firehouse: ‘Blunder’ Aids City.” *San Francisco Examiner*, April 9, 1969, p. 36.

²⁴ “The City Gets a Windfall -- \$1 Million Fire House.” *San Francisco Chronicle*, April 10, 1969, p. 6.

²⁵ *San Francisco Fire Department Annual Report 1974-1975*, p. 19.

²⁶ “Art and Debris.” *San Francisco Chronicle*, May 12, 1975, p. 38.

²⁷ “Engine Company No. 13.” *Guardians of the City* (website of the San Francisco Fire Department Museum). Accessed April 7, 2020, at <https://www.guardiansofthecity.org/sffd/companies/engines/engine13.html>.

²⁸ “Engine Company No. 13.” *Guardians of the City* (website of the San Francisco Fire Department Museum). Accessed April 7, 2020, at <https://www.guardiansofthecity.org/sffd/companies/engines/engine13.html>.

²⁹ “Art and Debris.” *San Francisco Chronicle*, May 12, 1975, p. 38.

³⁰ “Truck Company No. 13.” *Guardians of the City* (website of the San Francisco Fire Department Museum). Accessed August 20, 2020, at <https://www.guardiansofthecity.org/sffd/companies/trucks/truck13.html>.

Embarcadero Center

Fire Station No. 13 at 530 Sansome Street was designed as part of Embarcadero Center, a commercial complex whose principal components are four office towers (One, Two, Three, and Four Embarcadero Center) and one hotel (Five Embarcadero Center, or the Hyatt Regency Hotel) on a 9.8-acre site located off the Embarcadero in San Francisco's Financial District (**Figure 14**).³¹ The site was originally part of the Produce District, which contained a maze of low-scale commercial warehouses and smaller streets. When urban renewal plans took hold in the 1950s, city planner M. Justin Herman spearheaded a plan to redevelop the nearly 10-acre site comprising five city blocks. Called a city-within-a-city, the project was built incrementally over 14 years in tandem with the growth of the Financial District. The project developers were Trammell Crow, Portman Holdings, and David Rockefeller & Associates. The architect was John C. Portman, Jr.

The construction schedule was aggressive, comprising four successive phases of development that overlapped in order to maintain progress.³² Construction of Phase 1 began in July 1968 with One Embarcadero Center, which was completed in March 1971. That same month, Phase 2 began with the construction of Five Embarcadero Center (i.e., the Hyatt Regency Hotel), which was completed in May 1973. Phase 3 began in March 1972 with the construction of Two Embarcadero Center, which was completed in April 1974. Phase 4 began that same month with the groundbreaking of Three Embarcadero Center, which was completed in September 1976, followed by Four Embarcadero Center, which was constructed between January 1976 and May 1981.³³ The four office towers range from 30 to 45 stories in height, and the hotel is 20 stories in height. At 4.8 million square feet of office, retail, hotel, dining, and entertainment space, Embarcadero Center is one of the largest mixed-use complexes in the western United States.³⁴

The construction of the new fire station at 530 Sansome Street (as part of Phase 4) was an afterthought that had to be efficiently incorporated into the overall project schedule. As established above, the Embarcadero Center master plan was approved in April 1967,^{35, 36} the first phase of construction began in July 1968, and it was not until April 1969 that the need to replace the existing fire station at 115 Drumm Street was identified to accommodate the construction of Three Embarcadero Center.^{37, 38} The selection of location (April 1969), design (ca. 1970-73), construction (1974-75), and operation (Fall 1975)³⁹ of 530 Sansome Street could very well have

³¹ Embarcadero Center is one component of the larger Golden Gateway Project.

³² Scott Blakey. "The Embarcadero Center's Start." *San Francisco Chronicle*, May 5, 1969, p. 2.

³³ Page & Turnbull. *Embarcadero Center Lobbies Historic Structures Report "Lite."* July 2018, p. 5.

³⁴ "History of the Embarcadero Center." *Embarcadero Center*. Accessed November 28, 2012, at <http://embarcaderocenter.com/about/>.

³⁵ "Embarcadero Center Gets a First OK." *San Francisco Chronicle*, April 5, 1967, pp. 1, 9.

³⁶ Mel Wax. "Planners OK Embarcadero Center." *San Francisco Chronicle*, April 14, 1967, pp. 1, 18.

³⁷ "The City Gets a Windfall -- \$1 Million Fire House." *San Francisco Chronicle*, April 10, 1969, p. 6.

³⁸ Donald Canter. "Rocky May Buy New Firehouse: 'Blunder' Aids City." *San Francisco Examiner*, April 9, 1969, p. 36.

³⁹ "Engine Company No. 13." *Guardians of the City* (website of the San Francisco Fire Department Museum). Accessed April 7, 2020, at <https://www.guardiansofthecity.org/sffd/companies/engines/engine13.html>.



SOURCE: ESA

530 Sansome Street

Figure 14
Embarcadero Center Office Towers

held up the purchase of the 115 Drumm Street property (May 1974)⁴⁰ and its demolition (May 1975)⁴¹ and, consequently, the timely completion of Three Embarcadero Center.

The complex of four office towers plus the Hyatt Regency Hotel are linked by footbridges that integrate retail and restaurant uses on the first three levels of each block-sized podium, with slender office towers above which cover only one-third of the site. The towers, clad in rough-finished, precast concrete panels, are composed of slab-like elements that are staggered to create 10 to 14 corner offices per floor instead of the usual four. Their slender profiles are a departure from the heavier towers on the skyline.⁴²

Brutalism (discussed in more detail below) is the predominant architectural style of Embarcadero Center. Brutalist features exhibited at Embarcadero Center include the buildings' rough, unadorned poured concrete construction with visible imprints of wood formwork, deeply shadowed irregular openings, massive cubic forms, rectangular block-like shapes, recessed windows that read as voids, and precast concrete panels with exposed joinery. Bold geometric

⁴⁰ *San Francisco Fire Department Annual Report 1973-1974*, p. 21.

⁴¹ "Art and Debris." *San Francisco Chronicle*, May 12, 1975, p. 38.

⁴² Sally B. and John M. Woodbridge. *San Francisco Architecture: The Illustrated Guide to Over 1,000 of the Best Buildings, Parks, and Public Artworks in the Bay Area*. San Francisco: Chronicle Books. 1992.

patterns are also found on the circular tile paving design which repeats throughout the complex's pedestrian shopping plazas.

In 1984, Embarcadero Center won the Urban Land Institute's Award of Excellence for Large-Scale Urban Development, a prestigious award recognizing projects that "[exemplify] superior design, relevance to contemporary issues and needs, and resourceful utilization of land while improving the quality of the living environment."⁴³ In 2019, John Portman & Associates published a firm profile and portfolio of completed projects, and the association of 530 Sansome Street with Embarcadero Center is confirmed by its listing as "San Francisco Fire Station, Embarcadero Center, 1976."⁴⁴

Embarcadero Center continued to grow in size with the 1989 completion of a fifth office tower at 275 Battery Street known as Embarcadero West.

Embarcadero Center was the subject of a 2018 "Historic Structures Report-Lite," and the San Francisco Planning Department determined that the four office towers and the Hyatt Regency Hotel are historical resources based on this report.^{45,46}

Brutalist Architecture in San Francisco

San Francisco Fire Station No. 13 at 530 Sansome Street was designed in a Modern architectural style often referred to as Brutalism. Brutalist buildings tend to be geometric in form and are usually constructed of large amounts of poured and textured concrete. British architects Alison and Peter Smithson invented the term in 1953 from the French *béton brut*, meaning "raw concrete." Swiss architect Le Corbusier originally used this phrase to describe the poured board-formed concrete with which he constructed many of his post-World War II buildings.⁴⁷ Brutalism gained considerable momentum in continental Europe and the United Kingdom during the mid-twentieth century, as economically depressed (and World War II-ravaged) communities sought inexpensive construction and design methods for low-cost housing, commercial, and government buildings. Brutalism was promoted as a positive option for forward-moving, modern urban housing. This style, which was prevalent in America in the 1960s and 1970s, and in San Francisco between 1960 and 1980, is often found at university campuses and within civic or institutional settings.

Brutalist buildings are usually formed with striking repetitive angular geometries. Concrete is the material most widely associated with Brutalist architecture, although not all Brutalist buildings are constructed of that material. Instead, a building may achieve its Brutalist quality through a rough, blocky appearance, and the expression of its structural materials, forms, and (in some cases) services on its exterior. When concrete is used, the buildings often reveal the texture of

⁴³ Steve Womersley, ed. *John Portman and Associates: Selected and Current Works*. Mulgrave, Victoria, Australia: The Images Publishing Group Pty. Ltd., 2002. P. 226.

⁴⁴ "Portman Recent Works" (firm profile). *John Portman & Associates, Inc.* March 2019, p. 175. Accessed January 22, 2020, at https://portmanarchitects.com/wp-content/uploads/2019/03/Portman_RecentWorks_E_Web-min.pdf.

⁴⁵ Page & Turnbull. *Embarcadero Center Lobbies Historic Structures Report "Lite."* July 2018.

⁴⁶ Jørgen Cleemann, San Francisco Planning Department, phone call with Johanna Kahn, ESA. June 11, 2020.

⁴⁷ Mary Brown. *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*. Prepared for the San Francisco City and County Planning Department, 2010. P. 132.

the wood formwork. Another common theme in Brutalist designs is the exposure of the building's functions—ranging from their structure and services to their human use—in the exterior of the building.

Character-defining features of Brutalist architecture identified in the *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement* include the following, some of which are reflected in Fire Station No. 13:

- Rough unadorned poured concrete construction
- Massive form and heavy cubic shapes
- Visible imprints of wood grain forms
- Recessed windows that read as voids
- Repeating geometric patterns
- Strong right angles and simple cubic forms
- Deeply shadowed irregular openings
- Rectangular block-like shapes
- Precast concrete panels with exposed joinery⁴⁸

There are relatively few Brutalist buildings in San Francisco, and most were built between 1960 and the early 1980s. Such buildings are generally limited to large-scale commercial, hospital, service, and educational buildings. Extant examples include Embarcadero Center, Transamerica Pyramid (1972), Hilton Hotel on Portsmouth Square (1970), Fox Plaza (1966), Davies Medical Center (1968-71), San Francisco State University (SFSU) César Chávez Student Center (designed in 1975), SFSU Administration Building (1970), and San Francisco General Hospital (1976, recently renamed the Zuckerberg San Francisco General Hospital and Trauma Center).⁴⁹ All original Bay Area Rapid Transit (BART) stations were also designed in the Brutalist manner (1972-73), with the Glen Park BART station, in particular, often cited as the embodiment of the style.⁵⁰ In the East Bay, extant examples of Brutalist architecture include the Oakland Museum of California (1969), Wurster Hall at UC Berkeley (1964), and the former Berkeley Art Museum and Pacific Film Archive (1970). Elsewhere in the United States, extant examples of Brutalist architecture include the Boston City Hall by architects Kallmann, McKinnell and Knowles (1968), the J. Edgar Hoover Building (FBI Headquarters) in Washington, D.C. by the architecture firm Charles F. Murphy & Associates (1975), and the Salk Institute in La Jolla, California by architect Louis Kahn (1966).

In addition to Embarcadero Center (described above), of which Fire Station No. 13 at 530 Sansome Street is a component, a brief description and photographs of four exemplary

⁴⁸ Mary Brown. *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*. Prepared for the San Francisco City and County Planning Department, 2010. Pp. 190-191.

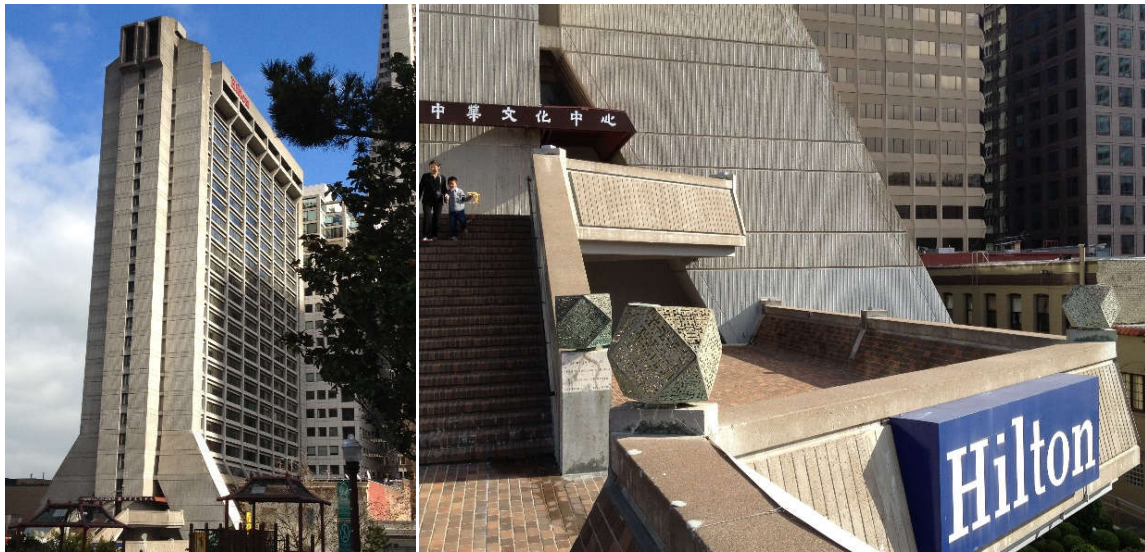
⁴⁹ Mary Brown. *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*. Prepared for the San Francisco City and County Planning Department, 2010. P. 192.

⁵⁰ Mary Brown. *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*. Prepared for the San Francisco City and County Planning Department, 2010. Pp. 126, 191.

Brutalist buildings/developments in San Francisco are provided below for comparison purposes with the subject building.

Hilton Hotel on Portsmouth Square (1970)

The Hilton Hotel, officially called the “Hilton San Francisco Financial District” is a 30-story, 544-room hotel located at 750 Kearny Street, across from Chinatown’s Portsmouth Square (**Figure 15**). Completed in 1970 and designed in the Brutalist style by the architectural firm of John Carl Warnecke & Associates, with the lobby interior designed by Gensler based on the Chinese aesthetic practice of *feng shui*, the building was originally the “Holiday Inn San Francisco.” The building underwent a \$55 million interior renovation in 2006, but the exterior is still largely intact.⁵¹ Brutalist features include the building’s rough unadorned poured concrete construction with visible imprints of wood grain forms and exposed joinery, a massive vertical form with a flared base, and heavy cubic shapes especially at the top floor, where an observation level and ventilation ducts project outward.



SOURCE: ESA

530 Sansome Street

Figure 15
Hilton Hotel on Portsmouth Square

Davies Medical Center (1968-71)

California Pacific Medical Center (CPMC), Davies Campus, is a large hospital complex at 45 Castro Street that occupies an entire city block bounded by Castro, Duboce, Noe, and 14th streets in San Francisco’s Castro/Duboce Park neighborhood (**Figure 16**). The hillside site comprises approximately 7.2 acres and contains five buildings: the North Tower, the South Tower (each tower is six stories tall), the Rehabilitation Center, the 45 Castro Medical Office

⁵¹ “Hilton San Francisco Financial District.” *Wikipedia*. Accessed November 28, 2012, at http://en.wikipedia.org/wiki/Hilton_San_Francisco_Financial_District.



SOURCE: ESA

530 Sansome Street

Figure 16
Davies Medical Center

Building, and a parking garage for approximately 500 cars. The total floor space on the campus is approximately 500,000 gross square feet.⁵²

The site was first developed as the 200-bed German Hospital by the General Benevolent Society in 1878. In 1917, German Hospital changed its name to Franklin Hospital in honor of Benjamin Franklin's pioneering work in medicine. By the 1960s, the old hospital had become obsolete and was replaced with the current hospital, which was designed by the architectural firm of Stone, Marraccini, and Patterson. The hospital officially opened in 1968, with the entire campus completed by 1971. At that time, it was renamed the Ralph K. Davies Medical Center in his honor of the philanthropist and long-time Franklin Hospital Trustee. In 1998, Davies Medical Center became part of CPMC, and in 2009 became part of Sutter Pacific Medical Foundation.⁵³

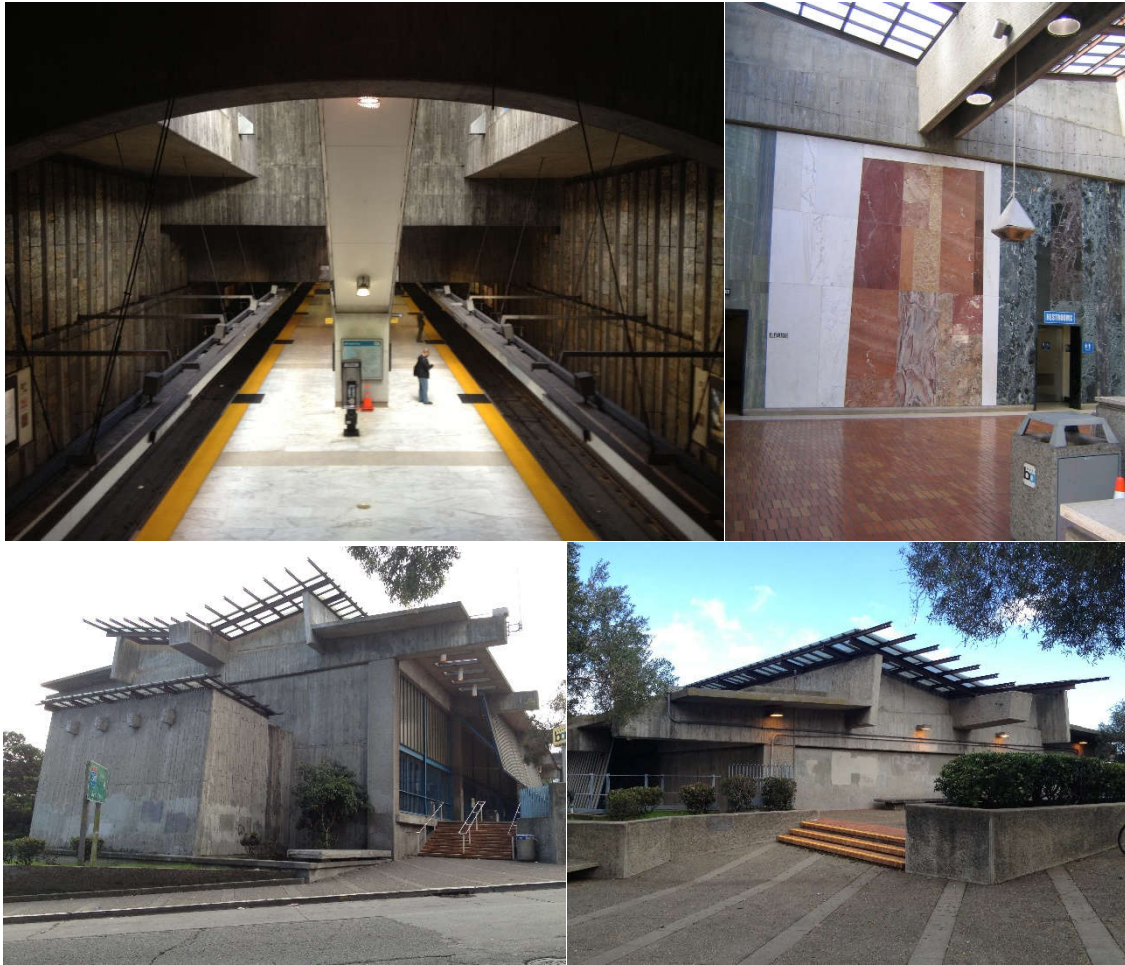
CPMC's Davies Campus was designed in the Brutalist style, with features including the building's rough, unadorned poured concrete construction with visible imprints of wood formwork, massive cubic forms, and recessed windows that read as voids and are separated by precast concrete panels which form repeating geometric patterns across all façades. Massive, flared concrete pillars buttress all four corners of both towers, and the entire development sits upon a massive, concrete slab which steps down the slope to the east.

Glen Park BART Station (1972)

The Glen Park BART Station is located in the Glen Park neighborhood at the intersection of Bosworth and Diamond streets (**Figure 17**). Interstate 280 is located on the south side of the station. The BART system was planned in the 1950s, designed in the 1960s, and opened in the 1970s. The Glen Park Station was completed by 1972 and service began on November 3, 1973. BART's

⁵² "California Pacific Medical Center (CPMC), Davies Campus." *San Francisco Planning Department*. Accessed November 28, 2012, at www.sf-planning.org/index.aspx?page=2727.

⁵³ "A History of California Pacific Medical Center." *California Pacific Medical Center*. Accessed November 28, 2012, at <http://www.cpmc.org/about/history/timeline.html>.



SOURCE: ESA

530 Sansome Street

Figure 17
Glen Park BART Station

approach of employing different architects to design stations resulted in a variety of architectural styles for each station. Considered the “jewel of the BART system,” the Glen Park Station was designed by the architectural firm of Corlett and Spackman and Ernest Born in the Brutalist style.

Born also designed a marble mural at the west end of the mezzanine, where over 100 pieces, few of which are cut at right angles, are presented in warm brown and red-brown tones.⁵⁴

The November 1974 issue of *Architectural Record* included the following description of the station: “The dramatic volume of the station—one of the deepest in the system—unfolds at the escalator wells, where the full height (60 feet or 18 m) of the structure is visible. During the day, daylight from the skylights, one over the mezzanine, the other over the end escalator, pours in to the lower platform, an extraordinary sight in a subway.”⁵⁵

⁵⁴ “Glen Park Station.” Accessed November 28, 2012, at http://en.wikipedia.org/wiki/Glen_Park_Station.

⁵⁵ “Two BART Stations.” *Architectural Record*. November 1974.

At the platform level, one of the deepest platforms in the whole BART system, jagged stone blocks cover the interior retaining walls to reinforce the feeling of being in a man-made underground tunnel. The roughness of the blocks suggests that the tunnel has been carved out of the solid rock within the earth's core. At the concourse level, the treatment of the surrounding walls and the use of a glass roof create the feeling of being in a monumental vestibule, with the west end embellished with polished marble mosaic. The rough-hewn concrete walls continue to this level and characterize the exterior of the superstructure. The use of different finishes enriches the experience of going from the platform to the concourse; from the earth's core along rough walls to the refined room at the top. Capping the concourse with a glass roof highlights the experience of moving from the underground to the light and air. Design and finishes together support the theme of the station rising from the rails and platform up to the concourse and street; its perimeter walls like shards of concrete pushed upward through the earth.⁵⁶

Brutalist features exhibited at the Glen Park BART Station include the building's rough, unadorned poured concrete construction with visible imprints of wood formwork, deeply shadowed openings, massive cubic forms, rectangular block-like shapes, repeating geometric patterns, strong right angles, and precast concrete panels with exposed joinery.

SFSU César Chávez Student Center (1975)

Located at 1650 Holloway Avenue in San Francisco's Sunset neighborhood, the César Chávez Student Center serves as the focal point of student activity at the SFSU campus (**Figure 18**). Completed in September 1975, the building is approximately 115,000 square feet in size, and contains a dining hall, bookstore, lecture halls, a billiards hall and pub, and student offices.⁵⁷



SOURCE: ESA

530 Sansome Street

Figure 18
SFSU César Chávez Student Center

⁵⁶ "Glen Park BART Station." *Design by the Bay*. Accessed November 28, 2012, at <http://designbythebay.com/2009/09/glen-park-bart-station/>.

⁵⁷ "César Chávez Student Center." *San Francisco State University*. Accessed November 28, 2012, at <http://www.sfsustudentcenter.com/about/>.

Named after famed farm labor leader and civil rights activist César Chávez, the five-story building (three above ground and two below) has an irregular trapezoidal plan constructed entirely of poured concrete with bold geometric forms such as the two angular rooftop towers, one of which forms a bleacher-like exterior seating area overlooking the main campus quad. The building was designed by San Francisco modernist architect Paffard Keatinge-Clay, who designed the building to provide SFSU with a “village” center, incorporating ideas expressed by students. The building’s two jutting towers, which represent “sound” and “silence,” continue to draw praise and criticism.⁵⁸

The building’s structural expression came in the form of a triangulated series of poured-in-place concrete columns, ordered on a version of “triagrid” plan module that refers to Frank Lloyd Wright’s Usonian house studies of the late 1940s. The student union was Keatinge-Clay’s most ambitious and professionally tumultuous project of his career. Technical and legal difficulties on the project resulted in his eventual departure from the U.S. to Canada, followed by relocation to Spain in the late 1970s.⁵⁹

Brutalist features exhibited at the SFSU César Chávez Student Center include the building’s rough, unadorned poured concrete construction with visible imprints of wood formwork, deeply shadowed irregular openings, massive cubic forms, and recessed windows that read as voids. Other features include repeating geometric “triagrid” patterns such as the exposed structure comprised of diagonal concrete piers, beams, and posts.

4 Owner and Occupant History

The subject building has functioned historically as Fire Station No. 13 and has been occupied by Engine Company No. 13 almost continuously since it opened in 1975, except for the period from October 2001 to September 2002, during which time 530 Sansome Street was seismically retrofitted.⁶⁰

The subject property has been owned by the City and County of San Francisco since October 1967.⁶¹ All deeds for the subject property, which document ownership, that are available online through the City and County of San Francisco Assessor-Recorder’s Office are summarized in **Table 2**. These date from 1967 to 2016.

⁵⁸ “SFSU Centennial History.” *San Francisco State University*. Accessed November 28, 2012, at <http://www.sfsu.edu/~100years/textonlycent/time/longtime.htm>.

⁵⁹ “Paffard Keatinge-Clay.” *Wikipedia*. Accessed November 28, 2012, at http://en.wikipedia.org/wiki/Paffard_Keatinge-Clay.

⁶⁰ “Engine Company No. 13.” *Guardians of the City* (website of the San Francisco Fire Department Museum). Accessed April 7, 2020, at <https://www.guardiansofthecity.org/sffd/companies/engines/engine13.html>.

⁶¹ Deed. October 4, 1967. Book of records 182, p. 400. Digital Reel from the City and County of San Francisco Office of the Assessor-Recorder, 2020.

TABLE 2
OWNERSHIP HISTORY FOR 530 SANSOME STREET

Year	Grantor(s)	Grantee(s)	Document Type/ID
1967	St. Francis Association	City and County of San Francisco	Deed 018893 (Book of records 182, p. 400)
1990	City property	SFUSD Community Facilities Dist. 90-1	Notice of special tax lien E585344-00
2016	Trinity Towers AS/YS LLC	Angelo Sangiacomo Marital Trust, Anne Marie Kane, James Sangiacomo, Maria Sangiacomo, Mark Sangiacomo, Maryanne Sangiacomo, Sandro Sangiacomo, Susan Sangiacomo, Yvonne Sangiacomo, Yvonne Sangiacomo Irrevocable Trust	Deed K347585-00

SOURCES: *CRiis.com*, 2020; Digital Reel from the City and County of San Francisco Office of the Assessor-Recorder, 2020.

5 Design Professionals

Research identified the design professionals associated with Fire Station No. 13. Brief histories of these individuals are presented below.

John C. Portman, Jr., FAIA

530 Sansome Street was constructed as part of Embarcadero Center, which was designed by Atlanta-based architecture firm John Portman & Associates. The following brief biography of the firm's founder is from the *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*. A more detailed biography that includes Portman's numerous accolades and completed projects is presented in the 2002 book *John Portman and Associates: Selected and Current Works*.⁶²

John C. Portman [Jr.]'s [(1924-2017)] futuristic designs, massive atriums and highly successful concomitant role as developer and architect have made him one of the world's leading architect-developer of large-scale projects, particularly in the hotel industry. His mixed-use complexes aim to create a unique environments [*sic*], which is evident in the Embarcadero Center's elevated walkways, reflective pools and expansive interiors. His work can be found in major international cities. Most of his San Francisco work occurred after 1970, primarily a complex of buildings at the Embarcadero Center: One Embarcadero Center (formerly the Security Pacific Tower), 1971; Two Embarcadero Center, 1974; Three Embarcadero Center (formerly the Levi Strauss Building), 1977; Four Embarcadero Center, 1982; and the Hyatt Regency and Atrium (also known as Five Embarcadero Center), 1973. Later San Francisco projects include Le

⁶² Steve Womersley, ed. *John Portman and Associates: Selected and Current Works*. Mulgrave, Victoria, Australia: The Images Publishing Group Pty. Ltd., 2002.

Méridien San Francisco (formerly the Park Hyatt San Francisco), 1988[,] and Embarcadero West, 1989.⁶³

Portman's other extant designs in San Francisco include the 1955 Ebenezer Lutheran Church at 678 Portola Drive and Fire Station No. 13 at 530 Sansome Street.⁶⁴

Portman's legacy is defined in part by his role in transforming America's downtowns following postwar urban renewal. Of his numerous completed projects in the United States and abroad, Portman is perhaps best known for his large-scale commercial developments often described as "cities within cities," beginning with the 1965 Peachtree Center (the firm's largest mixed-use project) in Atlanta, Embarcadero Center (**Figure 19**), and the 1977 Renaissance Center in Detroit (**Figure 20**), all of which are extant. Portman was also renowned for his design of hotels in urban centers, often as part of larger mixed-use developments. A hallmark of Portman-designed hotels is the cavernous, seemingly gravity-defying atrium, the earliest of which appeared in his design for the Hyatt Regency Hotel that is a component of the Peachtree Center and was later repeated in San Francisco. The atrium space, which was carried through many of his other hotels and commercial towers and even appeared in movies,⁶⁵ became widely imitated by other architects. Before his death in 2017, Portman completed numerous projects in Europe, Asia, and the Middle East.⁶⁶



SOURCE: *Atlanta Studies*

530 Sansome Street

Figure 19
Peachtree Center and Hyatt Regency Hotel, Atlanta

⁶³ Mary Brown. *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*. Prepared for the San Francisco City and County Planning Department, 2010. Pp. 258-259.

⁶⁴ Mary Brown. *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*. Prepared for the San Francisco City and County Planning Department, 2010. P. 259.

⁶⁵ The atrium in the San Francisco Hyatt Regency Hotel appeared in "The Towering Inferno" (1974), "Freebie and the Bean" (1974), "High Anxiety" (1977), "Telefon" (1977) and "Time After Time" (1979).

⁶⁶ Robert D. McFadden. "John Portman, Architect Who Made Skyscrapers Soar, Dies at 93." *New York Times*, January 1, 2018, p. B4.



SOURCE: Jeff Kowalsky/AFP/Getty Images

530 Sansome Street

Figure 20
Renaissance Center, Detroit

Portman authored or co-authored several books: *The Architect as Developer* (McGraw-Hill Book Co., 1976), *John Portman* (The American Institute of Architects Press, 1990), *John Portman: An Island on an Island* (l'Arcaedizioni, 1997), and *Form* (Philip Jann Press, 2009; Images Publishing, 2010). Additionally, Portman was the subject of several other books and documentaries.⁶⁷

John C. Portman, Jr., FAIA, qualifies as a master architect.

Henri Marie-Rose, Sculptor

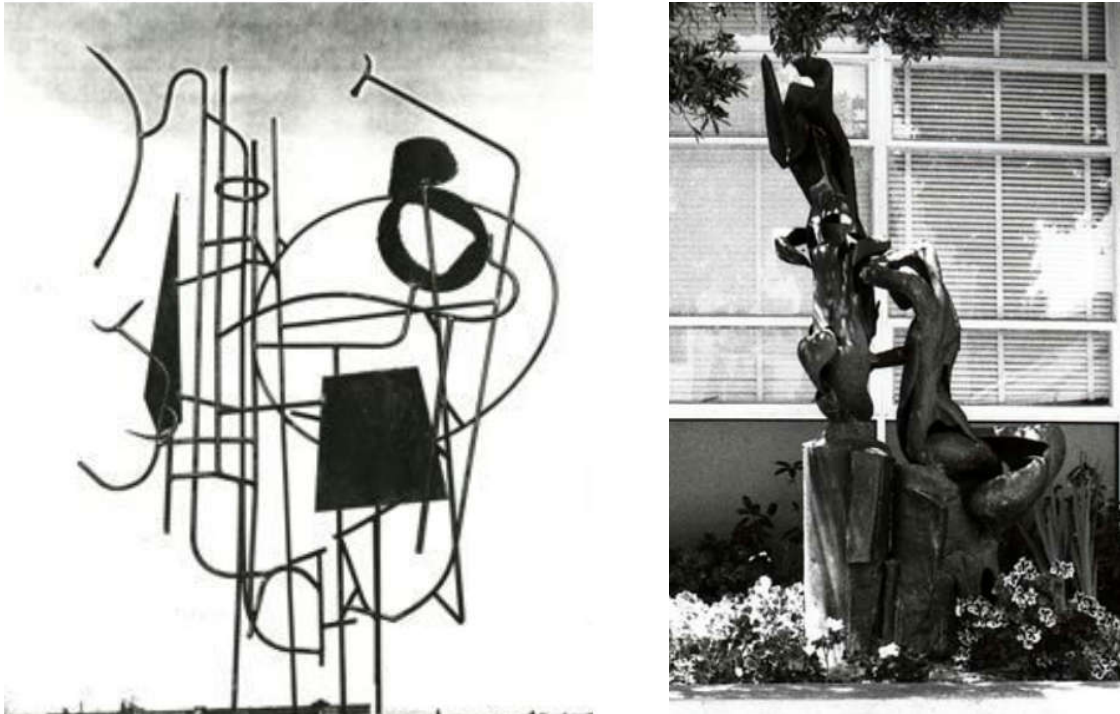
Born in Martinique, sculptor Henri Marie-Rose (1922-2010) designed the sculpture installed on the north façade of 530 Sansome Street (Figure 5). In 1976, the San Francisco Arts Commission's Acquisitions Committee held a competition for public art to be installed on the exterior of the recently completed Fire Station No. 13. Three finalists were selected during the first phase of the competition: Marie-Rose, Raymond Sells, and C. B. Johnson.⁶⁸ Marie-Rose's design ultimately won, earning him \$6,000 for the copper sculpture *Untitled*, which depicts firefighters with a hose next to the letters "SFFD."⁶⁹ The San Francisco Arts Commission website lists three sculptures

⁶⁷ "Books and Film." *John Portman & Associates, Inc.* Accessed January 22, 2020, at <https://www.portmanarchives.com/books-films>.

⁶⁸ "Minutes, May 3, 1976." *Minutes of the Art Commission of the City and County of San Francisco: 1976*. Accessed January 23, 2020, at <https://archive.org/details/artcommissionmin1976sanf/page/82>.

⁶⁹ "Sculpture for the Firehouse." *San Francisco Examiner*, January 24, 1977, p. 20.

by Marie-Rose in its collection:⁷⁰ *Jouons Ensemble* (1959, purchased by the commission for \$650 in 1959),⁷¹ *Sailor and Mermaid* (1969, purchased in 1969 for \$4,500),⁷² and *Untitled* (1976-77, purchased in 1976 for \$6,000).⁷³ Archival research did not identify the present location of *Jouons Ensemble*, and *Sailor and Mermaid* was stolen in the early 1990s (**Figure 21**).^{74,75} *Untitled* is believed to be the only remaining public artwork by Marie-Rose in San Francisco.⁷⁶



Jouons Ensemble (1959) at left, and *Sailor and Mermaid* (1969) at right.

SOURCE: San Francisco Arts Commission; Cindy Casey (ArtandArchitecture-SF.com).

530 Sansome Street

Figure 21
Sculptures by Henri Marie-Rose

⁷⁰ “Henri Marie-Rose.” *San Francisco Arts Commission*. Accessed January 23, 2020, at http://kiosk.sfartscommission.org/objects-1/thumbnails?records=60&query=Artist_Maker%3D%22604%22.

⁷¹ “Minutes, October 5, 1959.” *Minutes of the Art Commission of the City and County of San Francisco: 1959*. Accessed January 23, 2020, at <https://archive.org/details/minutesofartcomm1959sanf/page/3842>.

⁷² “Minutes, April 7, 1969.” *Minutes of the Art Commission of the City and County of San Francisco: 1969*. Accessed January 23, 2020, at https://archive.org/details/artcommissionmin19sanf_3/page/70.

⁷³ “Sculpture for the Firehouse.” *San Francisco Examiner*, January 24, 1977, p. 20.

⁷⁴ Joe Eskenazi. “Raiders of the Lost Art: Another San Francisco Sculpture Goes Missing.” *SF Weekly*, August 5, 2014. Accessed January 23, 2020, at <https://www.sfweekly.com/news/raiders-of-the-lost-art-another-san-francisco-sculpture-goes-missing/>.

⁷⁵ *Sailor and Mermaid* was originally located at the main entrance of the North Beach police station. By 1972, it had been relocated to Department of Public Health Building at 1351 24th Avenue. The sculpture was stolen in the early 1990s, and only the base remains.

⁷⁶ Carol Peterson. “Sailor and Mermaid: A Siren Song Silenced.” *The Potrero View*, April 2015. Accessed January 23, 2020, at <https://www.potreroview.net/sailor-and-mermaid-a-siren-song-silenced/>.

In 1945, Marie-Rose was awarded a scholarship by the French government to attend the École des Beaux-Arts in Paris. During his eight-year residency, he exhibited his paintings and sculptures throughout Europe and won numerous awards and accolades. He and his wife, Marjorie Raitt, relocated to San Francisco in 1953, eventually settling in the Potrero Hill neighborhood to raise their family. Marie-Rose found immediate success in San Francisco. Within his first decade in America, the San Francisco Museum of Art presented him with the Emanuel Walter Purchase Prize, he had a solo exhibition at the de Young Museum, and he hosted the 18-week “Techniques in Sculpture” series that was televised on KQED. He exhibited across the United States and abroad. In 2000 and 2006, he was an artist-in-residence at Recology San Francisco, where he was a longtime teacher and mentor.⁷⁷

Henri Marie-Rose qualifies as a master artist.

6 Evaluation of Historical Significance

This section provides an evaluation of individual historical significance for the subject property at 530 Sansome Street based on the field survey and archival research and follows California Register Criteria 1 through 3.⁷⁸

Previous Evaluation

530 Sansome Street was recorded in 2011 when it was only 36 years old and assigned a California Historical Resource Status Code of “6Z,” meaning that it was found ineligible for listing in the National Register, California Register, or as a San Francisco City Landmark. In addition to being less than 50 years of age, the building was found to “not represent a particularly momentous event in the development of fire stations in San Francisco, nor is it an outstanding example of a particular style or architect.”⁷⁹

Special Criteria Consideration: Properties That Have Achieved Significance Within the Past 50 Years

For a property less than 50 years old (e.g., 530 Sansome Street) to be eligible for listing in the California Register under Criteria 1, 2, and/or 3, it must be demonstrated that sufficient time has passed to understand its historical importance.⁸⁰ Although less than 50 years old, 530 Sansome Street was constructed as part of the Embarcadero Center mixed-use development, a component of the larger Golden Gateway Redevelopment Project that has been extensively documented, publicized, critiqued, and otherwise studied. Embarcadero Center was identified in the *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context*

⁷⁷ “Henri Marie-Rose (obituary).” *San Francisco Chronicle*, April 25, 2010, p. C7.

⁷⁸ The evaluation of the subject property for potential significance under Criterion 4 (Information Potential) is outside the scope of this report.

⁷⁹ Page & Turnbull. *San Francisco Fire Stations Historic Resource Study*. February 21, 2012.

⁸⁰ The San Francisco Planning Department automatically evaluates California Register eligibility when projects are proposed for buildings at least 45 years old. An evaluation can also be triggered if sufficient time has passed for a scholarly perspective to develop on the events or individuals associated with a resource. See also California Department of Parks and Recreation, “Technical Assistance Series #6: California Register and National Register: A Comparison (for Purposes of Determining Eligibility for the California Register),” p. 3.

Statement.⁸¹ It was subsequently the subject of a 2018 historic structures report, and the San Francisco Planning Department determined that the four office towers and the Hyatt Regency Hotel are historical resources based on this report.⁸²⁻⁸³ Sufficient association and historical perspective therefore exists to determine that 530 Sansome Street is exceptionally important in this context, and it therefore appears to meet the threshold of this special criteria consideration.

Criterion 1 (Events)

As discussed above, 530 Sansome Street is less than 50 years old; however, it has been demonstrated to have achieved significance and therefore appears to meet the threshold of this special criteria consideration.

As one of 45 fire stations currently in operation in San Francisco, Fire Station No. 13 at 530 Sansome Street is part of the infrastructure of the SFFD's citywide service network.⁸⁴ It was constructed in 1974-75 and is not associated with the 1952 Firehouse Bond Act.

Rather, it was constructed as part of the Embarcadero Center mixed-use development, identified as one of the City's "Influential Downtown Office Towers and Designed Landscapes" in the *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*.⁸⁵ Although 530 Sansome Street is geographically separated from the four office towers and hotel and does not contain office or commercial space, the archival research presented above establishes the series of events that led to the construction of the fire station as part of the Embarcadero Center development. Embarcadero Center is one component of the larger Golden Gateway Redevelopment Project, identified in the context statement as a significant undertaking within the theme of urban renewal. The following succinct significance statement from a 2002 biography of John Portman & Associates is presented to emphasize the influence of Embarcadero Center as a successful, large-scale, mixed-use urban project: "The importance of Embarcadero Center is not that of any single building, although each stands strong in its own right, but it is how well they work together to enhance the city with a vastly improved human experience. This philosophy goes beyond Embarcadero Center, and extends into the broader context of looking at the city as a whole."⁸⁶

As a small-scale support building with a civic function within the Embarcadero Center mixed-use development, 530 Sansome Street does not appear to be individually eligible for listing under California Register Criterion 1. However, it is historically associated with Embarcadero Center.

⁸¹ Mary Brown. *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*. Prepared for the San Francisco City and County Planning Department, 2010. Pp. 48-50, 141, 143, 155, 159, 200, 217, 258-259, 281, Appendix D.

⁸² Page & Turnbull. *Embarcadero Center Lobbies Historic Structures Report "Lite."* July 2018.

⁸³ Jørgen Cleemann, San Francisco Planning Department, phone call with Johanna Kahn, ESA. June 11, 2020.

⁸⁴ "Fire Station Locations." *City and County of San Francisco*. Accessed May 27, 2020, at <https://sf-fire.org/fire-station-locations>.

⁸⁵ Mary Brown. *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*. Prepared for the San Francisco City and County Planning Department, 2010. p. 143.

⁸⁶ Steve Womersley, ed. *John Portman and Associates: Selected and Current Works*. Mulgrave, Victoria, Australia: The Images Publishing Group Pty. Ltd., 2002. p. 9.

As such, it may be eligible for listing under California Register Criterion 1 as a contributor to a potential discontinuous Embarcadero Center Historic District or a larger Golden Gateway Redevelopment Area Historic District. The analysis of a potential historic district is outside the scope of this report.⁸⁷

Criterion 2 (Persons)

Numerous SFFD personnel have been stationed at 530 Sansome Street while it has been home to Engine Company No. 13 (1975-2001, 2002-present) and Truck Company No. 13 (1975-2001, 2002-present). Additionally, other companies have been temporarily quartered at 530 Sansome Street, including Engine Company No. 2 (1992-95), Engine Company No. 28 (1999-2000), Engine Company No. 35 (2006-09), Truck Company No. 1 (1998-99), Truck Company No. 2 (1994-95), Battalion No. 1 (1992-95), and Valve Unit No. 1 (1975-2000).⁸⁸ Preliminary research does not indicate that Fire Station No. 13 is significantly associated with the lives of persons important to local, California, or national history. (The significance of the building's architect, John Portman & Associates, and artist Henri Marie-Rose is discussed under Criterion 3, below.) For this reason, 530 Sansome Street does not appear to be individually eligible for listing under California Register Criterion 2.

Criterion 3 (Architecture/Design)

The following analysis under Criterion 3 recommends that the subject building is not individually eligible for listing in the California Register; however, similar to the analysis under Criterion 1, it appears to be eligible as a contributor to a potential historic district. Additionally, the sculpture mounted on the building's north wall, as an object, appears to be individually eligible for listing under Criterion 3.

Contemporary Fire Station Design

At this writing, there are 45 fire stations in operation in San Francisco. Fire stations are not a rare building type, and 1970s-era fire stations are also not uncommon. Preliminary research identified at least six extant fire stations of similar age and/or architectural style (i.e., Brutalist) as 530 Sansome Street:

- Station No. 3 (1067 Post Street): designed by Botaai, Overstreet & Associates (architect) and Charles W. Griffith (City architect) and completed in 1974. Previously recommended as individually ineligible for listing in the California Register under any criteria.⁸⁹
- Station No. 9 (2245 Jerrold Avenue): designed by Charles W. Griffith (City architect) and Thomas R. Aidala (engineer) and completed in 1974. Previously recommended as individually ineligible for listing in the California Register under any criteria.⁹⁰

⁸⁷ Jørgen Cleemann, San Francisco Planning Department, email to Johanna Kahn, ESA. January 2, 2020.

⁸⁸ "San Francisco Fire Department Companies." *Guardians of the City* (website of the San Francisco Fire Department Museum). Accessed May 29, 2020, at <https://www.guardiansofthecity.org/sffd/companies/index.html>.

⁸⁹ Page & Turnbull. *San Francisco Fire Stations Historic Resource Study Round 2*. October 2, 2015, pp. 93-94.

⁹⁰ Page & Turnbull. *San Francisco Fire Stations Historic Resource Study Round 2*. October 2, 2015, pp. 141-142.

- Station No. 14 (551 26th Avenue): designed by DeBrer & Heglund (architect) and completed in 1973. Previously recommended as individually ineligible for listing in the California Register under any criteria.⁹¹
- Station No. 26 (80 Digby Street): designed by Rockrise & Watson (architect) and Royston, Hanamoto, Mayes & Beck (landscape architect) and completed in 1963. Both George Rockrise and Robert Royston are identified as masters in their respective fields in the *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*. The building was identified in the 1976 DCP Architectural Survey (assigned a survey rating of 2 out of 5) and the *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*. The *Diamond Heights Historic Context Statement*, which recommends the building as individually eligible for listing in the California Register, describes the building as follows: “The fire station is the only Brutalist building in Diamond Heights and is an excellent expression of the architectural type; it has expressive massing and the vertical striations of the wood-forms are visible.”⁹²
- Station No. 33 (8 Capitol Avenue): designed by Sabin-O’Neal-Mitchel (architect) and Charles W. Griffith (City architect) and completed in 1974. Previously recommended as individually ineligible for listing in the California Register under any criteria.⁹³
- Station No. 43 (720 Moscow Street): designed by Robert Hawley & Associates (architect) and Ephraim G. Hirsch and Ralph G. Gray (engineers) and completed in 1970. Previously recommended as individually ineligible for listing in the California Register under any criteria.⁹⁴

Among these (and possibly other) buildings, 530 Sansome Street does not appear to be individually significant. It is among a handful of similarly aged and styled buildings that were previously recommended individually ineligible for listing in the California Register. Of these buildings, only 80 Digby Street was recommended as individually eligible for listing in the California Register.

Brutalist Architecture

530 Sansome Street is one of several Brutalist fire stations in San Francisco, and it does not appear to be “a high-style interpretation of the style,” such as the Transamerica Pyramid, Davies Medical Center, or SFSU César Chávez Student Center. Rather, 530 Sansome Street appears to be a “utilitarian version” of the Brutalist style. Under the evaluation criteria established in the *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*, “utilitarian versions that incorporated elements (i.e. poured reinforced concrete) of the style in order to expedite and lower the cost of construction are not considered architecturally significant.”⁹⁵ As established above, the construction of 530 Sansome Street was an afterthought to the Embarcadero Center master plan, and it had to be efficiently incorporated into the overall

⁹¹ Page & Turnbull. *San Francisco Fire Stations Historic Resource Study Round 2*. October 2, 2015, pp. 75-76.

⁹² Hannah Lise Simonson. *Diamond Heights Draft Historic Context Statement*. Prepared for the San Francisco City and County Planning Department, 2016, pp. 73, Appendix A-10.

⁹³ Page & Turnbull. *San Francisco Fire Stations Historic Resource Study Round 2*. October 2, 2015, pp. 11-12.

⁹⁴ Page & Turnbull. *San Francisco Fire Stations Historic Resource Study*. February 21, 2012, pp. 55-56.

⁹⁵ Mary Brown. *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*. Prepared for the San Francisco City and County Planning Department, 2010. P. 203.

project schedule. The Portman Archives provided the following explanation of the choice of building materials, which confirms the expedited and utilitarian nature of the fire station:

Mr. Portman [...] needed to build this project quickly to meet the requirements of the land purchase. [...] Mr. Portman spent time with the Chief Fireman and discussed their key concerns, which centered around safety and the comfort of the firemen who lived in the space. The materials had to be bulletproof and able to withstand a riot. The firemen also wanted light and an outdoor area as they were tired of being in an enclosed windowless space. [...] At the time, firehouses were typically made of brick and mortar, windowless, and set back to give a larger driveway with a gated outdoor training area to provide outdoor space, but considering the requested elements needed, along with the need to perform well with environmental factors, such as earthquakes, Mr. Portman [chose] to build with concrete and to fill the entire lot. This choice seemed practical, provided safety, and was the same material studied and used for Embarcadero Center.⁹⁶

Furthermore, 530 Sansome Street is a small-scale support building with a civic function within the Embarcadero Center mixed-use development. Even though it is the only fire station designed by master architect John C. Portman, Jr.,⁹⁷ it does not appear to be comparable to his significant works that include the designs of skyscrapers, hotels with grand interior spaces, and large-scale, master-planned developments. As such, 530 Sansome Street does not appear to be individually eligible for listing under California Register Criterion 3 within this context.

Potential Historic District Contributor

530 Sansome Street was constructed as part of Embarcadero Center, a large-scale, mixed-use development designed by John Portman & Associates. Embarcadero Center is identified as an important modern development and John C. Portman, Jr., is identified as a master architect in the *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement*. Embarcadero Center was the subject of a 2018 “Historic Structures Report-Lite,” and the San Francisco Planning Department determined that the four office towers and the Hyatt Regency Hotel are historical resources based on this report.^{98,99} Like the office towers and hotel, 530 Sansome Street embodies characteristics of the Brutalist Style in San Francisco (albeit not a “high-style interpretation” of the style like that employed for the towers and hotel), is the work of master architect John C. Portman, Jr., and is a component of a development that possesses high artistic values. To this last point, Embarcadero Center received the Urban Land Institute’s Award of Excellence for Large-Scale Urban Development in part as a project that “exemplifies superior design.”¹⁰⁰ Therefore, it logically follows that 530 Sansome Street, as a component of Embarcadero Center, may be eligible for listing under Criterion 3 as a contributor to a potential

⁹⁶ Paige Adair, The Portman Archives. “ECFirehouse.pdf” (notes on an interview with Mickey Steinberg, structural engineer for the Embarcadero Center), August 25, 2020.

⁹⁷ Paige Adair, The Portman Archives. Email to Johanna Kahn, ESA. June 15, 2020.

⁹⁸ Page & Turnbull. *Embarcadero Center Lobbies Historic Structures Report “Lite.”* July 2018.

⁹⁹ Jørgen Cleemann, San Francisco Planning Department, phone call with Johanna Kahn, ESA. June 11, 2020.

¹⁰⁰ Steve Womersley, ed. *John Portman and Associates: Selected and Current Works*. Mulgrave, Victoria, Australia: The Images Publishing Group Pty. Ltd., 2002. P. 226.

discontiguous Embarcadero Center Historic District or a larger Golden Gateway Redevelopment Area Historic District. The analysis of a potential historic district is outside the scope of this report.¹⁰¹

Sculpture

The sculpture *Untitled* is an object that appears to be individually eligible for listing under Criterion 3 because it is a significant public artwork designed by master artist Henri Marie-Rose, and it also possesses high artistic value. The sculpture was commissioned in 1976 by the San Francisco Arts Commission as a site-specific artwork to be publicly displayed at 530 Sansome Street. This was Marie-Rose's highest-earning commission of a public artwork in San Francisco and has been exhibited in situ since 1976. *Untitled* is believed to be the only remaining public artwork by Marie-Rose in San Francisco.¹⁰² For these reasons, the sculpture *Untitled* is recommended as individually eligible for listing under California Register Criterion 3. The period of significance is 1976, which corresponds to the year the sculpture was commissioned, created, and installed at 530 Sansome Street.

7 Integrity

In addition to being eligible for listing under at least one of the California Register criteria, a property must also retain sufficient integrity to convey its historical significance in order to be considered a historical resource. The California Register defines integrity as the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance (i.e., character-defining features). As the subject building does not appear to be individually eligible under any criteria and therefore does not have a period of significance, a discussion of the building's integrity is not applicable. The sculpture *Untitled* is recommended as individually eligible for listing under California Register Criterion 3 with a period of significance of 1976. The following integrity analysis is specific to the sculpture.

Untitled remains mounted in situ on the north façade of 530 Sansome Street, a fire station, where it has been installed since 1976. The sculpture therefore retains integrity of location.

The neighborhood in which *Untitled* is located was fully developed before the subject building was constructed in 1974-75 and the sculpture was installed in 1976. 530 Sansome Street continues to function as a fire station, and the neighborhood continues to reflect its historically mixed-use commercial and civic character. For these reasons, the sculpture retains integrity of setting.

Untitled is unchanged from its original appearance in terms of design, materials, and workmanship, and it has undergone no apparent physical alterations or repairs. For this reason, the sculpture retains integrity of design, materials, and workmanship.

¹⁰¹ Jørgen Cleemann, San Francisco Planning Department, email to Johanna Kahn, ESA. January 2, 2020.

¹⁰² Carol Peterson. "Sailor and Mermaid: A Siren Song Silenced." *The Potrero View*, April 2015. Accessed January 23, 2020, at <https://www.potreroview.net/sailor-and-mermaid-a-siren-song-silenced/>.

Untitled has been associated with Fire Station No. 13 since it was installed on the building's north façade in 1976. The building has historically operated as part of SFFD's citywide service network, and the sculpture has been an outward symbol of the building's function. More generally, the sculpture is associated with the SFFD and the role of firefighters in San Francisco. For these reasons, the sculpture retains integrity of association.

Lastly, *Untitled* has been continuously displayed on the north façade of Fire Station No. 13 since it was installed in 1976. It embodies the "physical features that, taken together, convey the property's historic character" as an intact and site-specific 1970s-era copper sculpture covered with verdigris (i.e., the green patina that occurs naturally on copper).¹⁰³ As such, the sculpture retains integrity of feeling.

Overall, *Untitled* retains a high degree of integrity.

8 Character-Defining Features

Untitled is recommended individually eligible for listing in the California Register under Criterion 3, and it retains a high degree of integrity. The character-defining features of *Untitled* include (but may not be limited to):

- Visually prominent position on a building occupying a corner location;
- Visually prominent position on the exterior of Fire Station No. 13, with which the sculpture is historically associated;
- Copper construction;
- Verdigris (patina); and
- Overall design that includes abstract figures and typographic elements.

9 Conclusion

Based on a site survey, archival research, and analysis, ESA recommends the subject building at 530 Sansome Street as individually ineligible for listing in the California Register under Criteria 1, 2, and 3. However, 530 Sansome Street may be eligible for listing under Criteria 1 and 3 as a contributor to a potential discontinuous Embarcadero Center Historic District or a larger Golden Gateway Redevelopment Area Historic District. Therefore, the subject building would be considered a historical resource for the purposes of CEQA (California Historical Resource Status Code 3CD). The sculpture *Untitled* is recommended as individually eligible for listing under Criterion 3 because it is an important public sculpture designed by master artist Henri Marie-Rose; the period of significance is 1976. Additionally, the sculpture retains a high degree of integrity. Therefore, the sculpture would be considered a historical resource for the purposes of CEQA (California Historical Resource Status Code 3CS).

¹⁰³ National Park Service. *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*, updated in 2002. P. 45.

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Appendix A

**Building Permits for
530 Sansome Street**

OFFICIAL COPY

SAN FRANCISCO
DEPARTMENT OF PUBLIC WORKS
BUILDING PERMITS SECTION

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF PUBLIC WORKS
BLDG. FORM
CENTRAL PERMIT BUREAU

1

APPLICATION FOR BUILDING PERMIT
FOR TYPE 1-2-3-4 STRUCTURES

Date January 11, 1974

Application is hereby made to the Department of Public Works of the City and County of San Francisco for permission to build in accordance with the plans and specifications submitted herewith and according to the description and for the purpose hereinafter set forth:

LOT DESCRIPTION

(1) Location:		<input type="checkbox"/> North <input checked="" type="checkbox"/> East <input type="checkbox"/> South <input type="checkbox"/> West	side of <u>Sansome Street</u> <small>Name of Street</small>
		<u>0</u> feet <input type="checkbox"/> North <input type="checkbox"/> East <input checked="" type="checkbox"/> South <input type="checkbox"/> West	of <u>Washington Street</u> <small>Nearest Cross Street</small>
(2) Size of lot:			
front <u>99'-0"</u> ft.		(3) Is any other building on lot? If yes, show on plot plan. <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
rear <u>99'-0"</u> ft.		(4) Is automobile runway to be installed or altered? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
average depth <u>90.292</u> ft.		(5) Will street space be used during construction? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	

BUILDING DESCRIPTION

(6) Type of Building: <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 1 Hr. <input type="checkbox"/> N			
(7) Use of building <u>Fire Station</u>		(8) Occupancy <u>F-24F30417</u> <small>Bldg. Code Classification</small>	(9) Number of Dwelling Units <u>One</u>
(10) Ground Floor Area <u>8930</u> Sq. Ft.	(11) Height at the Center Line of Front of Bldg. <u>34'-6"</u> Ft.	(12) Number of Stories <u>Three</u>	(13) Number of Basements <u>One</u>
(14) Is building designed for additional stories? <input type="checkbox"/> yes; how many? <input type="checkbox"/> no		(15) Total Cost <u>\$ 1,500,000.00</u>	
(16) Will sub-sidewalk space be used? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no			
(17) Design Live Load for floors: (To be posted, in commercial and industrial buildings)			

(18) Supervision of construction by <u>Bur. of Architecture</u> Address <u>City Hall</u>	
(19) General Contractor Address <u>-</u>	California License No. <u>-</u> Telephone <u>-</u>
(20) Architect or Engr. <u>John C. Portman, Jr.</u> (for design) Address <u>One Embarcadero Center</u>	California Certificate No. <u>C-5438</u> Telephone <u>989-7275</u>
(21) Engineer or Archt. <u>Charles W. Griffith</u> (for construction) Address <u>City Architect - City Hall</u>	California Certificate No. <u>C-688</u> Telephone <u>558-4601</u>

I hereby certify and agree that if a permit is issued for the construction described and approved in this application, or in accompanying plans, all the provisions of all the laws and ordinances applicable to the construction will be complied with. I further agree to save San Francisco and its officials and employees harmless from all costs and damages which may accrue from the use or occupancy of the sidewalk, street, or sidewalk space, or from anything else in connection with the work authorized by this permit, or any work performed on or at the premises designated therein. The foregoing covenant shall be binding upon the owners of said property, the applicant, their heirs, successors and assignees.

(22) Owner City and County of San Francisco, D.P.W.
Address Bureau of Architecture - City Hall Phone No. 558-4601
(For contact by Bureau)
By Tom J. [Signature] Address Room 265 - City Hall
Owner's Authorized Agent to be Owner's Authorized Architect, Engineer or General Contractor

THIS PERMIT AND THE APPROVED PLANS MUST BE KEPT ON THE JOB
CONSTRUCTION LENDER
(Enter name and branch designation if any. If there is no known construction lender, enter "unknown".)
ADDRESS OF
CONSTRUCTION LENDER

Sealed copy submitted to permit jurisdiction

SAN FRANCISCO
DEPARTMENT OF
BUILDING INSPECTION

APPROVED
Dept. of Public Works

JAN 04 1993

FIRE

No Viol. JL

Rip & Repair 93

APPROVED FOR ISSUANCE

BLDG. FORM 3/8

APPLICATION NUMBER
0922105

3-24-92

OSHA APPROVAL NOTED

APPLICATION FOR BUILDING PERMIT
ADDITIONS, ALTERATIONS OR REPAIRS

FORM 3 ☒ OTHER AGENCIES REVIEW REQUIRED
FORM 8 ☐ OVER-THE-COUNTER ISSUANCE

2 NUMBER OF PLAN SETS JL

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF PUBLIC WORKS

APPLICATION IS HEREBY MADE TO THE DEPARTMENT OF
PUBLIC WORKS OF SAN FRANCISCO FOR PERMISSION TO
BUILD IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS
SUBMITTED HERewith AND ACCORDING TO THE DESCRIPTION
AND FOR THE PURPOSE HEREINAFTER SET FORTH.

DATE FILED 12-4-92	FILED FOR RECEIPT NO. City Job	(1) STREET ADDRESS OF JOB 530 SANSOME STREET S.F.	BLOCK & LOT 206-
PERMIT NO. 712987	ISSUED 1-4-93	(2A) ESTIMATED COST OF JOB 64,700.00	(2B) REVISED COST: BY: DATE:

INFORMATION TO BE FURNISHED BY ALL APPLICANTS

DESCRIPTION OF EXISTING BUILDING				OCCUP. CLASS		NO. OF DWELLING UNITS	
(4A) TYPE OF CONSTR. I	(5A) NO. OF STORIES OF OCCUPANCY 2	(6A) NO. OF BASEMENTS AND CELLARS	(4B) PRESENT USE FIRE STATION #13	B-2		—	
DESCRIPTION OF BUILDING AFTER PROPOSED ALTERATION				OCCUP. CLASS		NO. OF DWELLING UNITS	
(4) TYPE OF CONSTR. I	(5) NO. OF STORIES OF OCCUPANCY 2	(6) NO. OF BASEMENTS AND CELLARS	(7) PROPOSED USE (LEGAL USE) FIRE STATION (#13)	B-2		—	
(10) IS AUTO RUNWAY TO BE CONSTRUCTED OR ALTERED?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(11) WILL STREET SPACE BE USED DURING CONSTRUCTION?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(12) ELECTRICAL WORK TO BE PERFORMED?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	(13) PLUMBING WORK TO BE PERFORMED?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
(14) GENERAL CONTRACTOR C & L CONSTRUCTION		ADDRESS 1177 HOWARD ST. S.F.		PHONE 94103 861-8781		CALIF. LIC. NO. 417193	
(15) OWNER - LESSEE (CROSS OUT ONE) CITY & COUNTY OF SAN FRANCISCO		ADDRESS DPW/BOA 30 VAN NESS AVE S.F.		PHONE (FOR CONTACT BY SUBMITTER) 4100 S.F. 551-4772		EXPIRATION DATE 12/31/92	
(16) WRITE IN DESCRIPTION OF ALL WORK TO BE PERFORMED UNDER THIS APPLICATION (REFERENCE TO PLANS IS NOT SUFFICIENT). ALTER EXISTING BOOTROOM TO CREATE NEW WOMEN'S TOILET AND SHOWER ROOM, CONSTRUCT NEW 1. <input type="checkbox"/> 2. <input type="checkbox"/> 3. <input type="checkbox"/> BOOT/LOOKER ROOM AND REPAIR SUSPENDED ACOUSTICAL CEILING, ALTER PLUMBING/ELECTRICAL WORK FOR NEW SPACES, MISC. PAINTING WORK AS NEEDED.							

ADDITIONAL INFORMATION — FORM 3 APPLICANTS ONLY

(17) DOES THIS ALTERATION CREATE ADDITIONAL STORY TO BUILDING?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(18) IF (17) IS YES, STATE NEW HEIGHT AT CENTER LINE OF FRONT	FT.	(19) DOES THIS ALTERATION CREATE DECK OR PORCH EXTENSION TO BUILDING?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(20) IF (19) IS YES, STATE NEW GROUND FLOOR AREA	SQ. FT.
(21) WILL SIDEWALK OVER SUBSIDEWALK SPACE BE REPAIRED OR ALTERED?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(22) WILL BUILDING EXTEND BEYOND PROPERTY LINE?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(23) ANY OTHER EXISTING BLDG. ON LOT? IF YES, SHOW ON LOT PLAN.	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(24) DOES THIS ALTERATION CONSTITUTE A CHANGE OF OCCUPANCY?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
(25) ARCHITECT OR ENGINEER (DESIGN <input type="checkbox"/> CONSTRUCTION <input checked="" type="checkbox"/> BUREAU OF ARCHITECTURE, DPW 30 VAN NESS AVE., SUITE 4100 S.F. CA 94102				NORMAN M. KARASICK ADDRESS C-2132			
(26) CONSTRUCTION LEADER (ENTER NAME AND BRANCH DESIGNATION IF ANY, IF THERE IS NO KNOWN CONSTRUCTION LEADER, ENTER "UNKNOWN").							

IMPORTANT NOTICES

No change shall be made in the character of the occupancy or use without first obtaining a Building Permit authorizing such change. See San Francisco Building Code and San Francisco Housing Code.

No portion of building or structure or scaffolding used during construction, to be closer than 6'0" to any wire containing more than 750 volts. See Sec. 385, California Penal Code.

Pursuant to San Francisco Building Code, the building permit shall be posted on the job. The owner is responsible for approved plans and application being kept at building site.

Grade lines as shown on drawings accompanying this application are assumed to be correct. If actual grade lines are not the same as shown revised drawings showing correct grade lines, cuts and fills together with complete details of retaining walls and wall footings required must be submitted to this bureau for approval.

ANY STIPULATION REQUIRED HEREIN OR BY CODE MAY BE APPEALED.
BUILDING NOT TO BE OCCUPIED UNTIL CERTIFICATE OF FINAL COMPLETION IS POSTED ON THE BUILDING OR PERMIT OF OCCUPANCY GRANTED, WHEN REQUIRED.
APPROVAL OF THIS APPLICATION DOES NOT CONSTITUTE AN APPROVAL FOR THE ELECTRICAL WIRING OR PLUMBING INSTALLATIONS. A SEPARATE PERMIT FOR THE WIRING AND PLUMBING MUST BE OBTAINED. SEPARATE PERMITS ARE REQUIRED IF ANSWER IS "YES" TO ANY OF ABOVE QUESTIONS (15) (11) (12) (13) (22) or (24). THIS IS NOT A BUILDING PERMIT. NO WORK SHALL BE STARTED UNTIL A BUILDING PERMIT IS ISSUED.

In dwellings all insulating materials must have a clearance of not less than two inches from all electrical wires or equipment.

CHECK APPROPRIATE BOX

☒ OWNER ☐ ARCHITECT ☐ ENGINEER
☐ LESSOR ☐ AGENT WITH POWER OF ATTORNEY
☐ CONTRACTOR ☐ ATTORNEY IN FACT

APPLICANT'S CERTIFICATION

I HEREBY CERTIFY AND AGREE THAT IF A PERMIT IS ISSUED FOR THE CONSTRUCTION DESCRIBED IN THIS APPLICATION, ALL THE PROVISIONS OF THE PERMIT AND ALL LAWS AND ORDINANCES THEREWITH SHALL BE OBTAINED AND OBTAIN.

NOTICE TO APPLICANT

HOLD HARMLESS CLAUSE. The Permittee(s) by acceptance of the permit, agree(s) to indemnify and hold harmless the City and County of San Francisco from and against any and all claims, demands and actions for damages resulting from operations under this permit, regardless of negligence of the City and County of San Francisco, and to assume the defense of the City and County of San Francisco against all such claims, demands and actions.

In conformity with the provisions of Section 3800 of the Labor Code of the State of California, the applicant shall have on file, or file with the Central Permit Bureau, either Certificate (I) or (II) or (III) designated below or shall insure them (IV) or (V) or (VI) below, whichever is applicable. If however, item (VI) is checked then item (V) must be checked as well. Mark the appropriate method of compliance below:

- ☒ I. Certificate of Consent to Self-Insure issued by the Director of Industrial Relations.
☐ II. Certificate of Workmen's Compensation Insurance issued by an admitted insurer.
☐ III. An exact copy or duplicate of (II) verified by the Director or (II) verified by the insurer.
☐ IV. The cost of the work to be performed is \$1000 or less.
☐ V. I certify that in the performance of the work for which this Permit is issued, I shall not employ any person in any manner so as to become subject to the workmen's compensation laws of California. I further acknowledge that I understand, in the event that I should become subject to the workmen's compensation provisions of the Labor Code of California and fail to comply therewith with the provisions of Section 3800 of the Labor Code, that the Permit herein applied for shall be deemed revoked.
☒ VI. I certify as the owner (or the agent of the owner) that in the performance of the work for which this Permit is issued, I will employ a contractor who complies with the workmen's compensation laws of California and who files on file, or with the Central Permit Bureau, evidence that workmen's compensation insurance is carried.

12/4/92

OFFICIAL COPY

APPROVED
DEPARTMENT OF BUILDING INSPECTION

DEC 21 2000

FRANK Y. OHU, DIRECTOR

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF BUILDING INSPECTION

APPLICATION FOR BUILDING PERMIT
ADDITIONS, ALTERATIONS OR REPAIRS.

FORM 3 ☒ OTHER AGENCIES REVIEW REQUIRED

FORM 8 ☐ OVER-THE-COUNTER ISSUANCE

APPLICATION IS HEREBY MADE TO THE DEPARTMENT OF BUILDING INSPECTION OF SAN FRANCISCO FOR PERMISSION TO BUILD IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS SUBMITTED HERewith AND ACCORDING TO THE DESCRIPTION AND FOR THE PURPOSE HEREINAFTER SET FORTH.

2+2 copies NUMBER OF PLAN SETS

DO NOT WRITE ABOVE THIS LINE

PERMIT NO. 92065	ISSUED 12/21/00	ESTIMATED COST OF JOB \$979,123	DATE
PERMIT FEE RECEIPT NO. 11/14/99	ISSUED 12/21/00	ESTIMATED COST OF JOB \$979,123	DATE
BLOCK & LOT 206 & 9		206 17	

INFORMATION TO BE FURNISHED BY ALL APPLICANTS

LEGAL DESCRIPTION OF EXISTING BUILDING							
(1A) TYPE OF CONSTR. I	(1A) NO. OF STORIES OF OCCUPANCY 2	(1A) NO. OF BASEMENTS AND CELLARS 1	(1A) PRESENT USE Fire Station #13	(1A) OCCUP. CLASS B	(1A) NO. OF DWELLING UNITS 0		
DESCRIPTION OF BUILDING AFTER PROPOSED ALTERATION							
(1A) TYPE OF CONSTR. I	(1A) NO. OF STORIES OF OCCUPANCY 2	(1A) NO. OF BASEMENTS AND CELLARS 1	(1A) PROPOSED USE (LEGAL USE) Fire Station #13	(1A) OCCUP. CLASS B	(1A) NO. OF DWELLING UNITS 0		
(10) IS AUTO RUNWAY TO BE CONSTRUCTED OR ALTERED?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	(11) WILL STREET SPACE BE USED DURING CONSTRUCTION?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	(12) ELECTRICAL WORK TO BE PERFORMED?	YES <input checked="" type="checkbox"/>
(12) PLUMBING WORK TO BE PERFORMED?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>					
(14) GENERAL CONTRACTOR unknown							
(15) OWNER - LESSEE (CROSS OUT ONE) San Francisco Fire Department, 698 Second Street, 94107-2015							
(16) WRITE IN DESCRIPTION OF ALL WORK TO BE PERFORMED UNDER THIS APPLICATION (REFERENCE TO PLANS IS NOT SUFFICIENT) Provide disabled access at First Floor Entry, Communication room & toilet, upgrade electrical & mechanical systems. Perform hazardous material abatement, upgrade finishes throughout and perform miscellaneous repairs. No structural work, RE-ROOFING ON ENTIRE BUILDING							
ADDITIONAL INFORMATION							
(17) DOES THIS ALTERATION CREATE ADDITIONAL HEIGHT OR STORY TO BUILDING?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	(18) IF (17) IS YES, STATE NEW HEIGHT AT CENTER LINE OF FRONT	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	(19) DOES THIS ALTERATION CREATE DECK OR HORIZ. EXTENSION TO BUILDING?	YES <input type="checkbox"/>
(20) WILL SIDEWALK OVER SUB-SIDEWALK SPACE BE REPAIRED OR ALTERED?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	(21) WILL BUILDING EXTEND BEYOND PROPERTY LINE?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	(22) ANY OTHER EXISTING BLDG. ON LOT? IF YES, SHOW ON PLOT PLAN	YES <input type="checkbox"/>
(23) ARCHITECT OR ENGINEER (DESIGN) CONSTRUCTION Tara Lamont 30 Van Ness Avenue, Suite 4100 C-20716							
(24) CONSTRUCTION LENDER (ENTER NAME AND BRANCH DESCRIPTION IF ANY. IF THERE IS NO KNOWN CONSTRUCTION LENDER, ENTER "UNKNOWN") N/A							

IMPORTANT NOTICES

No change shall be made in the character of the occupancy or use without first obtaining a Building Permit authorizing such change. See San Francisco Building Code and San Francisco Housing Code.

No portion of building or structure or scaffolding used during construction, to be closer than 6'0" to any wire containing more than 750 volts. See Sec. 365, California Penal Code.

Pursuant to San Francisco Building Code, the building permit shall be posted on the job. The owner is responsible for approved plans and application being kept at building site.

Grade lines as shown on drawings accompanying this application are assumed to be correct. If actual grade lines are not the same as shown revised drawings showing correct grade lines, cuts and fills together with complete details of retaining walls and wall footings required must be submitted to this department for approval.

ANY STIPULATION REQUIRED HEREIN OR BY CODE MAY BE APPEALED

BUILDING NOT TO BE OCCUPIED UNTIL CERTIFICATE OF FINAL COMPLETION IS POSTED ON THE BUILDING OR PERMIT OF OCCUPANCY GRANTED, WHEN REQUIRED.

APPROVAL OF THIS APPLICATION DOES NOT CONSTITUTE AN APPROVAL FOR THE ELECTRICAL WIRING OR PLUMBING INSTALLATIONS. A SEPARATE PERMIT FOR THE WIRING AND PLUMBING MUST BE OBTAINED. SEPARATE PERMITS ARE REQUIRED IF ANSWER IS "YES" TO ANY OF ABOVE QUESTIONS (10) (11) (12) (13) (22) OR (24).

THIS IS NOT A BUILDING PERMIT. NO WORK SHALL BE STARTED UNTIL A BUILDING PERMIT IS ISSUED.

In dwellings all insulating materials must have a clearance of not less than two inches from all electrical wires or equipment.

CHECK APPROPRIATE BOX

☐ OWNER ☒ ARCHITECT
☐ C. L. B. ☐ ARCHITECT
☐ CONTRACTOR ☒ ENGINEER

APPLICANT'S CERTIFICATION

I HEREBY CERTIFY AND AGREE THAT IF A PERMIT IS ISSUED FOR THE CONSTRUCTION DESCRIBED IN THIS APPLICATION ALL THE PROVISIONS OF THE PERMIT AND ALL LAWS AND ORDINANCES THERE TO WILL BE COMPLIED WITH.

0003-03 (REV. 1/99)

NOTICE TO APPLICANT

HOLD HARMLESS CLAUSE: The permittee(s) by acceptance of the permit, agree(s) to indemnify and hold harmless the City and County of San Francisco from and against any and all claims, demands and actions for damages resulting from operations under this permit, regardless of negligence of the City and County of San Francisco, and to assume the defense of the City and County of San Francisco against all such claims, demands or actions.

In conformity with the provisions of Section 2600 of the Labor Code of the State of California, the applicant shall have coverage under (I), or (II) designated below or shall indicate item (III), or (IV), or (V), whichever is applicable. If however item (V) is checked item (IV) must be checked as well. Mark the appropriate method of compliance below.

I hereby affirm under penalty of perjury one of the following declarations:

- () I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided by Section 2700 of the Labor Code, for the performance of the work for which this permit is issued.
- () II I have and will maintain workers' compensation insurance, as required by Section 2700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:
Carrier
Policy Number
- () III The cost of the work to be done is \$100 or less.
- (x) IV I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California. I further acknowledge that I understand that in the event that I should become subject to the workers' compensation provisions of the Labor Code of California and fail to comply forthwith with the provisions of Section 2600 of the Labor Code, that the permit herein applied for shall be deemed revoked.
- (x) V I certify as the manner for the agent for the owner that in the performance of the work for which this permit is issued, I will employ a contractor who complies with the workers' compensation laws of California and who, prior to the commencement of any work, will file a completed copy of this form with the Central Permit Bureau.

Tara Lamont 11.10.99
Signature of Applicant or Agent Date

BUILDING	MENT
DESCRIPTION	
<input type="checkbox"/> VERTICAL	
<input type="checkbox"/> HORIZONTAL	

CELLULAR ANTENNA

FIRE

DIRECTOR
DEPT. OF BUILDING INSPECTION

APPROVED

AUG 08

BLDG
FORM
3/8

APPLICATION NUMBER

APPROVAL NUMBER

APPLICATION FOR BUILDING PERMIT
ADDITIONS, ALTERATIONS OR REPAIRSCITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF BUILDING INSPECTIONFORM 3 ☒ OTHER AGENCIES REVIEW REQUIREDFORM 8 ☐ OVER-THE COUNTER ISSUANCE2 ☒ PICTURES 1 ☒ STAMP

NUMBER OF PLAN SETS

APPLICATION IS HEREBY MADE TO THE DEPARTMENT OF
BUILDING INSPECTION OF SAN FRANCISCO FOR
PERMISSION TO BUILD IN ACCORDANCE WITH THE PLANS
AND SPECIFICATIONS SUBMITTED HERewith AND
ACCORDING TO THE DESCRIPTION AND FOR THE PURPOSE
HEREINAFTER SET FORTH.

DO NOT WRITE ABOVE THIS LINE

DATE FILED 6-25-03	FILING FEE RECEIPT NO. 338565	(1) STREET ADDRESS OF JOB 532 Sansome AKA 530 Sansome	BLOCK & LOT 0206-017
PERMIT NO. 100224	ISSUED 8-8-2003	(2A) ESTIMATED COST OF JOB \$70,000	(2B) REVISION COST \$10,000
BA-003-01 INFORMATION TO BE FURNISHED BY ALL APPLICANTS			
LEGAL DESCRIPTION OF EXISTING BUILDING			
(4A) TYPE OF CONSTR. I	(5A) NO. OF STORIES OF OCCUPANCY 2	(6A) NO. OF BASEMENTS AND CELLARS 1	(7A) PRESENT USE Fire Station
(8A) OCCUP. CLASS B-9			
(9A) NO. OF DWELLING UNITS NA			
DESCRIPTION OF BUILDING AFTER PROPOSED ALTERATION			
(4) TYPE OF CONSTR. I	(5) NO. OF STORIES OF OCCUPANCY 2	(6) NO. OF BASEMENTS AND CELLARS 1	(7) PROPOSED USE (LEGAL USE) Fire Station
(8) OCCUP. CLASS B-9			
(9) NO. OF DWELLING UNITS NA			
(10) IS AUTO RUNWAY TO BE CONSTRUCTED OR ALTERED? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(11) WILL STREET SPACE BE USED DURING CONSTRUCTION? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(12) ELECTRICAL WORK TO BE PERFORMED? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	(13) PLUMBING WORK TO BE PERFORMED? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
(14) GENERAL CONTRACTOR TBO Metropolitan Elect. 2400 Third St. 415 441 3000 401 047	ADDRESS 2400 Third St.	ZIP 94103	PHONE 415 441 3000
(15) LESSOR (CROSS OUT ONE) Cingular Wireless 4420 Rosewood Dr. Bldg 23 Fl. Pleasanton CA 94566	ADDRESS 4420 Rosewood Dr.	ZIP 94566	PHONE (FOR CONTACT BY DEPT) 415 533-2540
(16) WRITE IN DESCRIPTION OF ALL WORK TO BE PERFORMED UNDER THIS APPLICATION (REFERENCE TO PLANS IS NOT SUFFICIENT) Cingular Wireless proposes to establish and operate an unmanned wireless tele-telecommunications facility consisting of installing 3 panel antennas in an 11ft high radome on the roof and 4 BTS equipment cabinets on the roof of the building.			
ADDITIONAL INFORMATION			
(17) DOES THIS ALTERATION CREATE ADDITIONAL HEIGHT OR STORY TO BUILDING? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	(18) IF (17) IS YES, STATE NEW HEIGHT AT CENTER LINE OF FRONT 44ft 8in	(19) DOES THIS ALTERATION CREATE DECK OR HORIZ. EXTENSION TO BUILDING? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(20) IF (19) IS YES, STATE NEW GROUND FLOOR AREA SQ. FT.
(21) WILL SIDEWALK OVER SUB-SIDEWALK SPACE BE REPAIRED OR ALTERED? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(22) WILL BUILDING EXTEND BEYOND PROPERTY LINE? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(23) ANY OTHER EXISTING BLDG ON LOT? (IF YES, SHOW ON PLOT PLAN) YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(24) DOES THIS ALTERATION CONSTITUTE A CHANGE OF OCCUPANCY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
(25) ARCHITECT OR ENGINEER (DESIGN) CONSTRUCTION <input type="checkbox"/> ADDRESS Diamond Services 3860 Industrial Way Benicia CA 94510			
(26) CONSTRUCTION LENDER (ENTER NAME AND BRANCH DESIGNATION IF ANY, IF THERE IS NO KNOWN CONSTRUCTION LENDER, ENTER "UNKNOWN") ADDRESS			

IMPORTANT NOTICES

No change shall be made in the character of the occupancy or use without first obtaining a Building Permit authorizing such change. See San Francisco Building Code and San Francisco Housing Code.

No portion of building or structure or scaffolding used during construction, to be closer than 60" to any wire containing more than 750 volts See Sec 385, California Penal Code.

Pursuant to San Francisco Building Code, the building permit shall be posted on the job. The owner is responsible for approved plans and application being kept at building site.

Grade lines as shown on drawings accompanying this application are assumed to be correct. If actual grade lines are not the same as shown revised drawings showing correct grade lines, cuts and fills together with complete details of retaining walls and wall footings required must be submitted to the department for approval.

ANY STIPULATION REQUIRED HEREIN OR BY CODE MAY BE APPEALED

BUILDING NOT TO BE OCCUPIED UNTIL CERTIFICATE OF FINAL COMPLETION IS POSTED ON THE BUILDING OR PERMIT OF OCCUPANCY GRANTED, WHEN REQUIRED.

APPROVAL OF THIS APPLICATION DOES NOT CONSTITUTE AN APPROVAL FOR THE ELECTRICAL, PLUMBING OR MECHANICAL INSTALLATIONS. A SEPARATE PERMIT FOR THE WIRING AND PLUMBING MUST BE OBTAINED. SEPARATE PERMITS ARE REQUIRED IF ANSWER IS "YES" TO ANY OF ABOVE QUESTIONS (10) (11) (12) (13) (22) OR (24).

THIS IS NOT A BUILDING PERMIT. NO WORK SHALL BE STARTED UNTIL A BUILDING PERMIT IS ISSUED.

In dwellings all insulating materials must have a clearance of not less than two inches from all electrical wires or equipment.

CHECK APPROPRIATE BOX

☐ OWNER
☐ ARCHITECT
☐ LESSOR
☐ AGENT
☐ CONTRACTOR
☒ ENGINEER

APPLICANT'S CERTIFICATION

I HEREBY CERTIFY AND AGREE THAT IF A PERMIT IS ISSUED FOR THE CONSTRUCTION DESCRIBED IN THIS APPLICATION, ALL THE PROVISIONS OF THE PERMIT AND ALL LAWS AND ORDINANCES THERE TO WILL BE COMPLIED WITH.

9003-03 (REV. 1/02)

NOTICE TO APPLICANT

HOLD HARMLESS CLAUSE. The permittee(s) by acceptance of the permit, agree(s) to indemnify and hold harmless the City and County of San Francisco from and against any and all claims, demands and actions for damages resulting from operations under this permit, regardless of negligence of the City and County of San Francisco, and to assume the defense of the City and County of San Francisco against all such claims, demands or actions.

In conformity with the provisions of Section 3800 of the Labor Code of the State of California, the applicant shall have coverage under (I), or (II) designated below or shall indicate item (III), or (IV), or (V), whichever is applicable. If however item (V) is checked item (IV) must be checked as well. Mark the appropriate method(s) of compliance below.

I hereby affirm under penalty of perjury one of the following declarations:

I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier: WCE
Policy Number: 399-1423-00

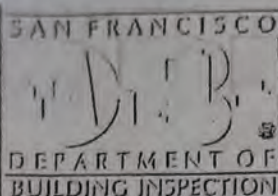
The cost of the work to be done is \$100 or less.

I certify that in the performance of the work for which the permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California. I further acknowledge that I understand that in the event that I should become subject to the workers' compensation provisions of the Labor Code of California and fail to comply forthwith with the provisions of Section 3800 of the Labor Code, that the permit herein applied for shall be deemed revoked.

I certify as the owner (or the agent for the owner) that in the performance of the work for which this permit is issued, I will employ a contractor who complies with the workers' compensation laws of California and who, prior to the commencement of any work, will file a completed copy of this form with the Central Record Bureau.

Signature of Applicant or Agent

Date



APPROVED

Dept. of Building Insp.

MAY 03 2013

TOM C. HUI, S.E.
ACTING DIRECTOR
DEPT. OF BUILDING INSPECTION

REROOFING

PLEASE CALL THE INSPECTION SERVICES AT
558-8570. FOR A FINAL INSPECTION APPOINTMENT.
NEW OR REPLACEMENT SHEATING AND SKYLIGHTS
REQUIRES A SEPARATE BUILDING PERMIT.

OFFICE COPY

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF BUILDING INSPECTION

APPLICATION IS HEREBY MADE TO THE DEPARTMENT OF
BUILDING INSPECTION OF SAN FRANCISCO FOR
PERMISSION TO BUILD IN ACCORDANCE WITH THE PLANS
AND SPECIFICATIONS SUBMITTED HERewith AND
ACCORDING TO THE DESCRIPTION AND FOR THE PURPOSE
HEREINAFTER SET FORTH.

**APPLICATION FOR BUILDING PERMIT
ADDITIONS, ALTERATIONS OR REPAIRS**FORM 3 ☐ OTHER AGENCIES REVIEW REQUIREDFORM 8 ☒ OVER-THE-COUNTER ISSUANCE

NUMBER OF PLAN SETS

▼ DO NOT WRITE ABOVE THIS LINE ▼

DATE FILED MAY 03 2013	FILING FEE RECEIPT NO. CTY 700	(1) STREET ADDRESS OF JOB 530 SANSOME ST.	BLOCK & LOT 204-17
PERMIT NO. 1292705	ISSUED 5-3-13	(2A) ESTIMATED COST OF JOB \$105,000	(2B) REVISED COST \$105,000 DATE: 7/20/2012

LEGAL DESCRIPTION OF EXISTING BUILDING

(4A) TYPE OF CONSTR. TYPE V	(5A) NO. OF STORIES OF OCCUPANCY 2	(6A) NO. OF BASEMENTS AND CELLARS 1	(7A) PRESENT USE SFDD FIRE STATION #13	(8A) OCCUP. CLASS B-2	(9A) NO. OF DWELLING UNITS 0
---------------------------------------	--	---	--	---------------------------------	--

DESCRIPTION OF BUILDING AFTER PROPOSED ALTERATION

(4) TYPE OF CONSTR. TYPE V	(5) NO. OF STORIES OF OCCUPANCY 2	(6) NO. OF BASEMENTS AND CELLARS 1	(7) PROPOSED USE (LEGAL USE) SFDD FIRE STATION #13	(8) OCCUP. CLASS B-2	(9) NO. OF DWELLING UNITS 0
--------------------------------------	---	--	--	--------------------------------	---------------------------------------

(10) IS AUTO DRIVEWAY TO BE CONSTRUCTED OR ALTERED? YES ☐ NO ☒

(11) WILL STREET SPACE BE USED DURING CONSTRUCTION? YES ☐ NO ☒

(12) ELECTRICAL WORK TO BE PERFORMED? YES ☐ NO ☒

(13) PLUMBING WORK TO BE PERFORMED? YES ☐ NO ☒

(14) GENERAL CONTRACTOR
N/A

(15) OWNER - LESSEE (CROSS OUT ONE)
SF FIRE DEPARTMENT 690 2ND ST 94107 ADDRESS ZIP CITY STATE

(16) WRITE IN DESCRIPTION OF ALL WORK TO BE PERFORMED UNDER THIS APPLICATION (REFERENCE TO PLANS IS NOT SUFFICIENT)
REMOVE EXISTING ROOFING & REPLACE WITH (N) SYSTEM IN-KIND.

ADDITIONAL INFORMATION

(17) DOES THIS ALTERATION CREATE ADDITIONAL HEIGHT OR STORY TO BUILDING? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(18) IF (17) IS YES, STATE NEW HEIGHT AT CENTER LINE OF FRONT FT. 0	(19) DOES THIS ALTERATION CREATE DECK OR HORIZ. EXTENSION TO BUILDING? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(20) IF (19) IS YES, STATE NEW GROUND FLOOR AREA SQ. FT. 0
(21) WILL SIDEWALK OVER SUB-SIDEWALK SPACE BE REPAIRED OR ALTERED? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(22) WILL BUILDING EXTEND BEYOND PROPERTY LINE? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(23) ANY OTHER EXISTING BLDG. ON LOT? IF YES, SHOW ON PLOT PLAN YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(24) DOES THIS ALTERATION CONSTITUTE A CHANGE OF OCCUPANCY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>

(25) ARCHITECT OR ENGINEER (DESIGN ☐ CONSTRUCTION ☒
BENITO OLIVIN 30 VAN NESS AVE, STE 400, S.F. CA 94103 ADDRESS

(26) CONSTRUCTION LEADER (ENTER NAME AND BRANCH DESIGNATION IF ANY, IF THERE IS NO KNOWN CONSTRUCTION LEADER, ENTER UNKNOWN)

IMPORTANT NOTICES

No change shall be made in the character of the occupancy or use without first obtaining a Building Permit authorizing such change. See San Francisco Building Code and San Francisco Housing Code.

No portion of building or structure or scaffolding used during construction, to be closer than 10' to any wire containing more than 750 volts. See Sec. 546, California Penal Code.

Pursuant to San Francisco Building Code, the building permit shall be posted on the job. The owner is responsible for approved plans and application being kept at building site.

Grade lines as shown on drawings accompanying this application are assumed to be correct. If actual grade lines are not the same as shown revised drawings showing correct grade lines, cuts and fills together with complete details of retaining walls and wall footings required must be submitted to this department for approval.

ANY STIPULATION REQUIRED HEREIN OR BY CODE MAY BE APPEALED.

BUILDING NOT TO BE OCCUPIED UNTIL CERTIFICATE OF FINAL COMPLETION IS POSTED ON THE BUILDING OR PERMIT OF OCCUPANCY GRANTED, WHEN REQUIRED.

APPROVAL OF THIS APPLICATION DOES NOT CONSTITUTE AN APPROVAL FOR THE ELECTRICAL WIRING OR PLUMBING INSTALLATIONS. A SEPARATE PERMIT FOR THE WORKS AND PLUMBING MUST BE OBTAINED. SEPARATE PERMITS ARE REQUIRED IF ANSWER IS YES TO ANY OF ABOVE QUESTIONS (12), (13), (14), (22) OR (24).

THIS IS NOT A BUILDING PERMIT. NO WORK SHALL BE STARTED UNTIL A BUILDING PERMIT IS ISSUED.

In dwellings all insulating materials must have a clearance of not less than two inches from all electrical wires or equipment.

CHECK APPROPRIATE BOX
☐ OWNER ☒ ARCHITECT
☐ LESSEE ☐ AGENT
☐ CONTRACTOR ☐ ENGINEER

APPLICANT'S CERTIFICATION

I HEREBY CERTIFY AND AGREE THAT IF A PERMIT IS ISSUED FOR THE CONSTRUCTION DESCRIBED IN THIS APPLICATION, ALL THE PROVISIONS OF THE PERMIT AND ALL LAWS AND ORDINANCES THEREIN WILL BE COMPLIED WITH.

5003-03 (REV. 1/80)

NOTICE TO APPLICANT

HOLD HARMLESS CLAUSE: The permittee(s) by acceptance of the permit, agree(s) to indemnify and hold harmless the City and County of San Francisco from and against any and all claims, demands and actions for damages resulting from operations under this permit, regardless of negligence of the City and County of San Francisco, and to assume the defense of the City and County of San Francisco against all such claims, demands or actions.

In conformity with the provisions of Section 3800 of the Labor Code of the State of California, the applicant shall have coverage under (i), or (ii) designated below or shall include item (iii), or (iv), whichever is applicable. If however item (v) is checked item (vi) must be checked as well. Mark the appropriate method of compliance below.

I hereby affirm under penalty of perjury one of the following declarations:

- () 1. I have and will maintain a certificate of coverage to guarantee for worker's compensation, as provided by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.
- () 2. I have and will maintain worker's compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My worker's compensation insurance carrier and policy number are:
Carrier _____
Policy Number _____
- () 3. The cost of the work to be done is \$100 or less.
- () 4. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the worker's compensation laws of California. I further acknowledge that I understand that in the event this person becomes subject to the worker's compensation provisions of the Labor Code of California and fail to comply therewith with the provisions of Section 3800 of the Labor Code, that the permit herein applied for shall be deemed void.
- () 5. I certify, as the owner or, the agent for the owner that in the performance of the work for which this permit is issued, I shall employ a contractor who complies with the worker's compensation laws of California and who, prior to the commencement of any work, will file a completed copy of this form with the Central Record Bureau.

Signature of Applicant or Agent

MAY 03 2013

ORIGINAL

BLDG.
FORM

318

APPLICATION NUMBER

APPROVAL NUMBER

OSHA APPROVAL REQD ☐

NOV 27 2013

Tom C. Hui
TOM C. HUI, S.E.
DIRECTOR
DEPT. OF BUILDING INSPECTION

APPROVED FOR ISSUANCE

NOV 27 2013

BLDG. FORM 3/8

APPLICATION NUMBER

APPROVAL NUMBER

2013-10-10 8964

APPLICATION FOR BUILDING PERMIT
ADDITIONS, ALTERATIONS OR REPAIRS

FORM 3 ☐ OTHER AGENCIES REVIEW REQUIREDFORM 8 ☒ OVER-THE COUNTER ISSUANCE

2 NUMBER OF PLAN SETS

DO NOT WRITE ABOVE THIS LINE

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF BUILDING INSPECTION

APPLICATION IS HEREBY MADE TO THE DEPARTMENT OF
BUILDING INSPECTION OF SAN FRANCISCO FOR
PERMISSION TO BUILD IN ACCORDANCE WITH THE PLANS
AND SPECIFICATIONS SUBMITTED HERewith AND
ACCORDING TO THE DESCRIPTION AND FOR THE PURPOSE
HEREINAFTER SET FORTH.

PERMIT NO. 1311084	ISSUED 11-27-13	PLANS FEE RECEIPT NO. 101015	(1) STREET ADDRESS OF JOB 530 SANSOME STREET	BLOCK & LOT 206-17
		(2A) ESTIMATED COST OF JOB \$132,000	(2B) REVISED COST: \$132,000	DATE 10/18/13

INFORMATION TO BE FURNISHED BY ALL APPLICANTS

LEGAL DESCRIPTION OF EXISTING BUILDING

(6A) TYPE OF CONSTR. TYPE #1	(6A) NO. OF STORIES OF OCCUPANCY 2	(6A) NO. OF BASEMENTS AND CELLARS 1	(7A) PRESENT USE SFED FIRE STATION #13	(8A) OCCUP. CLASS B	(9A) NO. OF DWELLING UNITS 23
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DESCRIPTION OF BUILDING AFTER PROPOSED ALTERATION

(6) TYPE OF CONSTR. TYPE #1	(6) NO. OF STORIES OF OCCUPANCY 2	(6) NO. OF BASEMENTS AND CELLARS 1	(7) PROPOSED USE (LEGAL USE) SFED FIRE STATION #13	(8) OCCUP. CLASS B	(9) NO. OF DWELLING UNITS 23
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(10) IS AUTO RUMBLEY TO BE CONSTRUCTED OR ALTERED?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(11) WILL STREET SPACE BE USED DURING CONSTRUCTION?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(12) ELECTRICAL WORK TO BE PERFORMED?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(13) PLUMBING WORK TO BE PERFORMED?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
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(14) GENERAL CONTRACTOR
NORTH JOB

(15) OWNER - LICENSE CROSS OUT ONE
SF FIRE DEPARTMENT 698 2ND STREET 94107

(16) WRITE IN DESCRIPTION OF ALL WORK TO BE PERFORMED UNDER THIS APPLICATION (REFERENCE TO PLANS IS NOT SUFFICIENT)
SHOWER RENOVATION INCLUSIVE OF ENCAPSULATION OF SHOWER STALLS WITH 1/4" SOLID SURFACE SHOWER PAN, WALLS, DIVIDERS, SILLS, & EDGE TRIMMING. REPLACEMENT OF WATER CONTROL VALVES, SHOWER HEADS, FLOOR DRAINS, P-TRAPS, & NEW GLASS DOORS.

ADDITIONAL INFORMATION

(17) DOES THIS ALTERATION CREATE ADDITIONAL HEIGHT OR EXIST TO BUILDING?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(18) IF (17) IS YES, STATE NEW HEIGHT AT CENTER LINE OF FRONT FT.	(19) DOES THIS ALTERATION CREATE DECK OR HORIZ. EXTENSION TO BUILDING?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(20) IF (19) IS YES, STATE NEW GROUND FLOOR AREA SQ. FT.
(21) WILL SIDEWALK OVER SUB-EXISTING SPACE BE REPAIRED OR ALTERED?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(22) WILL BUILDING EXTEND BEYOND PROPERTY LINE?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(23) ANY OTHER EXISTING BLDG. ON LOT? IF YES, SHOW ON LOT PLAN	(24) DOES THIS ALTERATION CONSTITUTE A CHANGE OF OCCUPANCY?

(25) ARCHITECT OR ENGINEER (DESIGN) ☐ CONSTRUCTION ☒
BENITO OLIVIN 30 VAN NESS AVE, SUITE 410 S.F. CALIF. CERTIFICATE NO. C-27037

(26) CONSTRUCTION LEADER (ENTER NAME AND BRANCH DESIGNATION IF ANY. IF THERE IS NO KNOWN CONSTRUCTION LEADER, ENTER "UNKNOWN")

IMPORTANT NOTICES

No change shall be made in the character of the occupancy or use without first obtaining a Building Permit authorizing such change. See San Francisco Building Code and San Francisco Housing Code.

No portion of building or structure or scaffolding used during construction, to be closer than 10' to any wire containing more than 750 volts See Sec 886, California Penal Code.

Pursuant to San Francisco Building Code, the building permit shall be posted on the job. The owner is responsible for approved plans and application being kept at building site.

Grade lines as shown on drawings accompanying this application are assumed to be correct. If actual grade lines are not the same as shown, revised drawings showing correct grade lines, cuts and fills together with complete details of retaining walls and soil loadings required must be submitted to this department for approval.

ANY VIOLATION REQUIRED HEREON OR BY CODE MAY BE APPEALED.

BUILDING NOT TO BE OCCUPIED UNTIL CERTIFICATE OF FINAL COMPLETION IS POSTED ON THE BUILDING OR PERMIT OF OCCUPANCY GRANTED, WHEN REQUIRED.

APPROVAL OF THIS APPLICATION DOES NOT CONSTITUTE AN APPROVAL FOR THE ELECTRICAL, MECHANICAL OR PLUMBING INSTALLATIONS. A SEPARATE PERMIT FOR THE MECHANICAL AND PLUMBING MUST BE OBTAINED. SEPARATE PERMITS ARE REQUIRED IF ANSWER IS "YES" TO ANY OF ABOVE QUESTIONS (12) (13) (14) (15) (16) OR (24).

THIS IS NOT A BUILDING PERMIT. NO WORK SHALL BE STARTED UNTIL A BUILDING PERMIT IS ISSUED.

In buildings all hazardous materials must have a clearance of not less than two feet from all electrical wires or equipment.

CHECK APPROPRIATE BOX
☐ OWNER ☐ ARCHITECT
☐ LICENSEE ☐ AGENT
☐ CONTRACTOR ☐ ENGINEER

APPLICANT'S CERTIFICATION

I HEREBY CERTIFY AND AGREE THAT IF A PERMIT IS ISSUED FOR THE CONSTRUCTION DESCRIBED IN THIS APPLICATION, ALL THE PROVISIONS OF THE PERMIT AND ALL LAWS AND ORDINANCES THEREIN WILL BE COMPLIED WITH.

B005-06 (REV. 1/00)

NOTICE TO APPLICANT

HOLD HARMLESS CLAUSE. The permittee(s) by acceptance of the permit, agree(s) to indemnify and hold harmless the City and County of San Francisco from and against any and all claims, demands and actions for damages resulting from operations under this permit, regardless of negligence of the City and County of San Francisco, and to assume the defense of the City and County of San Francisco against all such claims, demands or actions.

In conformity with the provisions of Section 8800 of the Labor Code of the State of California, the applicant shall have coverage under (1), or (2) designated below or shall indicate item (2), or (3), or (4), or (5), whichever is applicable. If however item (5) is checked item (4) must be checked as well. Mark the appropriate method of compliance below.

I hereby affirm under penalty of perjury one of the following declarations:

- I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided by Section 8700 of the Labor Code, for the performance of the work for which this permit is issued.
- I have and will maintain workers' compensation insurance, as required by Section 8700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:
Carrier _____
Policy Number _____
- The cost of the work to be done is \$1000 or less.

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California. I further acknowledge that I understand that in the event that I should become subject to the workers' compensation provisions of the Labor Code of California and fail to comply therewith with the provisions of Section 8800 of the Labor Code, that the permit herein applied for shall be deemed void.

I certify on the owner for the agent for the project that in the performance of the work for which this permit is issued, I will employ a contractor who complies with the workers' compensation laws of California and who, prior to the commencement of any work, will be a completed copy of this form with the County Permit Bureau.

OFFICE COPY

NOV 27 2013

APPROVED
Dept. of Building Insp.
Robert Gaillet S.F.I.

MAR 07 2014

MAR 07 2014

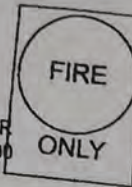
PLEASE NOTIFY FIRE INSPECTOR
AT THE START OF WORK 558-3380

Tom C. Hui

TOM C. HUI, S.E.

DIRECTOR

DEPT. OF BUILDING INSPECTION



APPROVED FOR ISSUANCE

BLDG. FORM 3/18

2014-0305-0004

APPLICATION NUMBER

APPROVAL NUMBER

NV

**APPLICATION FOR BUILDING PERMIT
ADDITIONS, ALTERATIONS OR REPAIRS**

FORM 3 ☐ OTHER AGENCIES REVIEW REQUIRED

FORM 8 ☒ OVER-THE-COUNTER ISSUANCE

2 NUMBER OF PLAN SETS

DO NOT WRITE ABOVE THIS LINE

**CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF BUILDING INSPECTION**

APPLICATION IS HEREBY MADE TO THE DEPARTMENT OF
BUILDING INSPECTION OF SAN FRANCISCO FOR
PERMISSION TO BUILD IN ACCORDANCE WITH THE PLANS
AND SPECIFICATIONS SUBMITTED HEREWITH AND
ACCORDING TO THE DESCRIPTION AND FOR THE PURPOSE
HEREINAFTER SET FORTH.

DATE FILED 3-7-2014	FILED FOR RECEIPT NO. 3-7-2014	(1) STREET ADDRESS OF JOB 530 SANSONE	BLOCK & LOT 0206 / 017
PERMIT NO. 131872	ISSUED 3-7-2014	(2A) ESTIMATED COST OF JOB \$1400	(2B) REBID COST: \$1500 R.H. 3-7-14

INFORMATION TO BE FURNISHED BY ALL APPLICANTS

LEGAL DESCRIPTION OF EXISTING BUILDING					
(1A) TYPE OF CONSTR. I	(2A) NO. OF STORIES OF OCCUPANCY 1	(3A) NO. OF BASEMENTS AND CELLARS 0	(4A) PRESENT USE FIRE STATION	(5A) OCCUP. CLASS B	(6A) NO. OF DWELLING UNITS 0
DESCRIPTION OF BUILDING AFTER PROPOSED ALTERATION					
(1B) TYPE OF CONSTR. I	(2B) NO. OF STORIES OF OCCUPANCY 1	(3B) NO. OF BASEMENTS AND CELLARS 0	(4B) PROPOSED USE (LEGAL USE) FIRE STATION	(5B) OCCUP. CLASS B	(6B) NO. OF DWELLING UNITS 0
(1C) IS AUTO ELEVATOR TO BE CONSTRUCTED OR ALTERED?		(1D) WILL STREET SPACE BE USED DURING CONSTRUCTION?		(1E) ELECTRICAL WORK TO BE PERFORMED?	
YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
(1F) RECEIPT CONTRACTOR		ADDRESS		PHONE	
RB PETROURCHAK		530 SANSONE		747	
(1G) OWNER - LESSEE (CHECK ONE)		ADDRESS		PHONE (FOR CONTACT BY DEPT.)	
OWNER		CITY AND COUNTY OF SAN FRANCISCO		530 SANSONE	
(1H) WRITE IN DESCRIPTION OF ALL WORK TO BE PERFORMED UNDER THIS APPLICATION (REFERENCE TO PLANS IS NOT SUFFICIENT)					
INSTALL NEW SECONDARY CONTAINMENT PIPE OVER EXISTING					
FIRE SUPPLY PIPING - NO CONCRETE REMOVAL REQUIRED					
ALL WORK DONE IN EXISTING PIPE ROUTE(S)					
ADDITIONAL INFORMATION					
(1I) DOES THIS ALTERATION CREATE ADDITIONAL HEIGHT OR STORY TO BUILDING?		(1J) IF (1I) IS YES, STATE NEW HEIGHT AT CENTER LINE OF FRONT		(1K) DOES THIS ALTERATION CREATE DECK OR PORCH, EXTENSION TO BUILDING?	
YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		FT.		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
(1L) WILL EXISTING OVER SUB-ORDINATE SPACE BE REPAIRED OR ALTERED?		(1M) WILL BUILDING EXTERIOR BE REPAIRED OR ALTERED?		(1N) ANY OTHER EXISTING BLDG. ON LOT? IF YES, SHOW ON PLAN PLANS	
YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
(1O) ARCHITECT OR ENGINEER (DESIGN OF CONSTRUCTION)		ADDRESS		DATE CERTIFICATE NO.	
MICHAEL BROWN		617 24th ST OAKLAND, CA		94612	
(1P) CONSTRUCTION LESSEE (ENTER NAME AND BUSINESS DESCRIPTION IF ANY, IF THERE IS NO KNOWN CONSTRUCTION LESSEE, ENTER "NONE")					

IMPORTANT NOTICES

No change shall be made in the character of the occupancy or use without first obtaining a Building Permit authorizing such change. See San Francisco Building Code and San Francisco Housing Code.

No portion of building or structure or scaffolding used during construction, to be closer than 6' to any wall containing more than two windows. See San Francisco Building Code.

Pursuant to San Francisco Building Code, the building permit shall be posted on the job. The owner is responsible for approval plans and application being kept at building site.

Grade lines as shown on drawings accompanying this application are assumed to be correct. If actual grade lines are not the same as shown, additional drawings showing correct grade lines, cuts and fills together with complete details of retaining walls and wall footings required must be submitted to this department for approval.

ANY APPLICATION REQUIRED HEREIN OR BY CODE MAY BE APPEALED.

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APPROVAL OF THIS APPLICATION DOES NOT CONSTITUTE AN APPROVAL FOR THE ELECTRICAL, PLUMBING OR MECHANICAL INSTALLATIONS. A SEPARATE PERMIT FOR THE WORKS AND PLUMBING MUST BE OBTAINED. SEPARATE PERMITS ARE REQUIRED IF ANSWER IS "YES" TO ANY OF ABOVE QUESTIONS (1) (11) (12) (13) (14) OR (15).

THIS IS NOT A BUILDING PERMIT. NO WORK SHALL BE STARTED UNTIL A BUILDING PERMIT IS ISSUED.

In drawings all building materials must have a clearance of not less than two inches from all electrical wires or equipment.

CHECK APPROPRIATE BOX

☐ OWNER ☐ ARCHITECT
☐ LESSEE ☐ AGENT
☐ CONTRACTOR ☐ ENGINEER

APPLICANT'S CERTIFICATION

I HEREBY CERTIFY AND AGREE THAT IF A PERMIT IS ISSUED FOR THE CONSTRUCTION DESCRIBED IN THIS APPLICATION, ALL THE PROVISIONS OF THE PERMIT AND ALL LAWS AND ORDINANCES THEREBY WILL BE COMPLIED WITH.

888-02 (REV. 1/04)

NOTICE TO APPLICANT

HOLD HARMLESS CLAUSE. The undersigned, by acceptance of the permit, agrees to indemnify and hold harmless the City and County of San Francisco from and against any and all claims, demands and actions for damages resulting from operations under this permit, regardless of negligence of the City and County of San Francisco, and to assume the defense of the City or County of San Francisco against all such claims, demands and actions.

In conformity with the provisions of Section 3800 of the Labor Code of the State of California, the applicant shall have coverage under (a), or (b) designated below or shall indicate how (c), or (d), or (e), or (f), or (g), or (h), or (i), or (j), or (k), or (l), or (m), or (n), or (o), or (p), or (q), or (r), or (s), or (t), or (u), or (v), or (w), or (x), or (y), or (z), or (aa), or (ab), or (ac), or (ad), or (ae), or (af), or (ag), or (ah), or (ai), or (aj), or (ak), or (al), or (am), or (an), or (ao), or (ap), or (aq), or (ar), or (as), or (at), or (au), or (av), or (aw), or (ax), or (ay), or (az), or (ba), or (bb), or (bc), or (bd), or (be), or (bf), or (bg), or (bh), or (bi), or (bj), or (bk), or (bl), or (bm), or (bn), or (bo), or (bp), or (bq), or (br), or (bs), or (bt), or (bu), or (bv), or (bw), or (bx), or (by), or (bz), or (ca), or (cb), or (cc), or (cd), or (ce), or (cf), or (cg), or (ch), or (ci), or (cj), or (ck), or (cl), or (cm), or (cn), or (co), or (cp), or (cq), or (cr), or (cs), or (ct), or (cu), or (cv), or (cw), or (cx), or (cy), or (cz), or (da), or (db), or (dc), or (dd), or (de), or (df), or (dg), or (dh), or (di), or (dj), or (dk), or (dl), or (dm), or (dn), or (do), or (dp), or (dq), or (dr), or (ds), or (dt), or (du), or (dv), or (dw), or (dx), or (dy), or (dz), or (ea), or (eb), or (ec), or (ed), or (ee), or (ef), or (eg), or (eh), or (ei), or (ej), or (ek), or (el), or (em), or (en), or (eo), or (ep), or (eq), or (er), or (es), or (et), or (eu), or (ev), or (ew), or (ex), or (ey), or (ez), or (fa), or (fb), or (fc), or (fd), or (fe), or (ff), or (fg), or (fh), or (fi), or (fj), or (fk), or (fl), or (fm), or (fn), or (fo), or (fp), or (fq), or (fr), or (fs), or (ft), or (fu), or (fv), or (fw), or (fx), or (fy), or (fz), or (ga), or (gb), or (gc), or (gd), or (ge), or (gf), or (gg), or (gh), or (gi), or (gj), or (gk), or (gl), or (gm), or (gn), or (go), or (gp), or (gq), or (gr), or (gs), or (gt), or (gu), or (gv), or (gw), or (gx), or (gy), or (gz), or (ha), or (hb), or (hc), or (hd), or (he), or (hf), or (hg), or (hi), or (hj), or (hk), or (hl), or (hm), or (hn), or (ho), or (hp), or (hq), or (hr), or (hs), or (ht), or (hu), or (hv), or (hw), or (hx), or (hy), or (hz), or (ia), or (ib), or (ic), or (id), or (ie), or (if), or (ig), or (ih), or (ii), or (ij), or (ik), or (il), or (im), or (in), or (io), or (ip), or (iq), or (ir), or (is), or (it), or (iu), or (iv), or (iw), or (ix), or (iy), or (iz), or (ja), or (jb), or (jc), or (jd), or (je), or (jf), or (jg), or (jh), or (ji), or (jj), or (jk), or (jl), or (jm), or (jn), or (jo), or (jp), or (jq), or (jr), or (js), or (jt), or (ju), or (jv), or (jw), or (jx), or (jy), or (jz), or (ka), or (kb), or (kc), or (kd), or (ke), or (kf), or (kg), or (kh), or (ki), or (kj), or (kk), or (kl), or (km), or (kn), or (ko), or (kp), or (kq), or (kr), or (ks), or (kt), or (ku), or (kv), or (kw), or (kx), or (ky), or (kz), or (la), or (lb), or (lc), or (ld), or (le), or (lf), or (lg), or (lh), or (li), or (lj), or (lk), or (ll), or (lm), or (ln), or (lo), or (lp), or (lq), or (lr), or (ls), or (lt), or (lu), or (lv), or (lw), or (lx), or (ly), or (lz), or (ma), or (mb), or (mc), or (md), or (me), or (mf), or (mg), or (mh), or (mi), or (mj), or (mk), or (ml), or (mm), or (mn), or (mo), or (mp), or (mq), or (mr), or (ms), or (mt), or (mu), or (mv), or (mw), or (mx), or (my), or (mz), or (na), or (nb), or (nc), or (nd), or (ne), or (nf), or (ng), or (nh), or (ni), or (nj), or (nk), or (nl), or (nm), or (nn), or (no), or (np), or (nq), or (nr), or (ns), or (nt), or (nu), or (nv), or (nw), or (nx), or (ny), or (nz), or (oa), or (ob), or (oc), or (od), or (oe), or (of), or (og), or (oh), or (oi), or (oj), or (ok), or (ol), or (om), or (on), or (oo), or (op), or (oq), or (or), or (os), or (ot), or (ou), or (ov), or (ow), or (ox), or (oy), or (oz), or (pa), or (pb), or (pc), or (pd), or (pe), or (pf), or (pg), or (ph), or (pi), or (pj), or (pk), or (pl), or (pm), or (pn), or (po), or (pp), or (pq), or (pr), or (ps), or (pt), or (pu), or (pv), or (pw), or (px), or (py), or (pz), or (qa), or (qb), or (qc), or (qd), or (qe), or (qf), or (qg), or (qh), or (qi), or (qj), or (qk), or (ql), or (qm), or (qn), or (qo), or (qp), or (qq), or (qr), or (qs), or (qt), or (qu), or (qv), or (qw), or (qx), or (qy), or (qz), or (ra), or (rb), or (rc), or (rd), or (re), or (rf), or (rg), or (rh), or (ri), or (rj), or (rk), or (rl), or (rm), or (rn), or (ro), or (rp), or (rq), or (rr), or (rs), or (rt), or (ru), or (rv), or (rw), or (rx), or (ry), or (rz), or (sa), or (sb), or (sc), or (sd), or (se), or (sf), or (sg), or (sh), or (si), or (sj), or (sk), or (sl), or (sm), or (sn), or (so), or (sp), or (sq), or (sr), or (ss), or (st), or (su), or (sv), or (sw), or (sx), or (sy), or (sz), or (ta), or (tb), or (tc), or (td), or (te), or (tf), or (tg), or (th), or (ti), or (tj), or (tk), or (tl), or (tm), or (tn), or (to), or (tp), or (tq), or (tr), or (ts), or (tt), or (tu), or (tv), or (tw), or (tx), or (ty), or (tz), or (ua), or (ub), or (uc), or (ud), or (ue), or (uf), or (ug), or (uh), or (ui), or (uj), or (uk), or (ul), or (um), or (un), or (uo), or (up), or (uq), or (ur), or (us), or (ut), or (uu), or (uv), or (uw), or (ux), or (uy), or (uz), or (va), or (vb), or (vc), or (vd), or (ve), or (vf), or (vg), or (vh), or (vi), or (vj), or (vk), or (vl), or (vm), or (vn), or (vo), or (vp), or (vq), or (vr), or (vs), or (vt), or (vu), or (vv), or (vw), or (vx), or (vy), or (vz), or (wa), or (wb), or (wc), or (wd), or (we), or (wf), or (wg), or (wh), or (wi), or (wj), or (wk), or (wl), or (wm), or (wn), or (wo), or (wp), or (wq), or (wr), or (ws), or (wt), or (wu), or (wv), or (ww), or (wx), or (wy), or (wz), or (xa), or (xb), or (xc), or (xd), or (xe), or (xf), or (xg), or (xh), or (xi), or (xj), or (xk), or (xl), or (xm), or (xn), or (xo), or (xp), or (xq), or (xr), or (xs), or (xt), or (xu), or (xv), or (xw), or (xx), or (xy), or (xz), or (ya), or (yb), or (yc), or (yd), or (ye), or (yf), or (yg), or (yh), or (yi), or (yj), or (yk), or (yl), or (ym), or (yn), or (yo), or (yp), or (yq), or (yr), or (ys), or (yt), or (yu), or (yv), or (yw), or (yx), or (yz), or (za), or (zb), or (zc), or (zd), or (ze), or (zf), or (zg), or (zh), or (zi), or (zj), or (zk), or (zl), or (zm), or (zn), or (zo), or (zp), or (zq), or (zr), or (zs), or (zt), or (zu), or (zv), or (zw), or (zx), or (zy), or (zz).

I hereby affirm under penalty of perjury one of the following declarations:

- I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.
- I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance number is: State Arch
- The cost of the work to be done is \$1000 or less.
- I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California. I further acknowledge that I understand that in the event that I should become subject to the workers' compensation provisions of the Labor Code of California and fail to comply therewith with the provisions of Section 3800 of the Labor Code, that the permit herein applied for shall be deemed revoked.
- I certify to the owner (or the agent for the owner) that in the performance of the work for which this permit is issued, I will employ a contractor who complies with the "equal opportunity" laws of California and who, prior to the commencement of any work, will be a certified copy of this form with the Certified Permit Bureau.

Signature of Applicant or Agent

Date

OFFICE COPY

MAR 07 2014

SAN FRANCISCO

MAINTENANCE - EXTENDED

Disturbance of at least 50 cu. yd. of soil:

DEPARTMENT OF BUILDING ☒ Yes ☒ No

BUILDING DISTURBANCE NO. 155-13.

☐ Exempted - Letter from DPH attachedAPPROVED
Dept. of Building Insp.

JUN 22 2015

Tom C. Hui

TOM C. HUI, S.E.

DIRECTOR

APPROVED FOR ISSUANCE

JUN 22 2015

BLDG. FORM 3/8

APPLICATION NUMBER
06150602-7758OSHA APPROVAL REC'D
APPROVAL NUMBERAPPLICATION FOR BUILDING PERMIT
ADDITIONS, ALTERATIONS OR REPAIRSFORM 3 ☐ OTHER AGENCIES REVIEW REQUIREDFORM 8 ☒ OVER-THE-COUNTER ISSUANCE

2 NUMBER OF PLAN SETS

DO NOT WRITE ABOVE THIS LINE

DATE FILED 6-22-15	FILING FEE RECEIPT NO. 1361044	(1) STREET ADDRESS OF JOB 530 SANJOME ST	BLOCK & LOT 0206/017
PERMIT NO. 1361044	ISSUED 6-22-15	(2A) ESTIMATED COST OF JOB \$30,000	(2B) REVISED COST: \$30,000 BY: JHE DATE: 6/2/15

INFORMATION TO BE FURNISHED BY ALL APPLICANTS

LEGAL DESCRIPTION OF EXISTING BUILDING			
(4A) TYPE OF CONSTR. 1	(5A) NO. OF STORIES OF OCCUPANCY: 2	(6A) NO. OF BASEMENTS AND CELLARS: 1	(7A) PRESENT USE: FIRE STATION # 13
(8A) OCCUP. CLASS B	(9A) NO. OF DWELLING UNITS: 4		
DESCRIPTION OF BUILDING AFTER PROPOSED ALTERATION			
(4) TYPE OF CONSTR. 1	(5) NO. OF STORIES OF OCCUPANCY: 2	(6) NO. OF BASEMENTS AND CELLARS: 1	(7) PROPOSED USE (LEGAL USE) FIRE STATION # 13
(8) OCCUP. CLASS B	(9) NO. OF DWELLING UNITS: 4		
(10) IS AUTO RUNWAY TO BE CONSTRUCTED OR ALTERED? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(11) WILL STREET SPACE BE USED DURING CONSTRUCTION? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(12) ELECTRICAL WORK TO BE PERFORMED? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(13) PLUMBING WORK TO BE PERFORMED? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
(14) GENERAL CONTRACTOR ADDRESS PUBLIC BID	ZIP 94107	PHONE 415-558-3300	CALIF. LIC. NO. EXPIRATION DATE
(15) OWNER - LESSEE (CROSS OUT ONE) OWNER SFED	ADDRESS 698 2ND ST	ZIP 94107	PHONE (FOR CONTACT BY DEPT.) 415-558-3300
(16) WRITE IN DESCRIPTION OF ALL WORK TO BE PERFORMED UNDER THIS APPLICATION (REFERENCE TO PLANS IS NOT SUFFICIENT) SHOWER REPLACEMENT AT 1 STALL INCLUSIVE OF THE REMOVAL & REPLACEMENT DRAIN & VALVE REPLACEMENT, WIDENING OF (E) SMALL OPENING, & NEW GLASS SHOWER DOOR. INSTALLATION OF NEW WATER-PROOFING THROUGHOUT. EXEMPT FROM DISABLED ACCESS UPGRADES PER CBC 11B-202.4, EXCEPTION 7			
ADDITIONAL INFORMATION			
(17) DOES THIS ALTERATION CREATE ADDITIONAL HEIGHT OR STORY TO BUILDING? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(18) IF (17) IS YES, STATE NEW HEIGHT AT CENTER LINE OF FRONT	(19) DOES THIS ALTERATION CREATE DECK OR HORIZ. EXTENSION TO BUILDING? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(20) IF (19) IS YES, STATE NEW GROUND FLOOR AREA SQ. FT.
(21) WILL BUILDING OVER SUB-SIDEWALK SPACE BE REPAIRED OR ALTERED? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(22) WILL BUILDING EXTEND BEYOND PROPERTY LINE? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(23) ANY OTHER EXISTING BLDG. ON LOT? (IF YES, SHOW ON PLOT PLAN) YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(24) DOES THIS ALTERATION CONSTITUTE A CHANGE OF OCCUPANCY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
(25) ARCHITECT OR ENGINEER (DESIGN <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> VITO VANONI		ADDRESS 30 VAN NESS #4100	
(26) CONSTRUCTION LENDER (ENTER NAME AND BRANCH DESIGNATION IF ANY. IF THERE IS NO KNOWN CONSTRUCTION LENDER, ENTER "UNKNOWN") UNKNOWN		ADDRESS	

IMPORTANT NOTICES

No change shall be made in the character of the occupancy or use without first obtaining a Building Permit authorizing such change. See San Francisco Building Code and San Francisco Housing Code.

No portion of building or scaffolding used during construction is to be closer than 6'6" to any wire containing more than 750 volts. See Sec 205, California Penal Code.

Pursuant to San Francisco Building Code, the building permit shall be posted on the job. The owner is responsible for approved plans and application being kept at building site.

Grade lines as shown on drawings accompanying this application are assumed to be correct. If actual grade lines are not the same as shown, revised drawings showing correct grade lines, cuts and fills, and complete details of retaining walls and wall footings must be submitted to this department for approval.

ANY STIPULATION REQUIRED HEREON BY CODE MAY BE APPEALED.

BUILDING NOT TO BE OCCUPIED UNTIL CERTIFICATE OF FINAL COMPLETION IS POSTED ON THE BUILDING OR PERMIT OF OCCUPANCY GRANTED, WHEN REQUIRED.

APPROVAL OF THIS APPLICATION DOES NOT CONSTITUTE AN APPROVAL FOR THE ELECTRICAL WIRING OR PLUMBING INSTALLATIONS. A SEPARATE PERMIT FOR THE WIRING AND PLUMBING MUST BE OBTAINED. SEPARATE PERMITS ARE REQUIRED IF ANSWER IS "YES" TO ANY OF ABOVE QUESTIONS (10) (11) (12) (13) (22) OR (24).

THIS IS NOT A BUILDING PERMIT. NO WORK SHALL BE STARTED UNTIL A BUILDING PERMIT IS ISSUED.

In drawings, all insulating materials must have a clearance of not less than two inches from all electrical wires or equipment.

CHECK APPROPRIATE BOX

☐ OWNER
☐ LESSEE
☐ CONTRACTOR

☒ ARCHITECT
☐ AGENT
☐ ENGINEER

APPLICANT'S CERTIFICATION

I HEREBY CERTIFY AND AGREE THAT IF A PERMIT IS ISSUED FOR THE CONSTRUCTION DESCRIBED IN THIS APPLICATION, ALL THE PROVISIONS OF THE PERMIT AND ALL LAWS AND ORDINANCES THEREBY WILL BE COMPLIED WITH.

REV 06/13

NOTICE TO APPLICANT

HOLD HARMLESS CLAUSE. The permittee(s) by acceptance of the permit, agree(s) to indemnify and hold harmless the City and County of San Francisco from and against any and all claims, demands and actions for damages resulting from operations under this permit, regardless of negligence of the City and County of San Francisco, and to assume the defense of the City and County of San Francisco against all such claims, demands or actions.

In conformity with the provisions of Section 2600 of the Labor Code of the State of California, the applicant shall have worker's compensation coverage under (i) or (ii) designated below, or shall indicate item (iii), (iv), or (v), whichever is applicable. If however item (v) is checked, item (iv) must be checked as well. Mark the appropriate method of compliance below.

I hereby affirm under penalty of perjury one of the following declarations:

() I. I have and will maintain a certificate of consent to self-insure for worker's compensation, as provided by Section 2700 of the Labor Code, for the performance of the work for which this permit is issued.

() II. I have and will maintain worker's compensation insurance, as required by Section 2700 of the Labor Code, for the performance of the work for which this permit is issued. My worker's compensation insurance carrier and policy number are:

Carrier
Policy Number

() III. The cost of the work to be done is \$100 or less.

() IV. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the worker's compensation laws of California. I further acknowledge that I understand that in the event that I should become subject to the worker's compensation provisions of the Labor Code of California and fail to comply therewith with the provisions of Section 2600 of the Labor Code, that the permit herein applied for shall be deemed revoked.

() V. I certify as the owner (or the agent for the owner) that in the performance of the work for which this permit is issued, I will employ a contractor who complies with the worker's compensation laws of California and who, prior to the commencement of any work, will file a completed copy of this form with the Central Permit Bureau.

Signature of Applicant or Agent
Vito Vanoni

Date
May 21, 2015

OFFICE COPY

JUN 22 2015

SAN FRANCISCO

DEPARTMENT OF BUILDING INSPECTION

MAHER ORDINANCE - EXTENDED

Disturbance of at least 50 sq. yd. of soil:

☐ Yes
☒ If yes, route to DPH for compliance with Ordinance No. 155-13.

☐ Exempted - Approval from DPH attached

FIRE

APPROVED
 FEB 18 2016
 DEPT. OF BUILDING INSPECTION
 FIRE

BLDG FORM 3/8

APPLICATION NUMBER

APPROVAL NUMBER

APPLICATION FOR BUILDING PERMIT
ADDITIONS, ALTERATIONS OR REPAIRS

FORM 3. OTHER AGENCIES REVIEW REQUIRED

FORM 9. OVER THE COUNTER ISSUANCE

2 NUMBER OF PLAN SETS

DO NOT WRITE ABOVE THIS LINE

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF BUILDING INSPECTION

APPLICATION IS HEREBY MADE TO THE DEPARTMENT OF BUILDING INSPECTION OF SAN FRANCISCO FOR PERMISSION TO BUILD IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS SUBMITTED HERewith AND ACCORDING TO THE DESCRIPTION AND FOR THE PURPOSE HEREINAFTER SET FORTH.

DATE FILED 12/24/15	FILING FEE RECEIPT NO. N121812	(1) STREET ADDRESS OF JOB 530 SANSONE ST	BLOCK & LOT 0206-017
PERMIT NO. 1983144	ISSUED FEB 12 2016	(2A) ESTIMATED COST OF JOB \$105,000	(2B) REPAIR COST \$105,000

INFORMATION TO BE FURNISHED BY ALL APPLICANTS

LEGAL DESCRIPTION OF EXISTING BUILDING

(6A) TYPE OF CONSTR. S1	(5A) NO. OF STORIES OF OCCUPANCY 3	(6A) NO. OF BASEMENTS AND CELLARS 1	(7A) PRESENT USE FIRE STATION #13	(8A) OCCUP. CLASS B	(9A) NO. OF DWELLING UNITS 4/1A
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DESCRIPTION OF BUILDING AFTER PROPOSED ALTERATION

(4) TYPE OF CONSTR. 1	(5) NO. OF STORIES OF OCCUPANCY 3	(6) NO. OF BASEMENTS AND CELLARS 1	(7) PROPOSED USE (LEGAL USE) NO CHANGE FS #13	(8) OCCUP. CLASS B	(9) NO. OF DWELLING UNITS 4/1A
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(10) IS AUTO RUNWAY TO BE CONSTRUCTED OR ALTERED?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(11) WILL STREET SPACE BE USED DURING CONSTRUCTION?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(12) ELECTRICAL WORK TO BE PERFORMED?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(13) PLUMBING WORK TO BE PERFORMED?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
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(14) GENERAL CONTRACTOR BECKER ELECTRIC	ADDRESS 500 SANSONE ST	ZIP 94102	PHONE 415 404 8045	CALIF. LIC. NO. 909450	EXPIRATION DATE 6/30/16
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(15) OWNER - LESSEE (CROSS OUT ONE) CITY AND COUNTY OF SF.	ADDRESS 25 VAN NESS AVE	ZIP 94102	PHONE (FOR CONTACT BY DEPT.) 415 264-2511
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(16) WRITE IN DESCRIPTION OF ALL WORK TO BE PERFORMED UNDER THIS APPLICATION (REFERENCE TO PLANS IS NOT SUFFICIENT)	415 264-2511
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INSTALLATION OF CO2 MONITORING SYSTEM

SEE ATTACH

MAHER ORDINANCE - EXTENDED

Disturbance of at least 50 sq. yd. of soil:

☐ Yes

☒ If yes, route to DPH for compliance with Ordinance No. 155-13.

ADDITIONAL INFORMATION

(17) DOES THIS ALTERATION CREATE ADDITIONAL HEIGHT OR STORY TO BUILDING?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(18) IF (17) IS YES, STATE NEW HEIGHT AT CENTER LINE OF FRONT	(19) DOES THIS ALTERATION CREATE DECK OR PORCH, EXTENSION TO BUILDING?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(20) IF (19) IS YES, STATE NEW GROUND FLOOR AREA
(21) WILL SIDEWALK OVER SUB-SIDEWALK SPACE BE REPAIRED OR ALTERED?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(22) WILL BUILDING EXTEND BEYOND PROPERTY LINE?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(23) ANY OTHER EXISTING BLDG. ON LOT? (IF YES, SHOW ON PLOT PLAN)	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
(24) DOES THIS ALTERATION CONSTITUTE A CHANGE OF OCCUPANCY?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	CALIF. CERTIFICATE NO.			

(25) ARCHITECT OR ENGINEER (DESIGN OR CONSTRUCTION)	ADDRESS
DPW 30 VAN NESS, SF, CA 94102	N/A

(26) CONSTRUCTION LENDER (ENTER NAME AND BRANCH DESIGNATION IF ANY. IF THERE IS NO KNOWN CONSTRUCTION LENDER, ENTER "UNKNOWN")	ADDRESS
N/A	

IMPORTANT NOTICES

No change shall be made in the character of the occupancy or use without first obtaining a Building Permit authorizing such change. See San Francisco Building Code and San Francisco Housing Code.

No portion of building or structure or scaffolding used during construction is to be closer than 10' to any wall containing more than 750 volts. See Sec 280, California Penal Code.

Permit to Use San Francisco Building Code, the building permit shall be posted on the job. The owner is responsible for approved plans and application being kept at building site.

Draws these as shown on drawings accompanying this application are assumed to be correct. If actual grade lines are not the same as shown, revised drawings showing correct grade lines, cuts and fills, and complete details of retaining walls and soil loadings must be submitted to this department for approval.

ANY EXISTING REQUIRED HEREON BY CODE MAY BE APPEALED.

BUILDING NOT TO BE OCCUPIED UNTIL CERTIFICATE OF FINAL COMPLETION IS POSTED ON THE BUILDING OR PERMIT OF OCCUPANCY GRANTED, WHEN REQUIRED.

APPROVAL OF THIS APPLICATION DOES NOT CONSTITUTE AN APPROVAL FOR THE ELECTRICAL, WIRING OR PLUMBING INSTALLATIONS. A SEPARATE PERMIT FOR THE WIRING AND PLUMBING MUST BE OBTAINED. SEPARATE PERMITS ARE REQUIRED IF ANSWER IS "YES" TO ANY OF ABOVE QUESTIONS (16) (17) (18) (19) (24) OR (26).

THIS IS NOT A BUILDING PERMIT. NO WORK SHALL BE STARTED UNTIL A BUILDING PERMIT IS ISSUED.

In drawings, all building construction must have a clearance of not less than 36 inches from all electrical wires or equipment.

CHECK APPROPRIATE BOX

☐ OWNER
☐ LESSEE
☒ CONTRACTOR

☐ ARCHITECT
☐ AGENT
☐ ENGINEER

APPLICANT'S CERTIFICATION

I HEREBY CERTIFY AND AGREE THAT IF A PERMIT IS ISSUED FOR THE CONSTRUCTION DESCRIBED IN THIS APPLICATION, ALL THE PROVISIONS OF THE PERMIT AND ALL LAWS AND ORDINANCES THEREIN WILL BE COMPLIED WITH.

NOTICE TO APPLICANT

HOLD HARMLESS CLAUSE. The permittee(s) by acceptance of the permit, agree(s) to indemnify and hold harmless the City and County of San Francisco from and against any and all claims, demands and actions for damages resulting from operations under this permit, regardless of negligence of the City and County of San Francisco, and to assume the defense of the City and County of San Francisco against all such claims, demands or actions.

In conformity with the provisions of Section 3900 of the Labor Code of the State of California, the applicant and his/her contractor agree to maintain and keep on file a copy of the worker's compensation coverage under (1) or (2) described below, or shall maintain them (2), (3), or (4), whichever is applicable. If however there (5) is checked, there (5) must be checked as well. Mark the appropriate method of compliance below.

I hereby affirm under penalty of perjury one of the following declarations:

☐ I have and will maintain a certificate of interest in self-insure for worker's compensation, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

☒ I have and will maintain worker's compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My worker's compensation insurance carrier and policy number are:

 Carrier: HARTFORD
 Policy Number: 72-1166202-60

☐ The cost of the work to be done is \$1000 or less.

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the worker's compensation laws of California. I further acknowledge that I understand that in the event that I should become subject to the worker's compensation provisions of the Labor Code of California and fail to comply therewith with the provisions of Section 3900 of the Labor Code, that the permit holder applied for shall be deemed negligent.

☐ I certify on the basis of the above (or the agent for the owner) that in the performance of the work for which this permit is issued, I will employ a contractor who complies with the worker's compensation laws of California and who, prior to the commencement of any work, with this a completed copy of this form with the County of San Francisco.

 Signature: [Signature]
 Date: 10/1/15
 Title: [Title]

APPROVED
Dept. of Building Insp.

APR 09 2018

Tom C. Hui

TOM C. HUI, S.E.
DIRECTOR
DEPT. OF BUILDING INSPECTION

N.V.

**APPLICATION FOR BUILDING PERMIT
ADDITIONS, ALTERATIONS OR REPAIRS**

FORM 3 ☐ OTHER AGENCIES REVIEW REQUIREDFORM 8 ☐ OVER-THE-COUNTER ISSUANCE

2 NUMBER OF PLAN SETS

▼ DO NOT WRITE ABOVE THIS LINE ▼

DATE FILED 03/28/18	FILING FEE RECEIPT NO.	(1) STREET ADDRESS OF JOB 530 Sansome Street, SF, CA 94111	BLOCK & LOT 206 / 017
PERMIT NO. 1458176	ISSUED 4/9/18	(2A) ESTIMATED COST OF JOB \$40,000	(2B) REVISED COST: BY: 40,000. - CM DATE 3/29/18

INFORMATION TO BE FURNISHED BY ALL APPLICANTS

LEGAL DESCRIPTION OF EXISTING BUILDING				
(4A) TYPE OF CONSTR. A1	(5A) NO. OF STORIES OF OCCUPANCY: 2	(6A) NO. OF BASEMENTS AND CELLARS: 1	(7A) PRESENT USE: Fire station	(8A) OCCUP. CLASS B
(9A) NO. OF DWELLING UNITS: 0				
DESCRIPTION OF BUILDING AFTER PROPOSED ALTERATION				
(4) TYPE OF CONSTR. A1	(5) NO. OF STORIES OF OCCUPANCY: 2	(6) NO. OF BASEMENTS AND CELLARS: 1	(7) PROPOSED USE (LEGAL USE) Fire station	(8) OCCUP. CLASS B
(9) NO. OF DWELLING UNITS: 0				
(10) IS AUTO RUNWAY TO BE CONSTRUCTED OR ALTERED?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(11) WILL STREET SPACE BE USED DURING CONSTRUCTION?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(12) ELECTRICAL WORK TO BE PERFORMED?
YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
(13) PLUMBING WORK TO BE PERFORMED?		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
(14) GENERAL CONTRACTOR Owner - Builder		ADDRESS 30 Van Ness Ave. Suite 4100		
(15) OWNER - LESSEE (CROSS OUT ONE) San Francisco Fire Department		ADDRESS 30 Van Ness Ave. Suite 4100		
(16) WRITE IN DESCRIPTION OF ALL WORK TO BE PERFORMED UNDER THIS APPLICATION (REFERENCE TO PLANS IS NOT SUFFICIENT)		PHONE (415) 557-4774		
Replacement of (E) apparatus bay door (telescoping door) with (N) coiling door For Fire Station 13.				
ADDITIONAL INFORMATION				
(17) DOES THIS ALTERATION CREATE ADDITIONAL HEIGHT OR STORY TO BUILDING?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(18) IF (17) IS YES, STATE NEW HEIGHT AT CENTER LINE OF FRONT	(19) DOES THIS ALTERATION CREATE DECK OR HORIZ. EXTENSION TO BUILDING?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
(21) WILL SIDEWALK OVER SUB-SIDEWALK SPACE BE REPAIRED OR ALTERED?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(22) WILL BUILDING EXTEND BEYOND PROPERTY LINE?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	(23) ANY OTHER EXISTING BLDG. ON LOT? (IF YES, SHOW ON PLOT PLAN)
YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
(25) ARCHITECT OR ENGINEER (DESIGN <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> Vito Vonnaci		ADDRESS 30 Van Ness Ave Suite 4100		
(26) CONSTRUCTION LENDER (ENTER NAME AND BRANCH DESIGNATION IF ANY. IF THERE IS NO KNOWN CONSTRUCTION LENDER, ENTER "UNKNOWN")		CALIF. CERTIFICATE NO. C-27134		

IMPORTANT NOTICES

No change shall be made in the character of the occupancy or use without first obtaining a Building Permit authorizing such change. See San Francisco Building Code and San Francisco Housing Code.

No portion of building or structure or scaffolding used during construction is to be closer than 6'0" to any wire containing more than 750 volts. See Sec 385, California Penal Code.

Pursuant to San Francisco Building Code, the building permit shall be posted on the job. The owner is responsible for approved plans and application being kept at building site.

Grade lines as shown on drawings accompanying this application are assumed to be correct. If actual grade lines are not the same as shown, revised drawings showing correct grade lines, cuts and fills, and complete details of retaining walls and wall footings must be submitted to this department for approval.

ANY STIPULATION REQUIRED HEREIN OR BY CODE MAY BE APPEALED.

BUILDING NOT TO BE OCCUPIED UNTIL CERTIFICATE OF FINAL COMPLETION IS POSTED ON THE BUILDING OR PERMIT OF OCCUPANCY GRANTED, WHEN REQUIRED.

APPROVAL OF THIS APPLICATION DOES NOT CONSTITUTE AN APPROVAL FOR THE ELECTRICAL WIRING OR PLUMBING INSTALLATIONS. A SEPARATE PERMIT FOR THE WIRING AND PLUMBING MUST BE OBTAINED. SEPARATE PERMITS ARE REQUIRED IF ANSWER IS "YES" TO ANY OF ABOVE QUESTIONS (10) (11) (12) (13) (22) OR (24).

THIS IS NOT A BUILDING PERMIT. NO WORK SHALL BE STARTED UNTIL A BUILDING PERMIT IS ISSUED.

In dwellings, all insulating materials must have a clearance of not less than two inches from all electrical wires or equipment.

CHECK APPROPRIATE BOX

- ☐ OWNER
☐ LESSEE
☐ CONTRACTOR

- ☐ ARCHITECT
☐ AGENT
☐ ENGINEER

APPLICANT'S CERTIFICATION

I HEREBY CERTIFY AND AGREE THAT IF A PERMIT IS ISSUED FOR THE CONSTRUCTION DESCRIBED IN THIS APPLICATION, ALL THE PROVISIONS OF THE PERMIT AND ALL LAWS AND ORDINANCES THEREIN WILL BE COMPLIED WITH.

APPROVED FOR ISSUANCE

BLDG. 3/8
FORM

APPLICATION NUMBER
201803284880

OSHA APPROVAL REQ'D ☐
APPROVAL NUMBER

MAHER ORDINANCE - EXTENDED
Disturbance of at least 50 cu. yd. of soil:
☐ Yes ☒ No
If yes, route to BPH for compliance with Ordinance No. 155-13.
☐ Exempted - Approval from DPH attached

FREE
DCC

NOTICE TO APPLICANT

HOLD HARMLESS CLAUSE. The permittee(s) by acceptance of the permit, agree(s) to indemnify and hold harmless the City and County of San Francisco from and against any and all claims, demands and actions for damages resulting from operations under this permit, regardless of negligence of the City and County of San Francisco, and to assume the defense of the City and County of San Francisco against all such claims, demands or actions.

In conformity with the provisions of Section 3800 of the Labor Code of the State of California, the applicant shall have worker's compensation coverage under (i) or (ii) designated below, or shall indicate item (iii), (iv), or (v), whichever is applicable. If however item (v) is checked, item (iv) must be checked as well. Mark the appropriate method of compliance below.

I hereby affirm under penalty of perjury one of the following declarations:

- () I. I have and will maintain a certificate of consent to self-insure for worker's compensation, as provided by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.
- () II. I have and will maintain worker's compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My worker's compensation insurance carrier and policy number are:
Carrier _____
Policy Number _____
- () III. The cost of the work to be done is \$100 or less.
- () IV. I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the worker's compensation laws of California. I further acknowledge that I understand that in the event that I should become subject to the worker's compensation provisions of the Labor Code of California and fail to comply herewith with the provisions of Section 3800 of the Labor Code, that the permit herein applied for shall be deemed revoked.
- () V. I certify as the owner (or the agent for the owner) that in the performance of the work for which this permit is issued, I will employ a contractor who complies with the worker's compensation laws of California and who, prior to the commencement of any work, will file a completed copy of this form with the Central Permit Bureau.

Signature of Applicant or Agent

03/28/18

Date

W

A4 530 Sansome Street Historic Resource
Evaluation Response Part I



Historic Resource Evaluation Response

Record No.: 2019-017481ENV
Project Address: 530 Sansome Street
Zoning: C-3-O Downtown-Office Zoning District
200-S Height and Bulk District
Block/Lot: 0206/017
Staff Contact: Jonathan Vimr - 628-653-7319
jonathan.vimr@sfgov.org

PART I: HISTORIC RESOURCE EVALUATION

PROJECT SPONSOR SUBMITTAL:

To assist in the evaluation of the proposed project, the Project Sponsor has submitted a:

- ☐ Supplemental Information for Historic Resource Determination Form (HRD)
☒ Consultant-prepared Historic Resource Evaluation (HRE)

Prepared by: ESA Consulting (September, 2020)

BUILDINGS AND PROPERTY DESCRIPTION:

- **Neighborhood:** Financial District
- **Date of Construction:** 1975
- **Construction Type:** Reinforced concrete
- **Architect:** Jonathan C. Portman Jr.
(Embarcadero Center), Charles W. Griffith (City Architect)
- **Builder:** San Francisco Bureau of Architecture
(Department of Public Works)
- **Stories:** Two with mezzanine
- **Roof Form:** Flat
- **Cladding:** Metal panels, exposed concrete
- **Primary Façade:** Washington Street (North), Sansome Street (West)
- **Visible Facades:** North, south, & west
- **Garage:** N/A
- **Current Use:** Municipal fire station

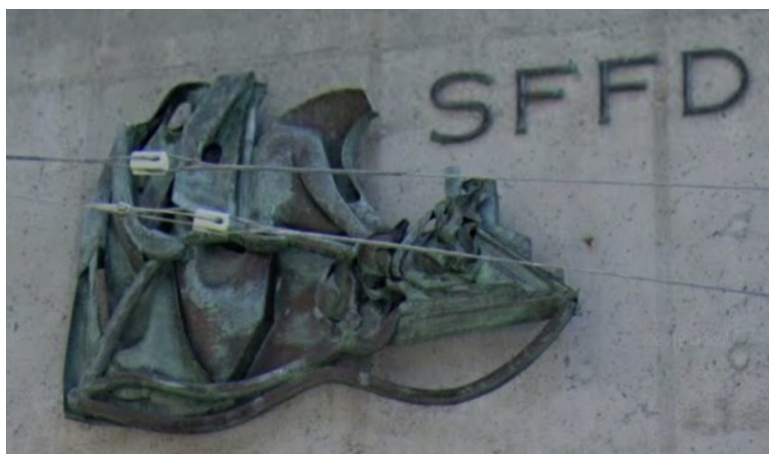
SCULPTURE DESCRIPTION:

- **Artist:** Henri Marie-Rose
- **Date of Completion:** 1976
- **Material:** Copper

EXISTING PROPERTY PHOTOGRAPH / CURRENT CONDITION:



Source: ESA Consulting, September 2020.



Source: Google Streetview, May 2019.

PRE-EXISTING HISTORIC RATING / SURVEY

- ☐ Category A – Known Historic Resource, per: _____
- ☒ Category B – Age Eligible/Historic Status Unknown
- ☐ Category C – Not Age Eligible / No Historic Resource Present, per: _____

Survey(s): N/A

Adjacent or Nearby Historic Resources: ☐ No ☒ Yes: Jackson Square Historic District; 447 Battery Street (Jones Theirbach Coffee Company Building)

CEQA HISTORICAL RESOURCE(S) EVALUATION:

Step A: Significance

Individual Significance (Building)	Historic District/Context Significance
Property is individually eligible for inclusion in a California Register under one or more of the following Criteria:	Property is eligible for inclusion in a California Register Historic District/Context under one or more of the following Criteria:
Criterion 1 - Event: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Criterion 2 - Persons: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Criterion 3 - Architecture: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Criterion 4 - Info. Potential: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Criterion 1 - Event: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Criterion 2 - Persons: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Criterion 3 - Architecture: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Criterion 4 - Info. Potential: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Period of Significance: N/A	Overall Period of Significance: 1971-1982 (Embarcadero Center HD)
	<input checked="" type="checkbox"/> Contributor <input type="checkbox"/> Non-Contributor <input type="checkbox"/> N/A

Individual Significance (Sculpture)	Historic District/Context Significance
Property is individually eligible for inclusion in a California Register under one or more of the following Criteria:	Property is eligible for inclusion in a California Register Historic District/Context under one or more of the following Criteria:
Criterion 1 - Event: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Criterion 2 - Persons: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Criterion 3 - Architecture: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Criterion 4 - Info. Potential: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Criterion 1 - Event: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Criterion 2 - Persons: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Criterion 3 - Architecture: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Criterion 4 - Info. Potential: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Period of Significance: 1976	Overall Period of Significance: 1971-1982 (Embarcadero Center HD)
	<input checked="" type="checkbox"/> Contributor <input type="checkbox"/> Non-Contributor <input type="checkbox"/> N/A

Analysis:

The following evaluation is primarily based on the Historic Resource Evaluation prepared by ESA Consulting (dated September 2020); the Modern Architecture and Landscape Design 1935-1970 Historic Context Statement by the San Francisco Planning Department (dated January 2011); additional information found in the Planning Department's files; and other public records such as newspapers, city directories, and federal censuses. This evaluation will first assess the subject building for individual eligibility, the sculpture mounted on the building's north façade for individual eligibility, and then consider eligibility for each as part of a historic district(s).

The subject property at 530 Sansome Street is developed with a three-story (or two-story-with-mezzanine) municipal fire station. Located in the Financial District immediately southeast of Jackson Square, it was designed by master architect John C. Portman Jr. alongside City Architect Charles W. Griffith and constructed by the San Francisco Bureau of Architecture (Department of Public Works). Permitted exterior alterations to the building are limited to re-roofing (1999, 2012), providing accessibility upgrades at a first-floor entry (1999), and replacing the apparatus bay doors with new, rolling doors (2019).

No known historic events occurred at the subject property and by itself it does not represent a significant development in its neighborhood (Criterion 1). To be eligible under the event criterion, the building cannot merely be associated with historic events or trends but must have a specific association to be considered significant. Prior to the construction of 530 Sansome Street in 1975, the Fire Department already had a presence in this part of downtown with a station located at 115 Drumm Street. As part of the broader urban renewal movement that occurred during the second half of the 1900s, the San Francisco Redevelopment Agency released its *Redevelopment Plan for the Golden Gateway* in 1959. One phase of this plan involved the Embarcadero Center, which would occupy five city blocks and replace a collection of stores, warehouses, and mercantile establishments with a complex of five mixed-use, interconnected structures. Though 115 Drumm Street was sited on the parcel planned for Embarcadero Center 3 (one of the five Embarcadero Center structures), it was intended to be retained in both the initial redevelopment plan and through much of the 1960s. In 1969, however, the station was found to be too great of an impediment to Embarcadero Center and the developer (David Rockefeller and Associates) both purchased 115 Drumm Street from the Redevelopment Agency and paid for the construction of a new fire station on the nearby city-owned lot at 530 Sansome Street. This site was one block west of the overall redevelopment area. John C. Portman, Jr., the architect behind the Embarcadero Center complex, was commissioned alongside Charles W. Griffith, then City Architect, to design the fire station. While linked to the development history of the Embarcadero Center, in isolation the construction of 530 Sansome represents the replacement of a single civic structure essential to the normal operation, infrastructure, and safety of the city. It is one of 45 fire stations operating in the city and does not appear to be individually significant or important in the overall organization or history of the San Francisco Fire Department. It is one of numerous fire stations built over the years (including several that remain extant in the downtown area) and was built out of unanticipated necessity rather than part of any Fire Department comprehensive plan. Therefore, 530 Sansome does not rise to the level of a significant individual contribution to the broad patterns of local or regional history.

There are no specific occupants associated with the property that have been identified as having made lasting contributions to local, state, or national history or cultural heritage in direct association with the subject property (Criterion 2).

The subject property was designed by master architect John C. Portman, Jr. in collaboration with the then City Architect, Charles W. Griffith. It is a purpose-built structure designed in the Brutalist style, the name of which was derived from the French *béton brut* ("raw concrete"). With its origins in 1950s Europe, Brutalism became prevalent in the United States the following decade and lasted into the 1980s. Commonly seen on university campuses or for civic structures, Brutalism espoused architecturally honest buildings that expressed their structure at the exterior. Designs typically had a simple cubic form with rigid, repeated geometries and an absence of any applied ornamentation. Brutalist buildings were physically and visually heavy, with concrete being the material they are most generally associated with (though other masonry materials are also seen). When utilized the concrete would be left exposed, with its formwork and expansion joints granting texture and a sort of natural detailing to the exterior of the building. Other materials like wood, metal, stone, and brick were implemented in some designs to provide targeted contrast and visual interest. The San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement (hereafter "HCS") includes a host of character-defining features for the style, some of which are reflected in the design of 530 Sansome Street. Given that the HCS was completed in 2011 and has not yet been updated, 530 Sansome (constructed 1974-75) was not specifically analyzed within it, though the HCS does establish

that Brutalist structures in city were constructed within a condensed time frame (1960s-70s) and that they are relatively rare in San Francisco.

As discussed in the HRE, 530 Sansome does possess a number of character-defining features common to Brutalist designs, but is overall not an exceptional or distinguished example of the style or Portman's work. Portman is best known for his grand, large-scale structures that are often components of a broader complex. Examples include the AmericasMart and Peachtree Center in Atlanta, the Westin Bonaventure in Los Angeles, the Renaissance Center in Detroit, international sites like the Shanghai and Beijing Yentai Centers, and of course the Embarcadero Center. While the other buildings that comprise the Embarcadero Center exhibit this monumental character, 530 Sansome in contrast is a relatively small building befitting its role as a civic support structure. Although initially unanticipated in the overall development of the Embarcadero Center, the building possesses a similar aesthetic as that used for the broader complex but is more restrained and limited in its architectural expression. It lacks the deeply shadowed fenestration common to more evocative examples of Brutalism, which can also serve to establish repeated geometric patterns as opposed to the lone, cubic form of 530 Sansome. These characteristics are shared by the exemplary examples of Brutalism discussed in the HRE, as well as other notable works like SF General Hospital Building Five and the SF Art Institute Chestnut Street Campus (800 Chestnut Street). The sheer, hulking mass seen in these various buildings and also embodied by the PG&E Embarcadero Substation (405 Folsom Street) is another attribute missing in the design of 530 Sansome. Given this and the additional analysis contained in the HRE, 530 Sansome appears to be more of a utilitarian version of Brutalism as opposed to a high-style interpretation; per the HCS these utilitarian versions should not be considered as individually architecturally significant. Finally, although 530 Sansome appears to be the only fire station Portman designed this alone does not rise to the level of individual significance and the building remains undistinguished in relation to Portman's body of work and exceptional examples of Brutalism. The subject property therefore does not appear to be individually eligible under Criterion 3.

Based upon a review of information in the Planning Department's records, the subject property is not significant under Criterion 4 since this criterion typically applies to rare construction types when involving the built environment. The subject reinforced concrete building is not an example of a rare construction type. Assessment of archeological sensitivity is undertaken through the Planning Department's Preliminary Archeological Review process and is outside the scope of this review.

The sculpture mounted on the building's north façade, *Untitled*, does not appear to be eligible under Criterion 1 as it is not identified as emblematic a specific artistic movement or broader pattern of history. It also does not appear to be eligible under Criterion 2 as its association with Henri Marie-Rose is best addressed under a Criterion 3 evaluation.

The sculpture mounted to the fire station appears to be individually eligible under Criterion 3 as an object given that it is a distinctive example of a master artist's work, has high artistic merit, and was designed specifically for a fire station. Created by Henri Marie-Rose, the sculpture was commissioned by the San Francisco Arts Commission as a site-specific artwork in 1967 (the same year it would be completed and installed). It has been in place continuously since its installation, with the copper sculpture naturally becoming covered in verdigris over the decades. Depicting three abstract figures spraying a blaze adjacent to the letters "SFFD," its content is directly tied to the use of the building to which it is attached. Marie-Rose was born in 1922 in Martinique, obtaining a scholarship to attend the École des Beaux-Arts in Paris in 1945. During his proceeding 8-year residency there he would exhibit

his work throughout Europe, obtaining numerous awards. Moving to San Francisco in 1953, he would within his first decade there have a solo exhibition at the de Young Museum, host a multi-month art series televised on KQED, and be presented with the Emanuel Walter Purchase Prize by the San Francisco Museum of Art. He would continue to exhibit both within the US and Brazil throughout the later 1900s, and would act as a teacher, mentor, and artist-in-residence at Recology San Francisco. *Untitled* is believed to be his last surviving public artwork in San Francisco and was also his highest-earned public commission in the city.

As discussed above, the construction of 530 Sansome is inextricably linked to that of the Embarcadero Center complex. Though not part of the Embarcadero Center's initial plan, it would become necessary due to complications with the site of Embarcadero Center 3. Given that the Embarcadero Center developer would be covering costs and its direct association with the Center, John Portman designed 530 Sansome in collaboration with the City Architect. Though distinct from the Embarcadero Center office towers and the Hyatt Regency Hotel (EC 5) in its scale, fenestration, and horizontality, 530 Sansome is nonetheless of a similar architectural language. While the various structures that compose the Embarcadero Center have their differences, they were all designed in the Brutalist style and are typified by rough, exposed concrete, massive cubic forms, and windows reading as voids. The hulking, concrete level that tops 530 Sansome is strikingly reminiscent of the largely solid bands that transition from the architectural base to the upper levels of Embarcadero Centers 1-5. As detailed in the HRE, John Portman & Associates published a firm profile and portfolio of completed projects in 2019. In it the firm lists 530 Sansome as "San Francisco Fire Station, Embarcadero Center, 1976," thereby demonstrating the firm's belief in the fire station as part of the overall complex (note that other records confirm 1975 as the fire station's completion date). The Planning Department previously found that Embarcadero Center 1-5 was eligible for listing as a complex, based largely on the HCS and a history/context document prepared by Page & Turnbull. Though the Department did not assess the fire station at that time, given its inseparable link to the development of the overall Embarcadero Center, shared architect, and common embodiment of Brutalism, 530 Sansome appears to be contributory to a discontinuous Embarcadero Center Historic District eligible under Criteria 3. Such a district would be composed of EC 1-5 and 530 Sansome, all of which would be contributory, with a period of significance ranging from 1971-1982 (representing the completion of the first structure through the last). The boundaries of this discontinuous district would include the 530 Sansome parcel, as well those for EC 1-5.

Given that 530 Sansome is contributory to the Embarcadero Center Historic District and that the site-specific sculpture attached to the structure is inextricably tied to the development and function of the fire station, the sculpture similarly appears to be contributory to the historic district.

In addition to noting that the fire station could be considered contributory to an Embarcadero Center historic district, the HRE mentions that 530 Sansome may also be considered as contributory to a broader Golden Gateway Redevelopment historic district but researching and establishing such a district is outside the parameters of the HRE. The Department concurs that a broader, potentially eligible Golden Gateway historic district may well exist; the Golden Gateway Redevelopment Plan embodied the aims of the redevelopment era in the United States (which has been understandably and extensively critiqued), and reshaped a substantial portion of San Francisco's downtown along the Embarcadero. The Golden Gateway typifies the idea of creating a city within a city, and the structures and parks that compose its various phases were designed by a multitude of master architects, landscape architects, and artists including, among others: Portman Architects; Skidmore, Owings and

Merrill (SOM); Wurster, Bernardi and Emmons (WBE); Sasaki, Walker Associates (SWA); De Mars and Reay, Architects; and Lawrence Halprin. Outside of the aforementioned Embarcadero Center, examples of properties that would appear to contribute are, among others, the Alcoa Building (1 Maritime Plaza), Justin Herman Plaza and Sydney G. Walton Square, and the collection of residential towers and townhouses designed by WBE and bounded by Jackson, Drumm, Washington, and Battery streets. With that said, further investigation and research appears necessary in order to fully establish such a district's boundaries, period/themes of significance, and character-defining features. This may come through future project reviews or as part of the Department's citywide survey efforts. Although the fire station was closely tied to the construction of the Embarcadero Center, it was never part of the Redevelopment Agency's plan for the Golden Gateway Redevelopment Area and is not within the borders the Redevelopment Agency established for the Golden Gateway. Further, it is a civic support structure distinct from the commercial and residential buildings that make up the redevelopment area. As such, the Department finds that 530 Sansome would not be included in any potentially eligible Golden Gateway historic district.

530 Sansome does not appear to contribute to any eligible fire station historic district as it is one of a smattering of stations constructed between 1960-1980 and was designed/built as part of a single project, rather than a broader program like those stations constructed via the 1952 Firehouse Bond Act.

Therefore, Planning Department Preservation staff have determined the subject building at 530 Sansome Street is eligible for listing in the California Register as a district contributor to an eligible Embarcadero Center historic district, with the *Untitled* sculpture attached to the building being individually eligible and contributory to said district. The sculpture is individually eligible under Criterion 3, while the Embarcadero Center historic district also appears eligible under Criterion 3.

Step B: Integrity

The subject property has retained or lacks integrity from the period of significance noted in Step A:					
Location:	<input checked="" type="checkbox"/> Retains	<input type="checkbox"/> Lacks	Setting:	<input checked="" type="checkbox"/> Retains	<input type="checkbox"/> Lacks
Association:	<input checked="" type="checkbox"/> Retains	<input type="checkbox"/> Lacks	Feeling:	<input checked="" type="checkbox"/> Retains	<input type="checkbox"/> Lacks
Design:	<input checked="" type="checkbox"/> Retains	<input type="checkbox"/> Lacks	Materials:	<input checked="" type="checkbox"/> Retains	<input type="checkbox"/> Lacks
Workmanship:	<input checked="" type="checkbox"/> Retains	<input type="checkbox"/> Lacks			

Analysis:

In order to be determined eligible for the CRHR, the subject building as a contributing building and artwork as both an individual and contributing object must be found to retain sufficient integrity to each convey their historic significance under Criterion 3. The only notable alteration to the exterior of the building appears to be the replacement of the original bay doors with new, metal rolling doors in the same openings. Given that the new doors are comparable to those that were historically present, and the remainder of the structure remains in its original condition, it reads virtually unchanged from its completion date in 1975. The *Untitled* artwork has been similarly untouched since its placement on 530 Sansome in 1976. Given that the subject building and artwork retain integrity, the sculpture is eligible for the CRHR as an individual resource under Criterion 3, and both the fire station and sculpture are eligible as contributors to an eligible historic district under Criterion 3.

Step C: Character Defining Features**The character-defining features of the subject property include the following:**

While the Embarcadero Center historic district has not been fully analyzed, this document assumes that its period of significance (POS) is 1971-1982. The subject building's character-defining features that retain enough integrity to convey its significance and relation to the Embarcadero Center are:

- Massive cubic form
- Vertically oriented metal panels
- Darkened windows
- Blank, exposed concrete band at the upper level
- Apparatus bays
- Circular, metal SFFD sign
- Flat roof

The Department concurs with the HRE regarding the sculpture's individual period of significance (1976) and its character-defining features:

- Visually prominent position on a building occupying a corner location
- Visually prominent position on the exterior of Fire Station No. 13, with which the sculpture is historically associated
- Copper construction
- Verdigris (patina)
- Overall design that includes abstract figures and typographic elements

CEQA HISTORIC RESOURCE DETERMINATION:

- ☒ Individually-eligible Historical Resource Present (sculpture)
☒ Contributor to an eligible Historical District / Contextual Resource Present (building and sculpture)
☐ Non-contributor to an eligible Historic District / Context / Cultural District
☐ No Historical Resource Present

NEXT STEPS:

- ☒ HRER Part II Review Required
☐ Categorically Exempt, consult:
☐ Historic Design Review
☐ Design Advisory Team
☐ Current Planner

PART I: PRINCIPAL PRESERVATION PLANNER REVIEW

Signature: Allison Vanderslice
 Allison Vanderslice, Principal Preservation Planner
 CEQA Cultural Resources Team Manager, Environmental Planning Division

Date: 12/3/2020

CC: Alana Callagy, Senior Planner
 Environmental Planning Division
 Claudine Asbagh, Principal Planner
 Northeast Team, Current Planning Division

A5 530 Sansome Street Historic Resource
Evaluation Response Part II



PART II HISTORIC RESOURCE EVALUATION RESPONSE

Record No.: 2019-017481ENV
Project Address: 530 Sansome St
Zoning: C-3-O DOWNTOWN- OFFICE Zoning District
200-S Height and Bulk District
Block/Lot: 0206/017
Staff Contact: Jonathan Vimr – 628-652-7319
jonathan.vimr@sfgov.org

PART I: Historic Resource Summary

In a Historic Resource Evaluation Response (“HRER”) Part 1 issued December 3, 2020, the Planning Department determined that two contributors to the California Register of Historical Resources-eligible Embarcadero Center Historic District (“ECHD”) are located on the subject property. The ECHD is significant under Criterion 3. The first of these is the existing fire station, which was built as part of the overall construction of the Embarcadero Center and was designed by master architect John Portman. Given its intrinsic ties to the development of the Embarcadero Center, and its related architectural character, the fire station was found to be a contributor to the ECHD. *Untitled*, the sculpture designed by Henri Marie-Rose and attached to the fire station (to which its content is closely related) is similarly contributory to the ECHD. *Untitled* was also identified as being individually eligible to the California Register of Historical Resources as an object under Criterion 3. The HRER Part 1 identified the following character-defining features:

Fire Station

- Massive cubic form
- Vertically oriented metal panels
- Darkened windows
- Blank, exposed concrete band at the upper level
- Apparatus bays
- Circular, metal SFFD sign
- Flat roof

Sculpture

- Visually prominent position on a building occupying a corner location
- Visually prominent position on the exterior of Fire Station No. 13, with which the sculpture is historically associated
- Copper construction
- Verdigris (patina)
- Overall design that includes abstract figures and typographic elements

PART II: Project Determination:

Based on the Historic Resource Evaluation in Part I and the assessment below, the project's scope of work:

- ☒ Will cause a significant impact to the individual historic resource as proposed.
- ☐ Will cause a significant impact to a historic district / context as proposed.
- ☐ Will not cause a significant impact to the individual historic resource as proposed.
- ☒ Will not cause a significant impact to a historic district / context as proposed.

PART II: Project Evaluation

Proposed Project:		Per Drawings Dated:
<input checked="" type="checkbox"/> Demolition / New Construction	<input checked="" type="checkbox"/> Alteration	September 22, 2020

PROJECT DESCRIPTION

- Removal and reinstallation of the existing sculpture on the exterior of the new, proposed fire station
- Complete demolition of the existing fire station
- Construction of a 17-story mixed-use hotel and office tower that will also include retail space and a new, approximately 28,000 square-foot fire station for the City and County of San Francisco Fire Department

PROJECT EVALUATION

As noted on the site plan seen in project plans (Sheet 12) and the Project Description, the sculpture found to be individually eligible as an object is proposed to be removed from its location on the existing fire station and reinstalled partway down (easterly) the block along Washington Street at the exterior of the new fire station, or along the Merchant Street elevation of the new mixed-use building. This would follow demolition of the existing 530 Sansome building and new construction of the overall project. Pursuant to guidance from the California Office of Historic Preservation and its State Historical Resources Commission, the relocation of historic resources from their existing site and setting is discouraged but is recognized as occasionally necessary in order to prevent the destruction of a resource. As such, a resource eligible as an object would remain a historic resource if it is moved to prevent its demolition at its former site and reinstalled at a new location compatible with the original character and use of the historic resource. The resource "should retain its historic features and compatibility in orientation, setting, and general environment."¹

Proposed for potential reinstallation further east along the subject block of Washington Street, the sculpture would likely be relocated to a primary façade of a fire station; one that will have a cubic form and largely opaque exterior akin to that of 530 Sansome. Moved only partway down the block and continuing to be located at the exterior of a fire station, the sculpture would retain its integrity of setting, association, materials, workmanship,

¹ "Technical Assistance Series #7," California Office of Historic Preservation, accessed December 15, 2020, https://ohp.parks.ca.gov/pages/1056/files/07_TAB%207%20How%20To%20Nominate%20A%20Property%20to%20California%20Register.pdf

and feeling with its placement at the façade of a structure with a compatible character and use in compliance with Secretary of the Interior Standard No. 9. However, while the project's intent is for secure removal and reinstallation of the sculpture, current plans and supporting documentation fail to confirm the definite location of the sculpture and fail to identify the methods by which the sculpture can be safely removed, stored, and reinstalled in a manner and location that would not result in irreparable damage to its distinctive materials, features, and setting. Given this and the potential for irreversible damage to the sculpture, the proposal does not meet Secretary of the Interior Standard Nos. 1, 2, 5, and 10 and has the potential to result in a significant impact to the individually eligible sculpture.

In the event it is discovered that locating the sculpture at the exterior of the proposed fire station is infeasible, the Project Sponsor shall coordinate with the Planning Department to determine an equally appropriate, prominent and publicly-accessible location that is compatible with the existing orientation, setting, and general environment of the sculpture as outlined in the Mitigation Measures below.

Mitigation Measures

Although the proposed removal and relocation of the sculpture has the potential to cause a significant impact to the sculpture, it appears this impact could be mitigated. Mitigation measures related to impacts to historic architectural resources for this project will include the following:

1. **Interpretation:** The project sponsor shall facilitate the development of an interpretive program focused on the history and design of the *Untitled* sculpture. The interpretive program should be developed and implemented by a qualified professional with demonstrated experience in displaying information and graphics to the public, such as a museum or exhibit curator. The primary goal of the program is to educate the public about the sculpture, the work of artist Henri Marie-Rose, and the historical association of the sculpture with the Embarcadero Center and Fire Station 13.

This program shall be initially outlined in a proposal for an Historic Resources Public Interpretive Plan (HRPIP) subject to review and approval by Planning Department Preservation staff. The HRPIP will lay out the various components of the interpretive program that shall be developed in consultation with an architectural historian who meets the Secretary of the Interior's Professional Qualification Standards, and approved by Planning Department staff prior to issuance of a site permit or demolition permit.

The interpretative program shall include the installation of permanent on-site interpretive displays. All interpretative material shall be publicly available. For physical interpretation the plan shall include the proposed format and accessible location of the interpretive content, as well as high-quality graphics and written narratives. The interpretative plan may also explore contributing to digital platforms that are publicly accessible, such as the History Pin website or phone applications. Interpretive material could include elements such as virtual museums and content, such as oral history, brochures, and websites. The interpretative program should also coordinate with other interpretative programs currently proposed or installed in the vicinity or for similar resources in the city, such as the San Francisco Fire Department Museum.

The HRPIP shall be approved by Planning Department Preservation staff prior to issuance of the architectural addendum to the site permit. The detailed content, media and other characteristics of such interpretive program shall be approved by Planning Department Preservation staff prior to issuance of a Temporary Certificate of Occupancy.

2. **Relocation Plan.** Prior to issuance of the architectural addendum to the site permit the project sponsor shall provide a relocation plan to be reviewed and approved by the Planning Department to ensure that the sculpture will be removed from the building, transported, and stored during construction in a manner that will protect the historic resource. The relocation plan will identify the storage location for the sculpture and report on its condition during construction. The relocation plan will also include a prominent publicly accessible location on the project site for reinstallation of the sculpture which will be finalized in consultation with Planning Department preservation staff, preferably on the exterior of the proposed fire station. The relocation plan will also include an initial reinstallation plan and maintenance plan for the sculpture and schedule for reviewing and finalizing those plans in consultation with Planning Department preservation staff prior to issuance of Temporary Certificate of Occupancy.

The final mitigation measures will be included in the Mitigated Negative Declaration. Planning staff believes that implementation of these mitigation measures would reduce the project's impact to historic resources to a less than significant level.

DISTRICT COMPATIBILITY AND IMPACTS ANALYSIS

As detailed in the HRER Part 1, the fire station is tied to the overall development of the Embarcadero Center and was designed by Portman to incorporate design elements from the Center. However, while both the subject building and the sculpture contribute to and are part of the Embarcadero Center, they are not elements of its design as initially conceived, which consisted of four interconnected mixed-use towers and a hotel. While demolition of 530 Sansome and relocation of the sculpture will remove this example of Portman's work and this complication in the implementation of the Embarcadero Center, the removal of the fire station will not significantly impact the remaining five contributing buildings. The remaining contributors will continue to express Portman's vision of the Center. Additionally, the sculpture will be relocated within the proposed development, likely on the exterior of the proposed fire station.

As noted above, the proposed new construction is not directly adjacent to the remaining contributing buildings of the ECHD. The new building would be compatible with the district in massing and scale, featuring a base architecturally distinct from its upper levels (as with the EC towers) and a strict, mostly uniform exterior parti, another nod to Portman's design of the ECHD. While more heavily fenestrated and visually lighter than the concrete/tinted glass EC buildings, as noted, the new construction will not be immediately adjacent to the remaining EC buildings and these design elements will not impact the district.

The Planning Department has therefore determined that demolition of the subject building and relocation of the sculpture will not cause an adverse impact resulting in material impairment to the eligible Embarcadero Center Historic District.

CUMULATIVE IMPACTS ANALYSIS

The most recent work to publicly accessible character defining features completed at the Embarcadero Center entailed the remodel of all four office tower lobbies; these alterations were found to be consistent with the Secretary of the Interior's Standards for Rehabilitation. Other than the proposed project, there are no past, current, or future foreseeable projects that could significantly impact the character of the district. Given this and the analysis above, the project would not result in any cumulative impacts to the eligible Embarcadero Center Historic District.

PART II: Approval

Signature: Allison Vanderslice

Date: 12/18/2020

Allison Vanderslice, *Principal Preservation Planner*
CEQA Cultural Resources Team Manager, Environmental Planning Division

CC: Claudine Asbagh, Principal Planner
Northeast Team, Current Planning Division

Alana Callagy, Senior Planner
Environmental Planning Division

APPENDIX B

Transportation Study

530 Sansome Street Transportation Study

San Francisco Planning Department Case No. 2019-017481ENV

Prepared for:
San Francisco Planning Department

April 2, 2021

SF20-1114

FEHR  PEERS

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Introduction

Fehr & Peers prepared this transportation study for the proposed mixed-use retail, hotel, office, gym and fire station replacement project at 530 Sansome Street, Case No. 2019-017481ENV herein referred to as the “proposed project.” This study also includes the analysis of a residential variant that would replace the hotel, office, and gym components of the proposed project with 256 dwelling units. Located in the Financial District and the Downtown Plan Area, the approximately 0.41-acre project site is bordered by Sansome Street to the west, Battery Street and private property to the east, Washington Street to the north, and Merchant Street to the south. **Figure 1** shows the project location and surrounding street network.

This transportation study documents the existing transportation setting, regulatory framework, and project travel demand; and then assesses transportation-related impacts under existing plus project and residential variant conditions and cumulative conditions. The final section summarizes the project-related and residential variant-related impacts, and improvement and mitigation measures. The following sections describe the existing project site and the key attributes of the proposed project and residential variant related to transportation conditions.



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Project Site



Study Intersection

Figure 1
Project Location and Study Area

Existing Site

The existing project site is currently occupied by San Francisco Fire Department (SFFD) Fire Station 13, and two three- and two-story commercial buildings with office uses. Fire Station 13 consists of emergency vehicle bays, equipment storage, administrative office, and SFFD personnel areas, including 21 stalls for automobile parking located in a ground-level garage accessed from Merchant Street. The existing land uses are listed in **Table 1** and described below.

Table 1: Existing Project Site Characteristics

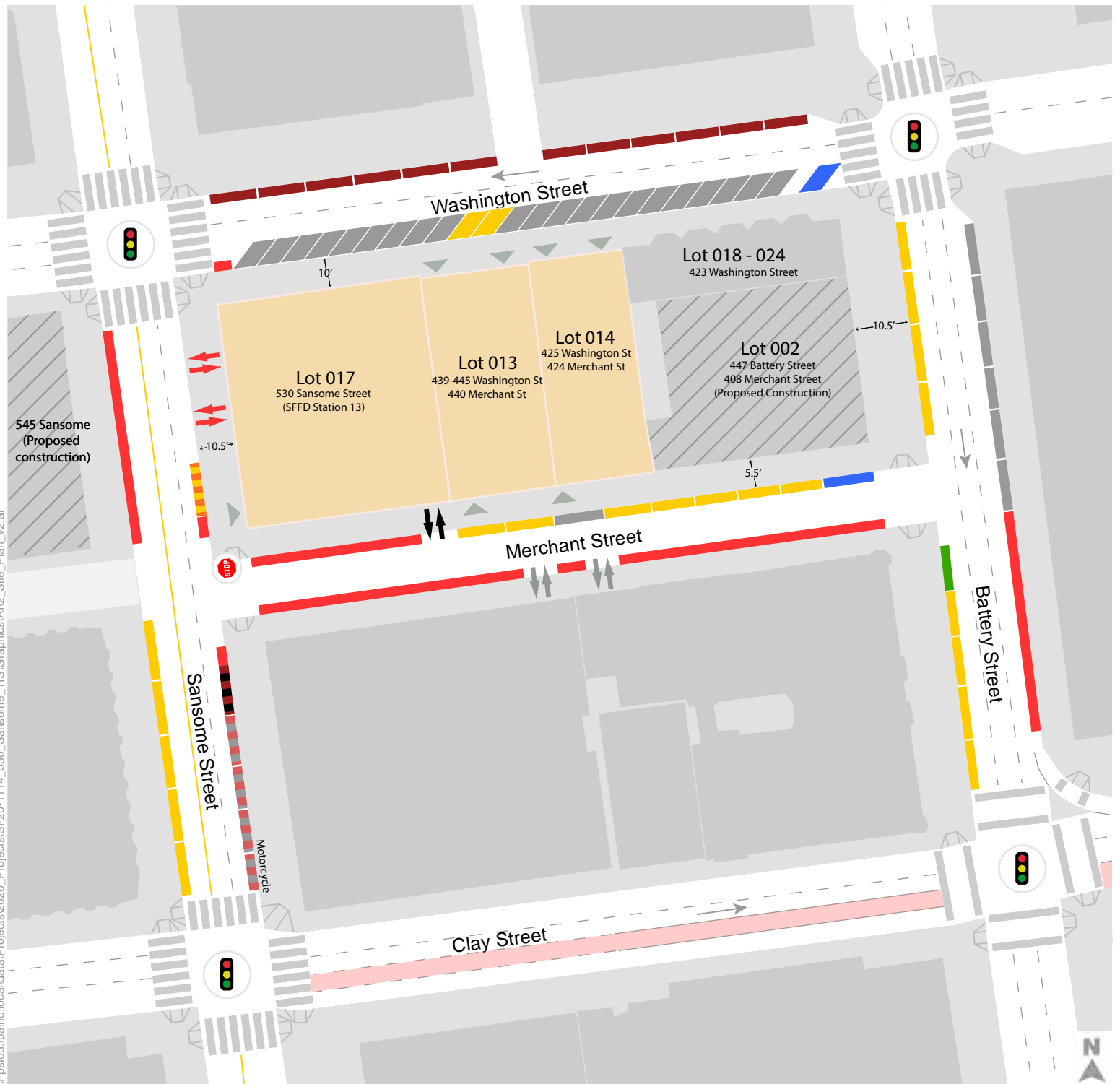
	Total
Land Use and Gross Floor Area (sf)	
Office	20,718 sf
Public Facility (Fire Station 13)	18,626 sf
Off-Street Loading and Parking Facilities	
Freight/Service Loading	-
Passenger Loading	-
Automobile Parking	21 stalls

Source: SOM Architects, 2020; Fehr & Peers 2020.

Figure 2 shows the existing site plan. Fire Station 13 occupies the site's westernmost parcel with frontages along Washington Street, Sansome Street, and Merchant Street. Fire station facilities include four fire apparatus bays, equipment storage areas, crew quarters, and a 21-stall off-street parking facility. Fire apparatus and parking garage access are from Sansome Street and Merchant Street, respectively. East of Fire Station 13, the two commercial buildings are each situated on approximately 4,000-square-foot parcels. The first building adjoins Fire Station 13's eastern property line and consists of a two-story commercial building. The building's north and south edges abut Washington and Merchant streets, respectively. The second building is a three-story commercial building that anchors the project site's eastern edge, adjoins the two-story commercial building to the west, and fronts Washington and Merchant streets to the north and south, respectively. Both commercial buildings have no off-street parking, loading, or vehicle access. Primary pedestrian access for each building is from Washington Street, and service entrances are provided from Merchant Street.



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- | | | | | | |
|--|---|--|---------------------|--|------------------------|
| | Metered Parking | | Driveway | | Project Site |
| | Short-Term Parking / Accessible Parking | | Loading Dock | | Proposed Construction |
| | Passenger Loading / Commercial Loading | | Fire Station Access | | Transit/Taxi Only Lane |
| | Law Enforcement Parking Only / No Parking | | Pedestrian Entry | | |
| | Tow-Away, 3 PM - 7 PM | | Curb Cut | | |



Figure 2
Existing Site Plan

Project Description

This transportation impact study evaluates two mixed-use project concepts: the “proposed project” and the “residential variant.” Land uses and parking facilities are summarized in **Table 2** while access and circulation characteristics for all modes are described in detail below. Common to both proposals is the demolition of all existing uses and relocation of Fire Station 13 from the Sansome Street frontage to the Washington Street frontage with new facilities, apparatus bays, and crew quarters. The Planning Department has preliminarily determined that the proposed project and residential variant would be subject to conditions of approval relating to driveway loading and operations and, for the proposed project, the project’s Privately Owned Public Open Spaces (POPOS) programing and activation plan on Merchant Street. These conditions would describe the guidelines for managing loading activity and, for the proposed project, balancing the needs of the POPOS users with vehicle access to the project’s parking garage and loading spaces.

Table 2: Project and Residential Variant Land Uses

Land Use Type	Proposed Project ¹	Residential Variant ¹
Hotel	149,965 sf 200 rooms	-
Residential	-	257,400 sf 191 Studio/1-Bedroom/Jr 1-Bedroom 38 2-Bedroom 27 3-Bedroom
Gym	35,230 sf	-
Restaurant	8,770 sf	-
Office	40,490 sf	-
Public Facility (Fire Station 13)²	20,350 sf	20,300 sf
Car Parking	48 parking spaces 1 car share parking spaces	82 parking spaces 2 car share parking spaces
Bicycle Parking³	22 Class 1 bicycle parking spaces 26 Class 2 bicycle parking spaces	143 Class 1 bicycle parking spaces 19 Class 2 bicycle parking spaces
Off-Street Freight Loading	1 loading 2 service vehicles	1 loading 2 service vehicles
Passenger Loading	5 spaces on Sansome Street (all times except weekdays 3:00 to 7:00 p.m.) 2 spaces on Merchant Street (weekdays 3:00 to 7:00 p.m.)	5 spaces on Sansome Street (all times except weekdays 3:00 to 7:00 p.m.) 2 spaces on Merchant Street (weekdays 3:00 to 7:00 p.m.)

Notes:

1. Based on the project summary table provided by the project sponsor dated September 22, 2020. The hotel and restaurant space include 3,250 and 2,300 square feet on level B2, respectively, for the purpose of the transportation analysis.
2. The small increase in the fire departments size would not increase the intensity of this land use as the number of staff or engines at this site would not change with the proposed project or residential variant.
3. Bike parking is calculated per San Francisco Planning Code Sec.155.2. Project provides 26 of the 30 Class 2 required bike parking spaces. Remainder of parking spaces (4) are proposed to be provided through a Zoning Administrator variance and in-lieu fee payment, pursuant to Sections 305 and 307(k)(2)(D)-(E). The residential variant’s 19 Class 2 bicycle parking spaces would meet the required 19 spaces.

Source: SOM, 2020; Fehr & Peers, 2020.



Proposed Project Features

In addition to the fire station use, the proposed project consists of a 149,965 sf 200 room hotel (including 3,250 sf on level B2), 35,230 sf gym, 8,770 sf restaurant (including 2,300 square feet on level B2), and 40,490 sf of office space. The lobby and primary pedestrian entrance for the restaurant would be on Sansome Street while the lobby and primary pedestrian entrance for the gym and office use would be on Merchant Street. The hotel lobby would be located on the corner of Sansome and Merchant streets and accessible from both streets. Public improvements include enhanced streetscape elements along all project frontages with major alterations to the Merchant Street cross section that will transform the alleyway to a shared street.¹ The proposed shared street features include a flush curb² between sidewalk and travel way on the street's north (Project) side, street trees, seating, and decorative paving.^{3,4} The proposed project site plan and transportation features are shown in **Figure 3**, **Figure 4**, and are presented in more detail below. **Appendix A** presents the complete set of site design drawings, including designs for each level of the parking garage.

¹ "Shared street" is a right-of-way that is designed at a single surface with no grade differentiation between street and sidewalk areas, and where roadway space is shared between people walking and slow-moving vehicles. It is also referred to as "shared public way."

² A "flush curb" is a feature of a shared street, and refers to the absence of grade differentiation between the sidewalk and the travel way.

³ To meet the city's POPOS requirements, the project sponsor proposes improving portions of the Merchant Street frontage and right of way as open space (i.e., shared street, curbless on the north side and with other open space amenities) and proposes a programming and maintenance plan including a temporary and partial street closure. The project sponsor is responsible for maintaining and activating the POPOS to City standard in perpetuity. If, due to various City requirements, Merchant Street cannot be a shared street meeting the POPOS requirement, the project sponsor will need to provide POPOS on the project site, which will likely require building design change and coordination with UDAT and potentially additional environmental review. There is no POPOS requirement for the residential variant. The residential variant would include the shared street improvements to Merchant Street, but the space would not be regulated as POPOS.

⁴ In coordination with the 447 Battery Street project and adjacent property owners, the Merchant Street shared street would extend for the entire block between Sansome and Battery streets; however, the segment along the 447 Battery Street project frontage may not be constructed before the completion of the 530 Sansome Street project, in which case the project sponsor would coordinate with SFMTA and SF Public Works to design a transition zone between the existing street and proposed shared street.



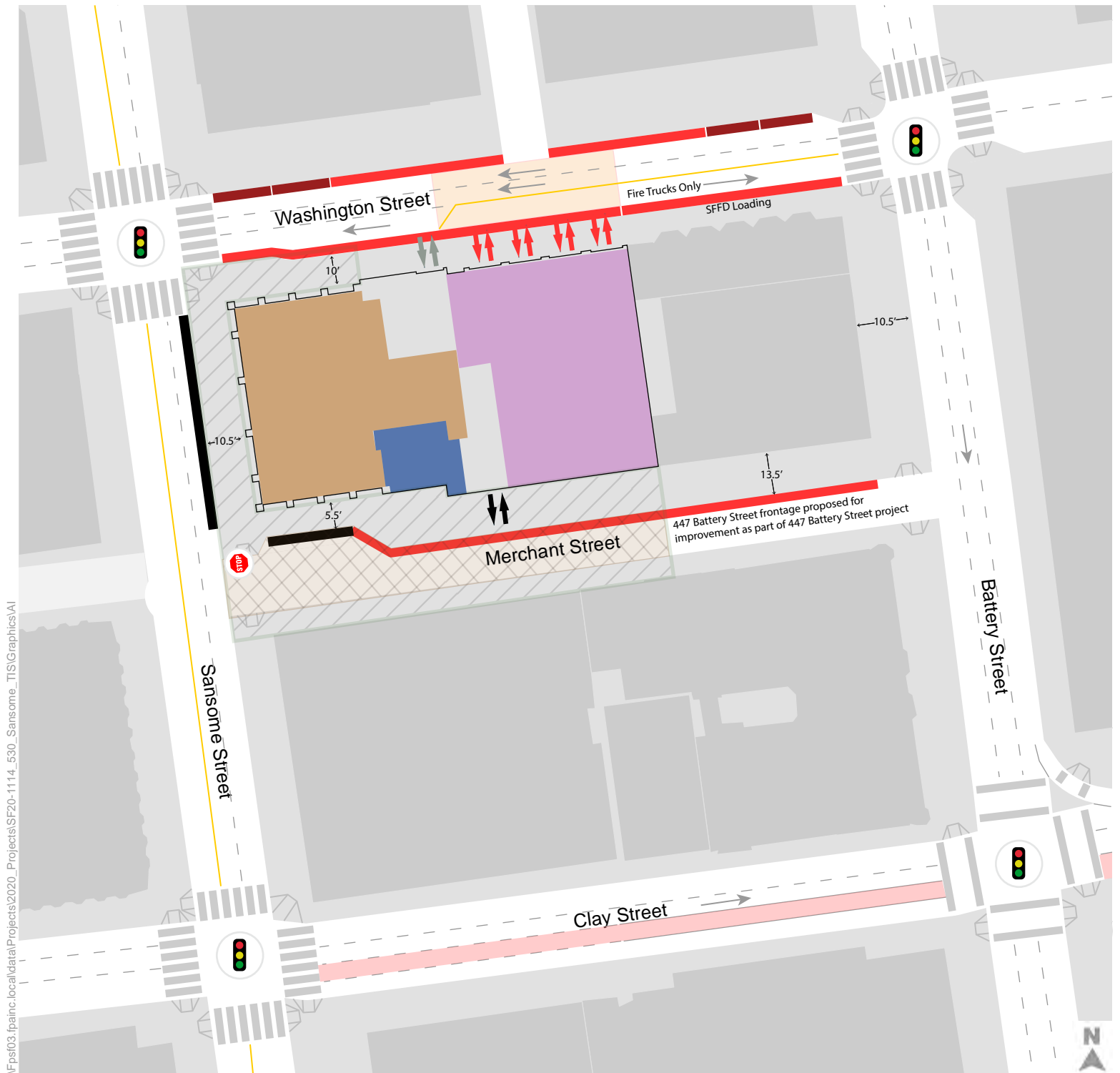
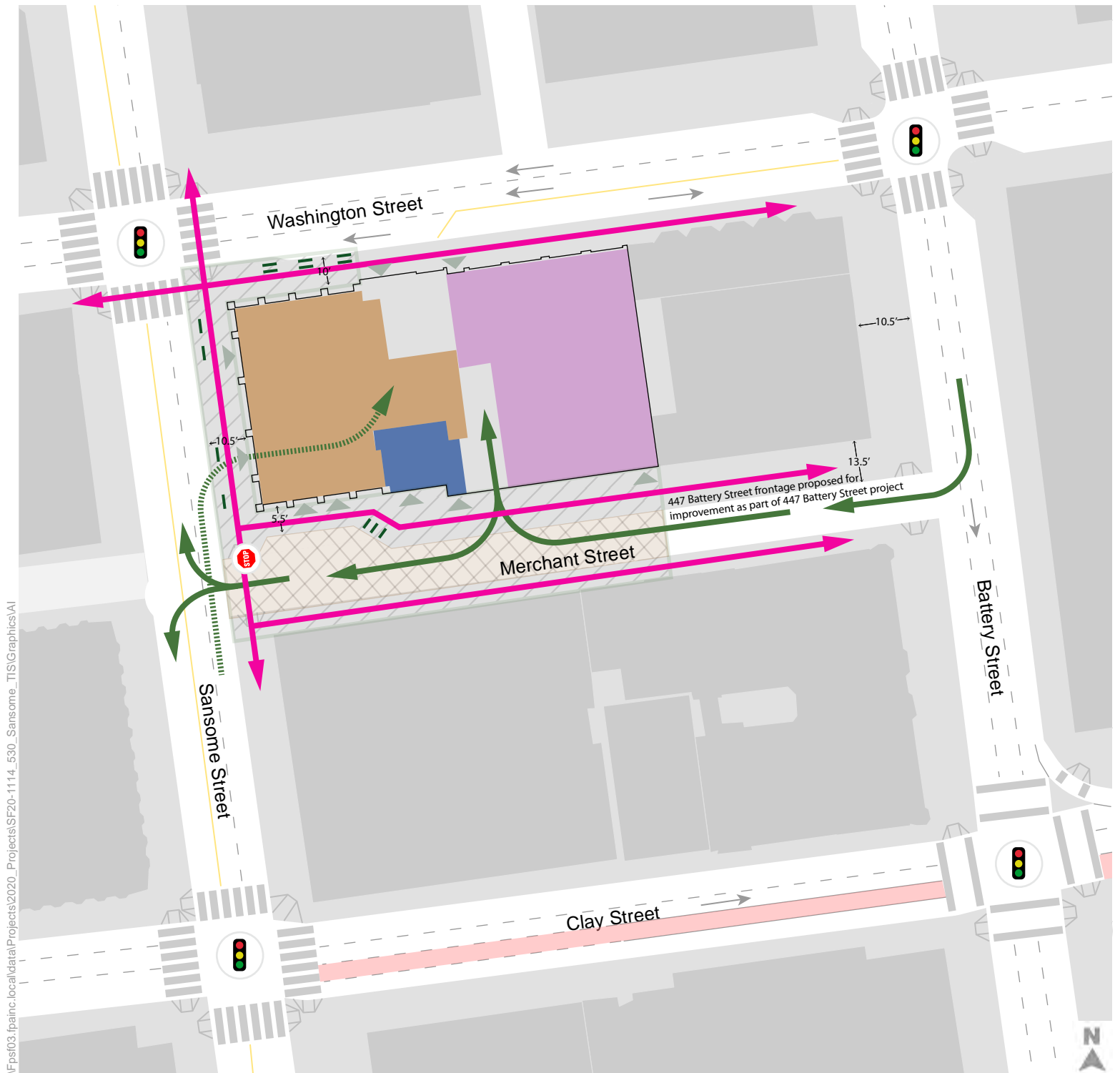


Figure 3
Motor Vehicle Access







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Ground Floor Land Use Program

-  Hotel / Restaurant
-  Office / Gym
-  Fire Station 13

Circulation Routes

-  Pedestrian Circulation Routes
-  Bicycle Circulation - *access via garage ramp*
-  Bicycle Circulation - *access via elevator*
-  Pedestrian Entry

Streetscape Improvements




-  Shared Street
-  Improvement Area²
-  Bicycle Parking



Figure 4
Pedestrian and Bicycle Access

Construction Features

The proposed project would be constructed over an approximately 29-month-long construction schedule that would start in December 2021 and conclude in April 2024. Typical construction hours would be from 7:00 a.m. to 6:00 p.m., seven days a week. Construction activities would include, but not be limited to site demolition, preparation, grading and excavation, pile installation, foundation construction, building construction, architectural coating, the installation of utilities, paving, interior finishing and exterior streetscape, hardscaping, and landscaping. Aspects of the construction schedule that could affect transportation facilities adjacent to the project site includes a continuous 20-hour concrete pour for the mat slab foundation. The project sponsor also notes that night noise permits for the concrete pour phase will be requested from the San Francisco Department of Building.

All staging is expected to occur on-site; however, due to the limited area available on site, all phases may require intermittent sidewalk and/or lane closures along project frontages for public safety and to permit equipment access. Given that specific details about sidewalk and lane closures are not available at this time, under a worst-case scenario (i.e., a most impactful scenario), the fronting sidewalks could be closed on Sansome, Washington, and Merchant streets simultaneously. The sidewalk closure on Washington Street would require removal of the parking lane on the south side of Washington Street to create a temporary sidewalk. The closure of the northern sidewalk on Merchant Street would require that people walk on the sidewalk on the south side of the alleyway. The closure of the eastern sidewalk on Sansome Street would require the temporary removal of the existing commercial loading spaces and closure of the northbound peak period (3:00 to 7:00 p.m.) tow-away lane.

Over the course of project construction, the entirety of Washington Street would be closed for a two-day weekend period for tower crane erection and then again for tower crane dismantling. The easternmost northbound lane of Sansome Street and the southernmost westbound lane of Washington Street would be closed for a one-day period during the mat foundation placement. During project construction, closures of those same travel lanes on Sansome and Washington streets could be necessary for two single-day periods for utility work. Nighttime closure of Merchant Street could be necessary on two separate days for utility work.

The proposed project would generate up to 60 trucks per day during the excavation periods of the construction. Trucks would use Third and Kearny streets to reach Clay Street then Sansome Street to reach the project site and Clay, Drumm, and Washington streets to reach The Embarcadero or Washington Street to Montgomery Street to leave the site. Trucks would enter the site from Sansome or Washington street, depending on where the construction is occurring.

The approximate average number of construction workers onsite at a time would be 120, with a maximum of 270 workers between December 2022 and April 2024 during the building construction and architectural coating phases. The assumptions and methodology for project construction trips are documented in

Appendix B.



During the entire construction period, Fire Station 13 operations will be relocated to nearby fire stations and SFFD resources adjusted as needed to serve the station's operating area. The existing conditions section identifies four fire stations near the project site where SFFD could temporarily reassign Fire Station 13 personnel and equipment. See **Appendix B** for the locations of these four fire stations. Furthermore, the relocation of Station 13's operations would not require construction of any new facilities.

Motor Vehicle Parking Features

The proposed project's parking facilities include 48 off-street parking stalls and one designated car-share space located within a three-floor underground parking facility. The proposed project would provide access to the garage through one 10-foot-wide driveway curb-cut on the Merchant Street frontage approximately 110 feet east of the Sansome Street curb face. Eighteen of the 48 off-street parking stalls are dedicated to SFFD staff use while the remaining 30 stalls are available for hotel, restaurant, gym, or office parking. The garage is configured in a threaded-helix arrangement with drive aisles that widen adjacent to parking stalls and narrow on ramps. Between floors, including street level and the first parking level, the ramp is approximately 12 feet wide, which would not permit simultaneous two-way vehicle travel. This design would not conflict with planning code requirements.⁵ Parking stalls are oriented at 90 degrees to the drive aisle and include 16 tandem stalls, which would likely be used by the hotel valet. The detailed drawings of the proposed garages are presented in **Appendix A**.

The building's elevator and stairwell core provide person access between the parking levels and the building's hotel uses but the gym and office elevators do not serve the garage levels. A separate elevator and stairwell core provide person access between the 18 Fire Station-designated parking stalls in garage basement level B3 and the fire station.

Parking for fire trucks would be provided within four fire apparatus bays that face Washington Street. All are accessed from an approximately 74-foot-wide driveway curb-cut located approximately 115 feet east of the Sansome Street curb face. In order to accommodate the turning movements for fire trucks vehicles in and out of the driveway, the proposed project would replace the eight law-enforcement parking spaces on the north side of Washington Street and all the parking spaces on the south side of Washington Street with red curb. The red curb on the south side of Washington Street would also be available to SFFD for informal loading and short-term parking activity that occurs as a part of routine operations.

While vehicle through access on Merchant Street would be discouraged during certain hours if POPOS programming includes temporary Merchant Street closures, access to the project's parking and service vehicle loading facilities would be available at all hours via Merchant Street. The specific design of this vehicle access may include a lane for authorized vehicles (e.g., service vehicles, SFFD staff vehicles, valet attendants) connecting to Sansome Street.

⁵ San Francisco Planning Code Section 155(c), 155(l), and 155(s).



Fire Station Access Features

The proposed project in coordination with SFMTA would include the following features to facilitate access of fire apparatus into and out of the rebuilt fire station:

- “Keep clear” zone across all travel lanes on Washington Street beginning approximately 110 feet east of the Sansome Street curb face and extending approximately 80 feet to the east as shown on **Figure 3**.
- An eastbound contraflow fire lane between the western edge of the Fire Station driveway and the Battery Street intersection as shown on **Figure 3**.
- Traffic signal equipment updates to provide SFFD with signal pre-emption on Washington Street at the Sansome and Battery street intersections. Signal operations will be configured to clear westbound vehicles on Washington Street and hold traffic for eastbound SFFD departure events that would otherwise oppose the normal flow of traffic.
- A SFFD-approved traffic control feature at the Project’s off-street loading dock that would restrict commercial vehicle egress from the loading dock during an emergency vehicle departure event.
- “No Stopping” red curb along the length of the south side of Washington Street between Sansome and Battery streets. On the north side of Washington Street, two red curb zones flank the curb returns of Custom House Place: first, an approximately 70-foot-long zone extends from the westerly Custom House Place curb face; second, an approximately 65-foot-long zone extends from the easterly Custom House Place curb face. The red curb on the south side of Washington Street would also be available to SFFD for informal loading and short-term parking activity that occurs as a part of routine operations.

Loading Features

A total of three off-street freight loading spaces are proposed: two service vehicle loading spaces and one standard loading space. The project proposes one 12-foot-wide by 30-foot-deep off-street freight loading dock at ground level on the Washington Street frontage, designed to accommodate a 30-foot-long freight trucks without blocking the sidewalk on Washington Street. This loading dock is accessed from a 12-foot-wide curb cut and driveway located approximately 98 feet east of the Sansome Street curb face and just west of the fire apparatus bays. The loading bay requires a back-in maneuver against the traffic flow and across the sidewalk on Washington Street. The two service vehicle loading spaces are 20 feet long by eight feet wide and situated within garage level B2. Per the San Francisco Planning Department’s Transportation Impact Analysis Guidelines for Environmental Review (2019 SF Guidelines), the freight loading demand peak period is from 11:00 a.m. to 2:00 p.m. Full freight loading demand estimates for the project are presented in the project travel demand section.

The project proposes to create two time-restricted, curbside valet-attended, passenger loading zones. The primary loading zone spans 99 feet (approximately five spaces) along Sansome Street between Washington and Merchant streets—the entire block face excluding curb returns. The secondary, p.m. peak period from 3:00 to 7:00 p.m., loading zone extends 40 feet (approximately two spaces) east along the Merchant Street frontage beginning at the Sansome Street property line. The Sansome Street zone would



operate at all times except for the weekday p.m. peak period (3:00 to 7:00 p.m.) due to the peak period tow-away lane on Sansome Street. During this time, the valet station would shift to the Merchant Street passenger loading zone, which provides space for two passenger vehicles to load.⁶ All non-SFFD off-street parking would be served by the valet drivers, who would drive around the block from the Sansome Street loading zone via Jackson, Battery, and Merchant streets before entering the off-street parking facility. When serving the secondary loading zone on Merchant Street, valet drivers would also follow the same route to access the off-street garage. As noted in the project travel demand section, the peak period for passenger loading is 5:00 to 8:00 p.m. per the 2019 SF Guidelines. Consequently, both the primary (Sansome Street) and secondary (Merchant Street) loading zones would need to serve peak demand.

The proposed project would be subject to conditions of approval relating to driveway loading and operations and the project's POPOS programing and activation plan on Merchant Street. The driveway loading and operations conditions of approval would create guidelines for the project sponsor to manage loading activity, such as through coordinating with for-hire vehicle companies, providing off-street facilities attendants, coordinating commercial loading activities, and creating protocols for large vehicle deliveries. The conditions of approval governing the POPOS programing and activation plan on Merchant Street would ensure that access to the project's service loading spaces would be available at all hours via Merchant Street, including times when through or unauthorized access on Merchant Street would be discouraged. The specific design for this vehicle access will be approved by SFMTA and the Planning Department through the POPOS programing and activation plan conditions of approval and may include a lane for authorized vehicles (e.g., service vehicles, SFFD staff vehicles, valet attendants) connecting to Sansome Street.

Pedestrian Access Features

Primary pedestrian access between the building and public sidewalks are provided via street-level doors facing Sansome Street and Merchant Street. As shown in **Figure 4**, the hotel and restaurant uses are accessed from the Sansome Street and Merchant Street frontages while the office and gym use access faces Merchant Street. The hotel lobby would be located on the corner of Sansome and Merchant Streets and accessible from both streets. Both access points provide direct, conspicuous, barrier-free access between the building and the adjacent public sidewalks. Fire station pedestrian access is from both Washington Street and Merchant Street via standard doorways and informally by the apparatus bay roll-up doors.

Proposed streetscape changes are summarized below and shown in project site plans, presented in **Appendix A**. Sidewalk widths are listed in **Table 3**.

- **Merchant Street:** Merchant Street from Sansome Street to the eastern edge of the proposed project will be transformed from a standard commercial alleyway to a shared street with a flush

⁶ The Merchant Street loading spaces would be utilized for loading during the PM peak period (3:00 pm to 7:00 pm) and programmed with movable furniture during typical business hours (i.e., for use as POPOS).



curb along the north side of the street and vertical curb along the south side. The Merchant Street segment east of the project site to Battery Street would rely on the adjacent property at 447 Battery Street to extend this street design for the remaining portion of the block and therefore is not part of the proposed project. The shared street will be programmed with movable furniture during typical business hours for use as POPOS, during which time physical features including, but not limited to, signage will be used to discourage through traffic on Merchant Street while allowing vehicle access to and from the project's parking garage. The proposed project would be subject to conditions of approval that would provide guidelines for these features as a part of the project's POPOS programing and activation plan on Merchant Street. Other features include street trees, seating, decorative paving, and two raised crosswalks—one at either end of the street. New street lighting is not shown on project plans. Existing street lighting is concentrated at the street ends with mid-block illumination reliant on adjacent buildings.

- **Sansome Street:** Along the project frontage, the sidewalk would be rebuilt to accommodate the 12-foot-wide legislated sidewalk and new street trees planted within the sidewalk furnishing zone. A map of City Sidewalk and Grade that presents the legislated sidewalk width is presented in **Appendix C**. As described above, a raised crosswalk would be installed at the intersection with Merchant Street.
- **Washington Street:** Street trees are not proposed, and the existing 10-foot sidewalk width would remain except for a five-foot-wide bulb-out at the southeast corner of Sansome and Washington streets where new directional curb ramps would be installed.

Table 3: Existing and Proposed Sidewalk Widths

Street	Existing	Proposed
Washington Street	10 feet	10 feet
Sansome Street	10.5 feet	12 feet
Merchant Street	5.5 feet	9.5-12.5 feet ²
Battery Street ³	10.5 feet	10.5 feet

Notes:

1. Measurements are from face of curb to property line.
2. Exclusive of shared pedestrian-vehicle travel way.
3. Shown for information only. Project will not have frontage along Battery Street.

Source: SOM, 2020; Fehr & Peers, 2020

Bicycle Parking Features

The proposed project would provide 22 Class 1 bicycle parking spaces within the underground parking garage level B1 and 26 Class 2 bicycle parking spaces within the project's public street frontages. The Class 1 bicycle parking facility is accessed from the street-level pedestrian access points via the building's stairwell system, service elevators, or parking garage driveway. The location of the 26 Class 2 bicycle parking spaces are shown on **Figure 4**. Due to Fire Department requirements for frontage, it is not feasible to provide additional on-street bicycle parking spaces. As noted in **Table 2**, the remainder of the



required Class 2 bicycle parking spaces would be provided through a Zoning Administrator variance and in-lieu fee payment, pursuant to Sections 305 and 307(k)(2)(E).

Transportation Demand Management Plan

San Francisco Planning Code section 169 identifies the applicability of the transportation demand management (TDM) Program and establishes the TDM Program Standards for new development. Based on these requirements, the project is subject to the TDM Program and must submit a TDM Plan. The proposed project would include a TDM plan that would implement some or all of the following measures to reduce vehicle trips and encourage sustainable modes of transportation.

- Improve conditions for people walking through corner bulb-outs and streetscape improvements on Washington and Merchant streets;
- Provide secure bike parking to meet planning code requirements;
- Provide showers and lockers to support active transportation modes;
- Off-street parking for the office use would be priced and unbundled from an office lease; and
- Transportation marketing services, wayfinding signage, and/or real-time transportation displays.

Consistent with requirements outlined in San Francisco Planning Code section 169, the project sponsor commits to monitoring, reporting, and compliance throughout the life of the project to ensure the TDM Plan is being implemented correctly, on an ongoing basis.

Residential Variant Features

Compared to the proposed project, the residential variant would maintain Fire Station 13's proposed location on Washington Street while substituting the project's hotel, gym, office, and restaurant uses with 256 residential units totaling approximately 257,400 sf of gross floor area. The unit mix consists of 191 Studio/1-Bedroom/Jr 1-Bedroom, 38 2-Bedroom, and 27 3-Bedroom units. The uses, size, and parking facilities are summarized and compared to the proposed project in **Table 2**. The residential variant would include similar features and be subject to the same conditions of approval as the proposed project related to driveway loading and operations, with the exception of the amount and design of the motor vehicle and bicycle parking, as described below. The residential variant would not be subject to the conditions of approval related to POPOS programming and activation plan on Merchant Street.

Motor Vehicle Parking Features

The residential variant would provide 82 off-street parking stalls and 2 car share parking stalls within the three-level subterranean garage. Of the 82 stalls, 61 would be designated for residential parking with the remaining 21 designated for the fire station. Level B3 would include a gate or other barriers that separate fire station and residential parking areas. Except for the bottom floor, each parking level provides continuous one-way circulation. Both the residential and fire station elevators and stairwell cores connect to all floors. Non-SFFD parking in the residential variant would be for residents, which would be provided by valet service similar to the proposed project.



Bicycle Parking Features

The residential variant would provide 143 Class 1 bicycle parking spaces within a separate bicycle storage room in the underground garage on level B1. The residential variant would provide 19 Class 2 bicycle parking spaces within the public sidewalk along the project frontages as shown on **Figure 4**.

Transportation Demand Management Plan

The residential variant's TDM plan is tailored to the residential uses and include the following strategies which differ from the proposed project:

- Provision of residential off-street parking at a rate lower than the neighborhood parking rate;
- Off-street parking for residential uses would be priced and unbundled from the price of the dwelling units;
- A bicycle repair station for the use of project occupants; and
- Delivery-supportive amenities to lessen the need for personal travel.



Existing Conditions

This section provides a description of the existing transportation and circulation setting near the project site. It includes descriptions of the existing roadway network, transit service, conditions for people walking and bicycling, intersection operating conditions, on-street loading, and emergency access. Intersection operations account for the existing land uses on the project site. The study area, shown in **Figure 1**, includes the block and adjacent intersections bordered by Washington Street to the north, Clay Street to the south, Sansome Street to the west, and Battery Street to the east.

The proposed project would be operational in 2024. The long-term effects of the ongoing COVID-19 pandemic on the transportation system are unknown at this time. Thus, it would be unreasonable to speculate how the transportation system and travel behavior could change in the future, at the time the project is operational. For these reasons, the analysis in this study relies on transportation data and conditions prior to COVID-19 to establish existing conditions near the project site and estimate the project's travel demand.

The following conditions were considered for this analysis:

- **Motor Vehicle/Traffic Conditions:** Vehicle operations near the project site;
- **Walking/Accessibility and Bicycling Conditions:** Facilities adjacent to the project site, as well as routes to and from nearby transit lines;
- **Public Transit Conditions:** Muni operations within ¼ mile of the project site and connections to regional transit providers;
- **Emergency Vehicle Access:** Services conditions at and adjacent to the project site;
- **Vehicle Miles Traveled:** Existing vehicle miles traveled for the transportation analysis zone (TAZ)⁷ and region where the project site is located; and
- **Loading Conditions:** On-street commercial and passenger loading facilities near the site.

A site visit conducted in November 2020 confirmed existing transportation facilities within the study area such as roadway geometry, curb designations, transit stops, and bicycle and pedestrian facilities. Recent changes in the study area include corner bulb outs at Washington and Battery streets.

⁷ Planners use these zones as part of transportation planning models for transportation analyses and other planning purposes. The zones vary in size from single city blocks in the downtown core, multiple blocks in outer neighborhoods, to even larger zones in historically industrial areas.



Local Roadways

Local access to the project site is provided by the surrounding street grid network. This section describes the key local roadways that provide access to and from the project site. Existing vehicle turning movement counts at project study intersections are shown in **Figure 5**.

Table 4 lists local roadways in the study area by street name, cardinal direction, typical number of lanes, General Plan and Vision Zero High Injury Network (HIN)⁸ designation, Better Streets Plan designation, transit routes that use the street, and bicycle facilities provided. A narrative description following **Table 4** provides additional details not covered in the table.

Table 4: Local Roadways

Street Name	Direction	Number of Lanes	General Plan Designation	High Injury Network	Better Streets Plan Designation	Muni Routes	GGT Routes	Bicycle Facilities
Sansome Street	North-South	2/3 ¹	Secondary Arterial	No	Downtown Commercial	10, 12, 41, 30X, 82X	27, 54, 72	Class III, south of Washington
Battery Street	North-South	3	Secondary Arterial	No	Downtown Commercial	None	27, 54, 72	Class III, south of Clay
Washington Street	East-West	2	Major Arterial	Yes	Downtown Commercial	41	None	Class III, west of Sansome
Clay Street	East-West	3	Major Arterial	No	Downtown Commercial	1, 41	None	Class III, west of Battery
Merchant Street	East-West	1	None	No	Alley	None	None	None

Notes:

1. A northbound peak hour tow away lane is provided during the weekday p.m. peak period from 3:00 to 7:00 p.m.

Source: Fehr & Peers, 2020

Sansome Street is a downtown commercial street that runs north-south from the Embarcadero in the north to Market Street in the south. Between Washington Street and Clay Street, Sansome Street is a two-way roadway with time restrictions on the number of lanes and types of vehicles that may use the street. Sansome Street has two northbound lanes during the weekday p.m. peak period (3:00 to 7:00 p.m.) and one northbound lane at all other times. Sansome Street has one southbound lane, which is restricted to buses, taxis, commercial vehicles, and bicycles between 7:00 a.m. and 8:00 p.m. every day. Sansome Street has parallel parking and motorcycle parking on the east side and commercial loading on the west side

⁸ The City and County of San Francisco adopted Vision Zero as a policy in 2014, with the goal of zero traffic deaths for all ways people travel, including people in vehicles, walking, and bicycling. The network identifies streets in San Francisco where most severe and fatal injuries are concentrated. The network helps the City target traffic safety investments to reduce severe and fatal injuries to people walking, bicycling, and driving in those locations.



south of Merchant Street. No parking or loading is permitted between Merchant and Washington streets due to the access requirements for the existing Fire Station 13 building. Sansome Street and Battery Street serve as a couplet pair of roadways in and out of the Financial District to and from the north.

Sansome Street is designated as a Class III bike route⁹ south of Washington Street and serves several Muni and Golden Gate Transit (GGT) routes. Several Muni routes, including the 10 Townsend, 12 Folsom-Pacific, and two peak period routes – 30X Marina Express and 41 Union (outbound only), run along Sansome Street and make stops at Sansome and Washington streets and Sansome and Clay streets. Additionally, the 82X Levi Plaza Express (outbound only) runs along Sansome Street during peak hours and makes a stop at Sansome and Washington streets. Lastly, Golden Gate Transit routes – 27, 54, and 72 to Marin and Sonoma County run along Sansome Street during peak periods and stop on Sansome Street between Clay and Merchant streets.

Battery Street is a downtown commercial street that runs north-south from the Embarcadero in the north to Market Street in the south. Between Washington and Clay streets, Battery Street is a one-way southbound roadway with three lanes. Battery Street has parallel parking on both sides of the street, except on the east side, south of Merchant Street. The 82X Levi Plaza Express (inbound only) runs along Battery Street during peak periods and makes a stop at Battery and Jackson streets, a block north of the study area. Golden Gate Transit routes – 27, 54, and 72 from Marin and Sonoma County run along Battery Street during peak periods and stop at Battery and Jackson streets. In addition to serving as the southbound couplet to Sansome Street to and from the north, Battery Street connects on its southern end (via First Street) with Interstate 80.

Washington Street is a downtown commercial street that runs east-west from the Embarcadero in the east to Arguello Boulevard in the west, with a gap at Alta Plaza Park. Between Battery Street and Sansome Street, Washington Street is a one-way westbound roadway with two lanes. Washington Street has angled parking on the south side of the street and no parking on the north side of the street except for law enforcement vehicles. East of Battery Street, the angled parking switches to the north side of the street, with standard parallel parking on the south side. West of Sansome Street, both sides of the street are configured for parallel parking, allowing for a third travel lane. No transit routes run along the block of Washington Street adjacent to the project site; however, the block immediately to the west of Sansome Street carries the outbound 41 Union during peak periods, including a stop on Washington Street at Sansome Street. Washington Street west of Sansome Street is designated a Class III bike route. Washington Street is included in the 2017 Vision Zero High Injury Network from mid-block between Sansome and Battery streets, extending to the west.

⁹ Class III facilities provide for shared use with motor vehicle traffic. Class III facilities consist of designated and signed bicycle routes where bicyclists share the roadway with vehicles. They may or may not be marked with “sharrows,” and they are usually signed.



Clay Street is a downtown commercial street that runs east-west from Drumm Street in the east to Arguello Boulevard in the west, with a gap at Lafayette Park and at the California Pacific Medical Center's Pacific Campus. Between Battery Street and Sansome Street, Clay Street is a one-way eastbound, three lane roadway designated as a Class III bike route. The southernmost travel lane is a bus and taxi only lane. The southern curb lane accommodates a bus stop, a single commercial loading space, and a right turn pocket onto Battery Street. Clay Street has parallel parking and a passenger loading zone on the north side of the street. Clay Street includes the inbound 1 California and 41 Union (during a.m. and p.m. peak periods), with stops for both routes at Clay and Sansome streets.

Merchant Street is an alley that runs east-west between Battery Street and Redwood Park, a privately-owned public space just west of Sansome Street. Merchant Street is a one-way westbound, one lane alleyway with commercial loading on the north side and sidewalks on both sides of the street. The north side of Merchant Street at Sansome Street is used informally for parking by the SFFD. The Club Quarters hotel (424 Clay Street at Battery Street) hotel has service doors and curb cuts on the south side of Merchant Street. However, these areas are used for the storage of trash and laundry bins for collection and the reception of large or bulky deliveries, and the Club Quarters hotel's primary entrance and passenger loading zone is on Clay Street. Merchant Street does not carry any transit or designated bike routes.

Motor Vehicle / Traffic Conditions

Intersection counts and observations of traffic conditions were collected on August 23, 2017 during the p.m. peak period (4:00 – 6:00 p.m.) at the project study intersections as part of the adjacent 447 Battery Street Project.¹⁰ These turning movement counts are shown in **Figure 5**.

During the p.m. peak hour, vehicle volumes are similar along all four streets adjacent to the project site: Washington Street, Clay Street, Battery Street, and Sansome Street. Among those, the lowest volume street was Washington Street, with 450-550 vehicles during the p.m. peak hour. The highest volume street was Battery Street, with 850-950 vehicles during the p.m. peak hour. Clay Street experienced volumes of 600-800 vehicles during the p.m. peak hour and Sansome Street experienced volumes of 600-750 during the p.m. peak hour, with roughly 90 percent of the volume in the northbound direction. A keep clear zone on Sansome Street ensures vehicles do not block SFFD access to Fire Station 13 during periods with more traffic. Vehicle queues do not extend between intersections within the study area. Vehicle queues on Battery Street that often extend back from several blocks from First and Market streets do not typically reach the study area.

¹⁰ The intersection counts and observations used in this study were collected for the 447 Battery Street project. These counts and observations have been used to represent normal conditions prior to the start of the ongoing COVID-19 pandemic, which has temporarily altered transportation and circulation operations and patterns. AECOM, *447 Battery Street Transportation Impact Study Final Report* (Planning Department Case No. 2014-1036ENV), November 7, 2019.



The observed number of heavy vehicles (i.e., trucks), as a percentage of overall traffic volume at study intersections in the p.m. peak varies by location. Battery Street and Washington Street both see a low number of trucks (under five percent). The number of trucks along Clay Street are slightly higher, around seven percent. The highest heavy vehicle volumes are found along Sansome Street (10 percent in the northbound direction and 25 percent in the southbound direction). The number of trucks traveling southbound, though, is largely the result of the restriction of this segment to transit, taxis, and commercial vehicles for much of the day, including during the p.m. peak. As previously mentioned, overall southbound vehicle volumes on Sansome Street are low (less than 80 vehicles near the Project site).

Public Transit Conditions

Primary public transit access to the project site is provided by San Francisco Muni bus service. Additional service is provided by Golden Gate Transit buses during peak periods with direct service to the North Bay. The East Bay, Peninsula, and South Bay are accessible via Muni connections, walking, or bicycling to stops on Market Street and to the south serving AC Transit (East Bay), WestCAT (East Bay), BART (East Bay and Peninsula), Caltrain (Peninsula and South Bay) and SamTrans (Peninsula). Transit routes and stops near the project site are shown in **Figure 6**.



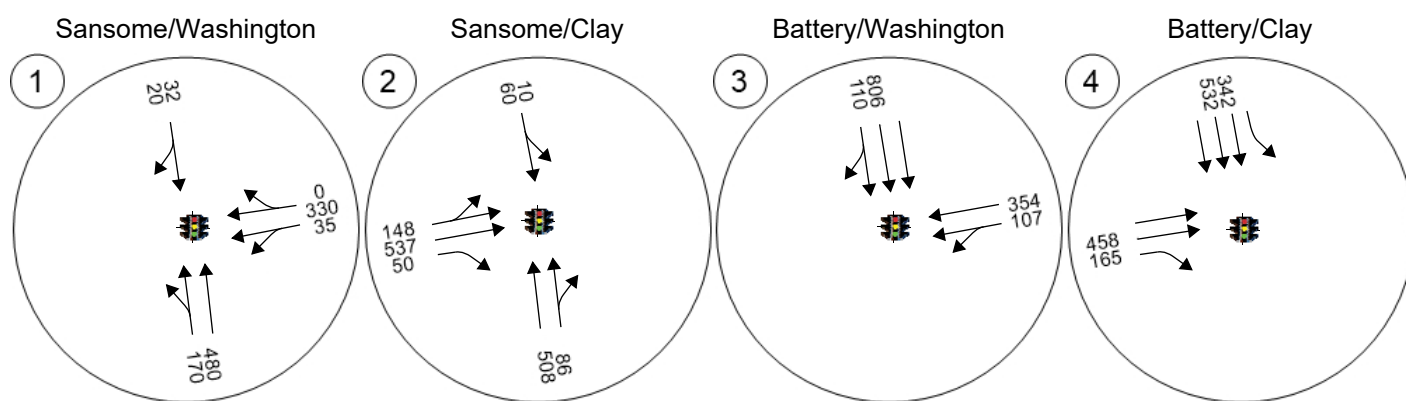
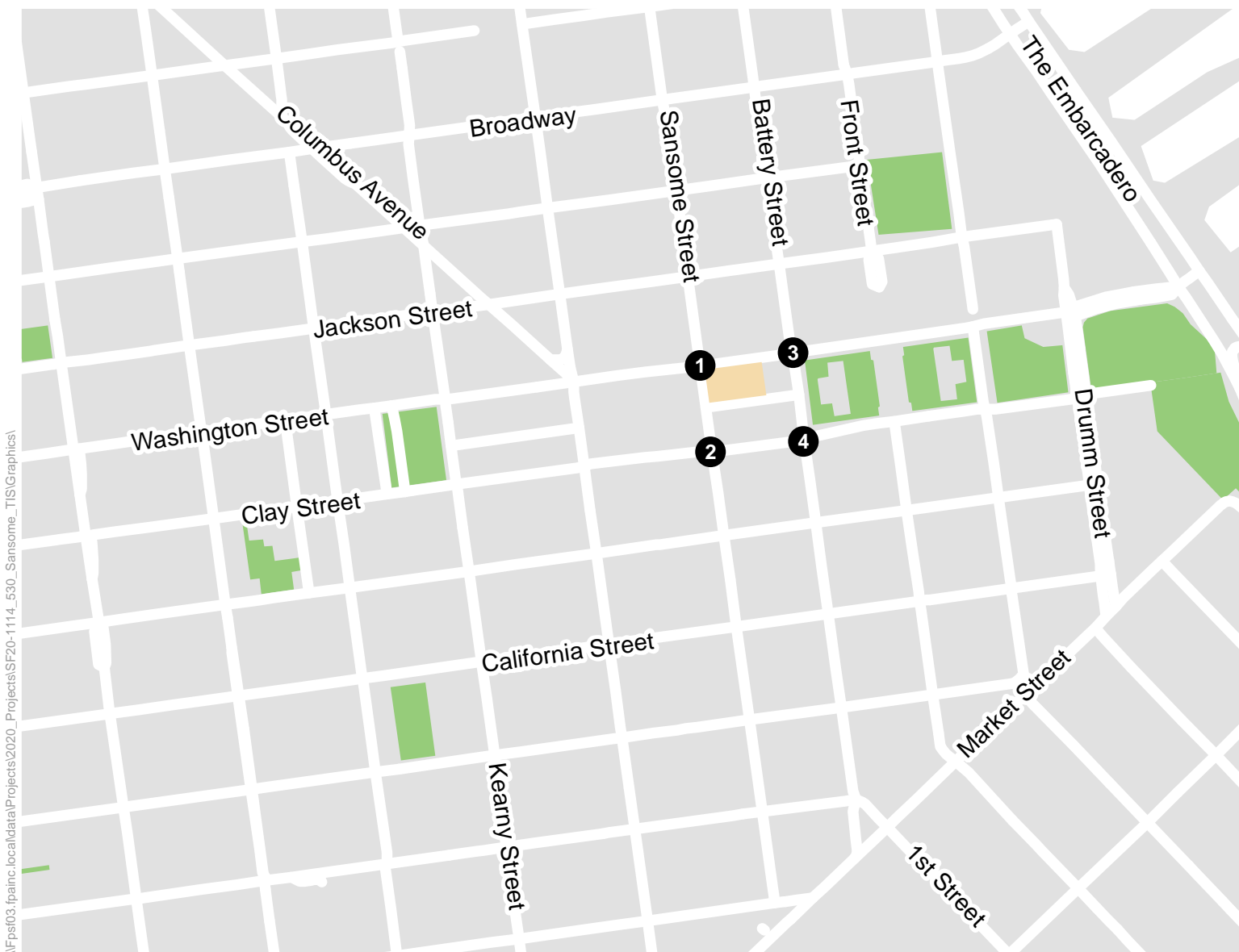
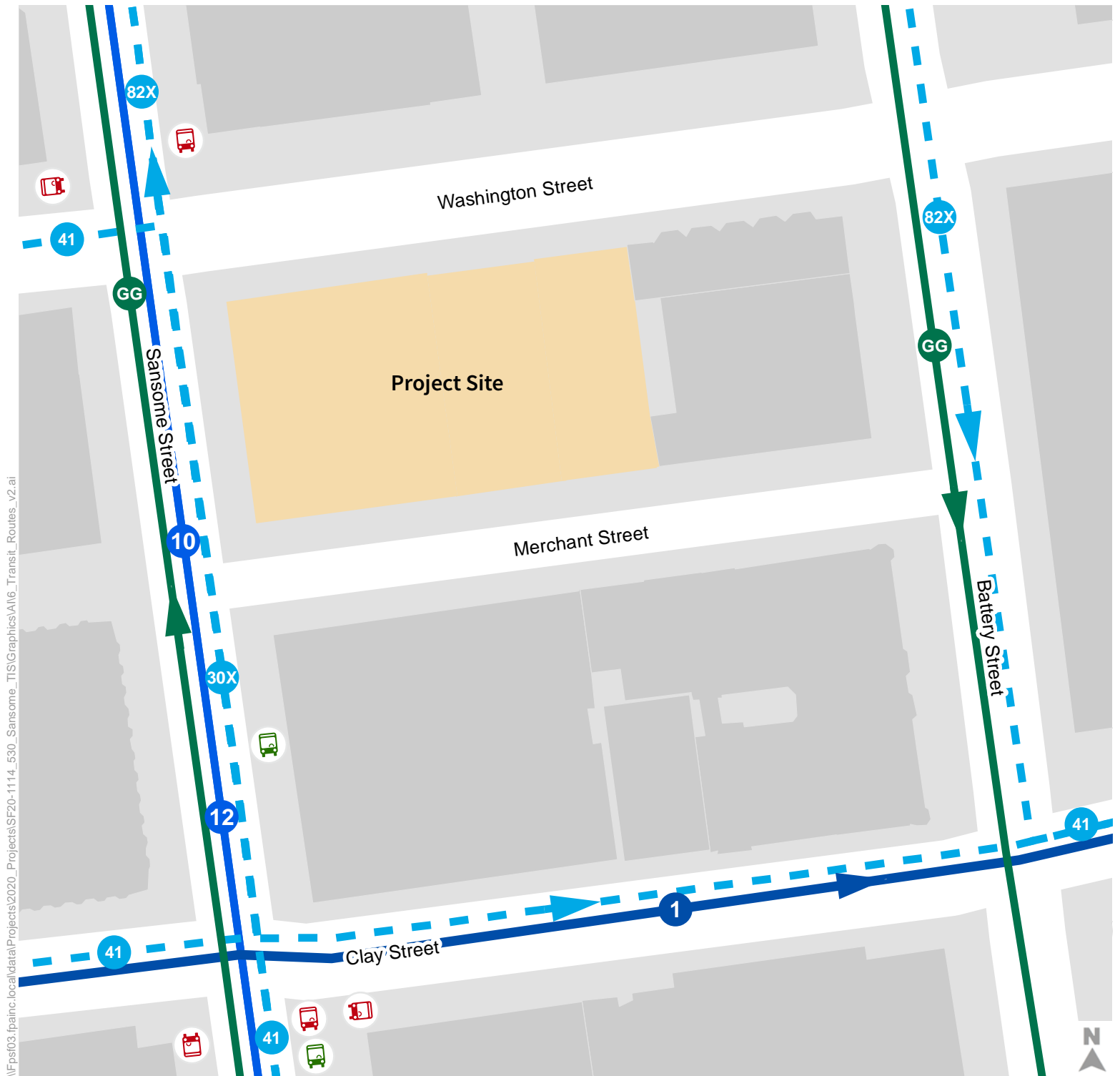


Figure 5
Intersection Traffic Volumes
Existing



- | | | | |
|--|--------------------------------------|--|--------------------------|
| | Every 10 minutes or less | | Muni Stop |
| | Every 10 - 20 minutes | | Golden Gate Transit Stop |
| | Peak hour only | | |
| | Golden Gate Transit (peak hour only) | | Project Site |



As of December 2020, the following routes are temporarily suspended due to the COVID-19 pandemic:
 Muni: 10, 30X, 41, 82X - <https://www.sfmta.com/travel-updates/covid-19-muni-core-service-plan>
 Golden Gate: 2, 4, 8, 18, 24, 24X, 38, 38A, 56X, 58, 72X, 74, 76 - <https://www.goldengate.org/golden-gate-bus--ferry-services-adjusted-during-coronavirus-pandemic/>

Figure 6
Existing Transit Network

San Francisco Muni

Muni operates six bus routes in the vicinity of the project site: three all-day routes and three peak-only routes. These routes and their service are summarized in **Table 5**. In addition, Muni operates Muni Metro and Muni Rapid bus services from Market Street, roughly six blocks away, which connect to the western and southern portions of the city.

Table 5: Muni Operations

Route ¹	A.M. Peak Headway ²	P.M. Peak Headway ³	Hours of Operation	Closest Stop(s) to Project Site	Areas Served by Route
1 California	4	3	All Day	Clay & Sansome (Inbound); Sacramento & Sansome (Outbound)	Western Addition; Lower Pacific Heights; Presidio Heights; Richmond
10 Townsend	15	15	All Day	Sansome & Washington (Inbound); Sansome & Clay (Outbound)	Pacific Heights; Nob Hill; SoMa; Potrero Hill
12 Folsom-Pacific	15	15	All Day	Sansome & Washington (Inbound); Sansome & Clay (Outbound)	Nob Hill; SoMa; Mission
41 Union	5	8	Weekday only; a.m. and p.m. Peak	Clay & Sansome (Inbound); Washington & Sansome (Outbound)	Pacific Heights; Russian Hill; SoMa
30X Marina Express	6	10	Weekday only; a.m. and p.m. Peak	Sansome & Clay (Inbound); Sansome & Washington (Outbound)	Marina; SoMa
82X Levi Plaza Express	15	15	Weekday only; a.m. and p.m. Peak	Sansome & Washington (Inbound); Battery & Jackson (Outbound)	Telegraph Hill; SoMa

Notes:

1. As a result of the COVID-19 pandemic, as of January 2021, Muni Metro routes have been converted to bus service and many Rapid routes have been temporarily eliminated. As of January 2021, Route 1 is active, Routes 10, 41, 30X and 82X are suspended, and Route 12 is shortened.
2. Weekday at 8 a.m.; Frequencies in minutes; information collected prior to the start of ongoing COVID-19 pandemic.
3. Weekday at 5 p.m.; Frequencies in minutes; information collected prior to the start of ongoing COVID-19 pandemic.

Source: SFMTA website, including COVID-19 Core service plan at <https://www.sfmta.com/travel-updates/covid-19-muni-core-service-plan>.

Golden Gate Transit

Golden Gate Transit operates 16 peak period-only routes along Sansome Street and Battery Street, with service to Marin and Sonoma Counties. These routes and their service characteristics are summarized in **Table 6**.



Table 6: Golden Gate Transit Operations

Route ¹	A.M. Peak Headway ²	P.M. Peak Headway ³	Route Destination
2	30	30	Marin City
4	12	12	Strawberry
8	60	60	Tiburon/Belvedere
18	20	20	Kentfield/College of Marin
24/24X	20	20	Fairfax
27	30	30	San Rafael/San Anselmo
38/38A	30	30	Terra Linda/Marinwood
54	20	20	Novato
56X	30	30	Novato
58	30	30	Hamilton/Novato
72	60	60	Petaluma/Cotati/Santa Rosa
72X	20	20	Santa Rosa
74	30	30	Petaluma/Cotati/Santa Rosa
76	30	30	Petaluma

Notes:

1. As a result of the COVID-19 pandemic, as of January 2021, Golden Gate Transit is operating reduced service. Routes have been temporarily eliminated. Routes are suspended except for Routes 27, 54, and 72, with Route 27 adjusted to terminate in San Rafael.
2. Weekday at 8 a.m.; Frequencies in minutes; information collected prior to the start of ongoing COVID-19 pandemic.
3. Weekday at 5 p.m.; Frequencies in minutes; information collected prior to the start of ongoing COVID-19 pandemic.

Source: Golden Gate Transit website, including COVID-19 Core service plan at <https://www.goldengate.org/golden-gate-bus--ferry-services-adjusted-during-coronavirus-pandemic/>

Regional Transit Service

Bay Area Rapid Transit (BART)

BART provides regional rail service between the East Bay (from Antioch, Richmond, and Dublin/Pleasanton), South Bay (from Berryessa/North San Jose), San Mateo County (from SFO Airport and Millbrae), and San Francisco. Operating hours are from 4:00 a.m. and midnight.¹¹ Within downtown San Francisco, BART operates underground below Market Street. The BART stations most accessible to the site are Embarcadero and Montgomery Stations, which are six to seven blocks south of the project site, an eight-to-ten-minute walk or three-to-seven-minute bus ride.

¹¹ However, as a result of the pandemic, operating hours as of November 2020 are 5:00 a.m. to 9:00 p.m. on weekdays and 8:00 a.m. to 9:00 p.m. on weekends. Prior to the COVID-19 pandemic, weekday p.m. peak headways were 5 to 15 minutes for each line. As of November 2020, all lines are operating at 30-minute headways.



Caltrain

Caltrain provides passenger rail service on the Peninsula between San Francisco and San Jose with stops in San Mateo County and Santa Clara County. Limited Service is available south of San Jose. Caltrain operates 46 roundtrip services on weekdays (including 11 Baby Bullet services) and 12-14 roundtrip services on weekends (including 2 Baby Bullet services).¹² Within San Francisco, Caltrain terminates at the Fourth & King Station in SoMa, which is located approximately 1.7 miles south of the Project site. From the Project site, the Caltrain station is 35 to 40 minutes walking, 15 minutes cycling, or 10 to 15 minutes by the 82X Levi Plaza Express or 10 Townsend buses.

AC Transit

The Alameda-Contra Costa Transit District, operating as AC Transit, operates bus service in western Alameda and Contra Costa, as well as the majority of Transbay bus routes. Prior to the COVID-19 pandemic, AC Transit operated 27 Transbay routes from the East Bay to the San Francisco, as well an additional all-night Transbay route. All of the 27 routes except for three operated at peak hours only, with headways of 15-20 minutes.¹³ Most Transbay routes operate out of the Salesforce Transit Center in SoMa, between Mission and Howard streets and Second and Beale streets. The Transit Center is approximately 0.7 miles southeast of the Project site, a 15-minute walk, seven-minute bicycle ride, or five-minute ride on the 10 Townsend bus. The 800 all-night route operates along Market Street, roughly 0.4 miles southeast of the Project site.

SamTrans

The San Mateo County Transit District, operating as SamTrans, operates bus service in San Mateo County, with select routes in San Francisco. SamTrans Routes 292, 397, 398, and FCX connect downtown San Francisco with various destinations in San Mateo County.¹⁴ SamTrans services operate from Drumm Street & Clay Street in the Financial District, approximately 0.3 miles east of the Project site, a six-minute walk. With the exception of select FCX stops, SamTrans does not allow trips within San Francisco.

Ferry Operators

The Water Emergency Transportation Authority (WETA), operating as the San Francisco Bay Ferry, provides ferry service between San Francisco and Alameda, Oakland, Richmond, and Vallejo from the San Francisco Ferry Building. WETA operates ferries on 30- to 60-minute headways, depending on time and day of week.¹⁵ In addition to its bus service, Golden Gate Transit also operates ferry service between San Francisco and Larkspur, Sausalito, and Tiburon from the San Francisco Ferry Building. The Larkspur route

¹² As of November 2020, weekday Baby Bullet services have been eliminated and service has been reduced to 35 roundtrip services on weekdays; weekend service remains the same.

¹³ As of November 2020, AC Transit has reduced operations to its three all-day Transbay routes, serving Berkeley, Emeryville, Oakland, and Alameda, as well as the 800 all-night service.

¹⁴ As of November 2020, service on these routes remains, with headways reduced to every 30 to 60 minutes.

¹⁵ As of November 2020, services to South San Francisco and Harbor Bay in Alameda remain suspended.



operated all-day, every-day service roughly every 30 minutes, the Sausalito route operated all-day, every day (except holidays) service roughly every one to two hours, and the Tiburon route operated weekday peak-only service.¹⁶ The San Francisco Ferry Building is approximately 0.5 miles east of the Project site, an 11-minute walk or five-minute bicycle ride.

Private Operators

Privately operated commuter shuttles are managed by SFMTA under the Commuter Shuttle Program. As of February 2020, all streets in the project vicinity were designated as unrestricted arterials under this program. There are no designated commuter shuttle stops in the vicinity of the project site. However, commuter shuttles, both large motor coaches and smaller vans, were observed traveling on Battery Street and other nearby streets as part of data collection for the adjacent 447 Battery Street project.

Walking/Accessibility Conditions

In addition to the observations conducted on August 23, 2017, a qualitative evaluation of existing conditions was conducted during a site visit on November 24, 2020. While pedestrian counts are not available for sidewalks on Sansome and Washington streets adjacent to the project site, approximately 500 people were counted using the southeast corner of Sansome and Washington streets during the p.m. peak hour, while 800 to 900 pedestrians were counted at the southwest corner of Battery and Washington streets and northeast corner of Sansome and Clay streets. The highest pedestrian activity during the p.m. peak hour within the study area was counted at the corner of southeast corner of Sansome and Clay streets, with approximately 1,400. During the site visits, Sansome and Washington Streets adjacent to the project site have lower pedestrian volumes compared to streets south of the project site where peak period pedestrian volumes noticeably increase as streets approach to the local and regional transit services on Market Street.

All streets in the project vicinity have complete sidewalks on both sides of the street, including the four street segments adjacent to the project site. Typical sidewalk width is approximately ten feet, six inches along Battery, Sansome, and Washington streets, and five feet, six inches along Merchant Street. Although the existing sidewalk widths on Sansome and Washington streets along the project frontage do not meet Better Streets Plan standards, which require a minimum 12 feet and recommended 15 feet width on typical commercial streets, sidewalk widths appeared sufficiently wide for safe pedestrian activity during site visits and do not interfere with accessibility nor create potentially hazardous conditions for people walking. The effective width of the sidewalk is frequently reduced by several feet due to parking meters, signage, streetlights, utility poles, trash receptacles, street trees and planters, and other obstructions; however, there is a four-foot minimum pathway provided on the portions of Battery, Sansome, and Washington streets near the project site, as required by Americans with Disabilities Act (ADA).

¹⁶ As of November 2020, the Sausalito and Tiburon routes are operating a reduced weekday, peak-only service, while the Larkspur route is operating a reduced weekday, all-day service.



Intersections in the project vicinity generally have adequate pedestrian facilities. The intersection of Sansome Street and Washington Street has continental crosswalks, curb ramps with tactile domes, and pedestrian countdown timers at all four crossings. The intersection of Battery Street and Washington Street has recently completed corner bulb outs into Washington and Battery Streets on the southeast and northwest corners, continental crosswalks, curb ramps with tactile domes, and pedestrian countdown timers at all four crossings. The intersection of Sansome Street and Clay Street has continental crosswalks and pedestrian countdown timers at all four crossings. Three of the four corners have curb ramps with tactile domes; the northeast corner has one shared curb ramp oriented to the southbound crossing that lacks any tactile treatment. The intersection of Battery Street and Clay Street has low-visibility parallel crosswalks and pedestrian countdown timers at all four crossings. The southeast corner has curb ramps with tactile domes in both directions, the southwest corner has a single curb ramp with tactile domes oriented toward the eastbound crossing, and the northwest corner has a single curb ramp with tactile domes oriented toward the southbound crossing. The northeast corner has a single curb ramp with tactile domes that serves a short crosswalk across a slip lane, which then branches to serve both crosswalks; the presence of the signal pole partially blocks access to the southbound crossing.

The intersections of Sansome Street and Merchant Street and Battery Street and Merchant Street have no crosswalks and no permitted mid-block crossing of the respective major streets. Both intersections have curb ramps for crossing Merchant Street, but only the southwest corner at Battery Street and Merchant Street has any tactile treatment.

Existing driveways and curb cuts are shown in **Figure 2**. The project site/SFFD Station 13 is currently served by two driveways. One is a small driveway on the north side of Merchant Street which is used to access the fire station's accessory automobile parking, where firefighters park their personal vehicles. This curb cut is used primarily during shift changes. Due to the limited number of parking spaces in the garage, drivers sometimes park along the red curb on the north side of Merchant Street adjacent to the fire station. The other driveway is an approximately 55-foot curb cut on Sansome Street that provides access to the twin bays of the fire station, which occupies the majority of the curb length between Washington Street and Merchant Street.

Intersection pedestrian counts were collected on August 23, 2017 during the p.m. peak period (4:00 – 6:00 p.m.) at project study intersections as part of the adjacent 447 Battery Street Project. The counts are presented in **Appendix D**.

Pedestrian volumes in the study area were substantial at all study intersections. The highest pedestrian numbers were associated with the north-south routes of Sansome Street (600-1,000 along the west side and 300-500 along the east side) and Battery Street (550-700 along the west side and 500-600 along the east side). These volumes can largely be attributed to substantial numbers of people walking to transit connections along Market Street to the south. Pedestrian volumes along the east-west routes ranged from 200-250 along both sides of Washington Street to 300-500 along both sides of Clay Street.

The closest transit stops for Muni and Golden Gate Transit near the Project site are clustered around the intersections of Sansome Street and Washington Street and Sansome Street and Clay Street. Additional



transit stops are located a block away at Battery Street and Jackson Street. People walking to transit have access to sidewalks, curb ramps, and crosswalks connecting between the project site and the transit stop. However, as shown by the p.m. peak pedestrian volumes, a substantial number of people may walk all the way to Market Street and the Salesforce Transit Center to catch regional transit services like Muni Metro, BART, and AC Transit.

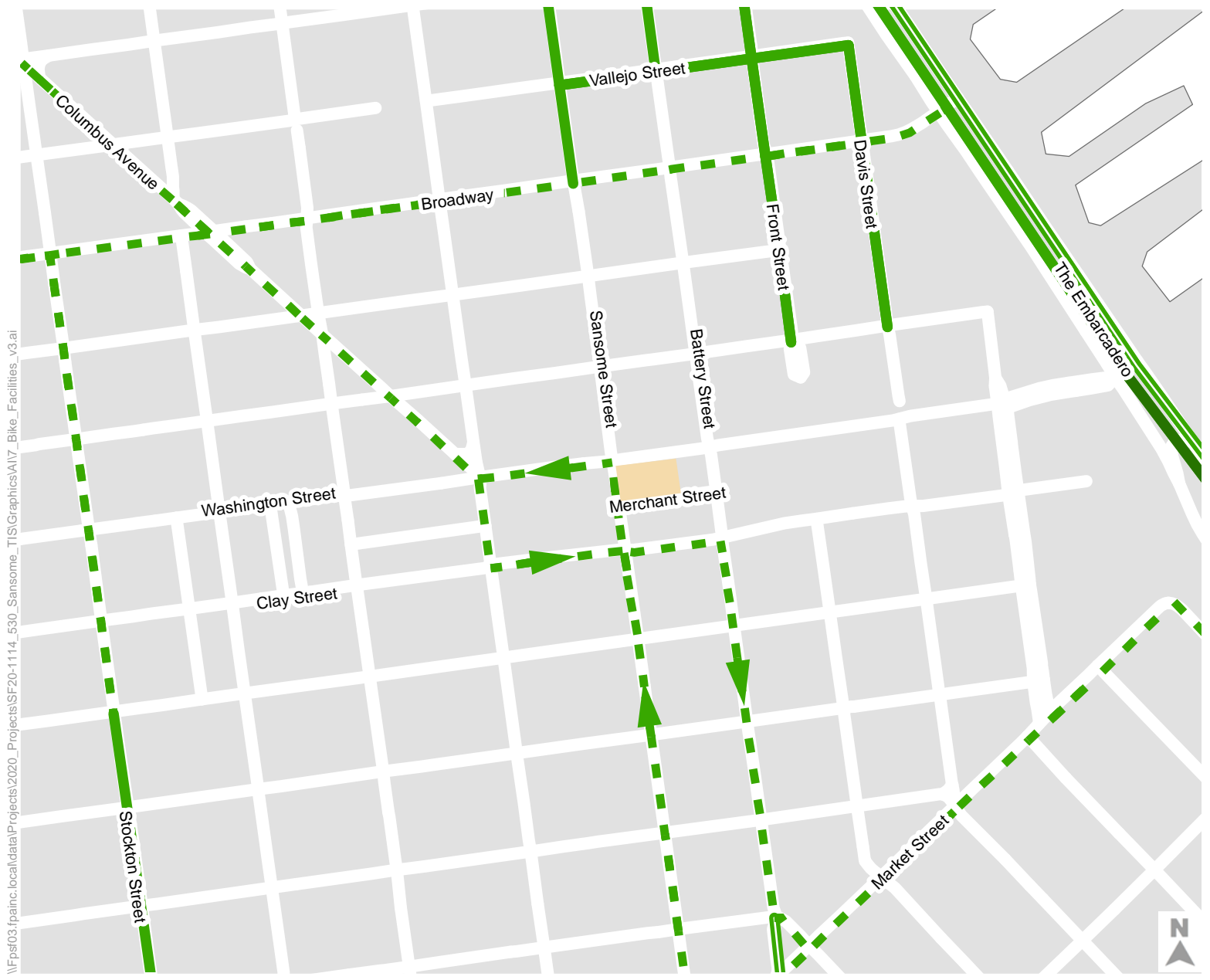
There are no schools or other destinations that would draw vulnerable populations (e.g., children, seniors, people with disabilities) within the study area. The nearest school is the San Francisco Unified School District's Chinese Education Center Elementary School (kindergarten through fifth grade) at 657 Merchant Street (between Montgomery Street and Kearny Street) located approximately one quarter mile to the west of the project site.

Bicycling Conditions

Bicycle facilities consist of bicycle roadway markings, bicycle lanes, and multi-use trails or paths. They are grouped into the following four categories. Existing bicycle facilities in the proposed project study area, as designated in the latest San Francisco Bike Network Map, are shown in **Figure 7**.

- **Class I** facilities provide a completely separated right-of-way for the exclusive use for people walking and bicycling with cross-flow minimized. Class I facilities consist of off-street bicycle paths that are generally shared with people walking. Class I facilities may be adjacent to an existing roadway or may be entirely independent of existing vehicular facilities.
- **Class II** facilities provide a striped lane for one-way travel on a street or highway. Class II facilities consist of striped bicycle lanes on roadways. These facilities reserve a minimum of four to five feet of space for bicycle traffic.
- **Class III** facilities provide for shared use with motor vehicle traffic. Class III facilities consist of designated and signed bicycle routes where bicyclists share the roadway with vehicles. They may or may not be marked with "sharrows," and they are usually signed.
- **Class IV** facilities provide a separated bikeway for the exclusive use of bicycles and include a separation between the bikeway and through vehicular traffic. This separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.





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-  Class I Separated Bikeway
-  Class II Bike Lane
-  Class III Bike Route
-  Class IV Separated Bike Lane
-  Project Site



Figure 7
Existing Bicycle Network

The project area is crossed by a Class III bicycle route couplet. The northbound route of this couplet travels north on Sansome Street and turns to the west at Washington Street adjacent to the project site. The southbound route of this couplet travels east on Clay Street before turning to the south at Battery Street. This bicycle route serves an important function in the city's bicycle network as the primary north-south route through the financial district, connecting bicycle facilities on Market Street to the south with facilities on Columbus Street to the north. Additionally, southbound Sansome Street is marked with "sharrows" and is part of the San Francisco Bike Network map¹⁷ and may provide a desirable route for cyclists, as only buses, taxis, and commercial vehicles are permitted between 7:00 a.m. and 8:00 p.m. every day.

In general, the terrain around the project site is relatively flat, though significant hills exist to the north and west of the project area. However, numerous challenges for bicyclists exist in the area. One-way streets encourage cars to speed and make turns and lane changes that makes travel more complicated and dangerous for cyclists. Additionally, the frequently changing road geometry, including changes to number of travel lanes, curbside parking, and transit-only lanes, can make cycling more difficult. Further sources of conflict could include "dooring" by parked vehicles,¹⁸ and the presence of transit vehicles. The Class III bicycle route on Sansome Street includes "sharrow" markings which are aligned in a manner to aid bicyclists with proper lane position to avoid these dooring hazards and parking restrictions reduce conflicts between bicyclists and parked vehicles during the p.m. peak period. Washington Street, starting mid-block between Sansome Street and Battery Street and extending west, is included in the 2017 Vision Zero High Injury Network as a stretch of roadway where injurious collisions are more likely to occur.

Intersection bicycle counts were collected on August 23, 2017 during the p.m. peak period (4:00 – 6:00 p.m.) at project study intersections as part of the adjacent 447 Battery Street Project.¹⁹ The counts are presented in **Appendix D**.

The highest single-direction bicycle volumes observed were on the one-way Battery Street, with a southbound volume of roughly 40 bicycles. The highest overall bicycle volumes observed were on Sansome Street, with a total volume of 45-60 bicyclists, split roughly between the northbound and southbound directions. Up to 10 bicyclists were observed on Washington Street and Clay Street approaching Sansome Street, with roughly 5 bicyclists turning north on Sansome Street, and 10 bicyclists turning south during the peak hour.

Bikeshare in San Francisco is provided by Bay Wheels, which is operated by Motivate, a subsidiary of Lyft. Bay Wheels offers both docked and dockless bicycles, with a service area covering most of San Francisco.

¹⁷ San Francisco Bike Network map can be found here: <https://www.sfmta.com/maps/san-francisco-bike-network-map>; accessed by Fehr & Peers on April 2, 2021.

¹⁸ Dooring occurs when a driver fails to check for oncoming cyclists before exiting a parked vehicle causing the cyclist to collide with their door.

¹⁹ These counts have been used to represent normal conditions prior to the start of the ongoing COVID-19 pandemic, which has significantly altered bicycle flows in the area.



The nearest bikeshare station to the project site is on Clay Street, just east of Battery Street, about 400 feet southeast of the project site; this station features 31 docks. Other nearby stations are on Commercial Street at Montgomery Street, Washington Street at Kearny Street, and Front Street at California Street.

Dockless electric bikes may be operated and parked anywhere within the study area where they do not block the right-of-way for people walking.

Emergency Vehicle Access

As described in the Project Description, San Francisco Fire Department (SFFD) Station 13 is included in the Project site, on the east side of Sansome Street between Washington Street and Merchant Street. Primary vehicle access for the main fire station garage space is located along Sansome Street and includes a roughly 55-foot curb cut; a “KEEP CLEAR” zone is striped in front of the curb cut. Fire trucks pull out from the garage onto station street and must back into the garage upon return.

As shown in **Appendix B**, additional SFFD fire stations located in the vicinity include:

- Station 2 (Powell Street at Broadway) – Approximately 0.5 miles away
- Station 28 (Stockton Street at Greenwich Street) – Approximately 0.7 miles away
- Station 35 (The Embarcadero at Harrison Street) – Approximately 0.8 miles away
- Station 41 (Leavenworth Street at Jackson Street) – Approximately 0.9 miles away

The Project site is located within the Central District of the San Francisco Police Department (SFPD) and the nearest police station is located on Vallejo Street, between Stockton Street and Powell Street, approximately 0.6 miles from the Project site. This is the only police station within one mile of the Project site.

The nearest hospitals offering basic emergency services are the Chinese Hospital on Jackson Street between Stockton Street and Powell Street, approximately 0.5 miles from the Project site, and Saint Francis Memorial Hospital on Hyde Street between Bush Street and Pine Street, approximately one mile from the Project site. The nearest Level 1 Trauma Center is at Zuckerberg San Francisco General Hospital on Potrero Avenue, approximately 3 miles south of the Project site.

All four streets bounding the Project site’s block accommodate emergency vehicle access and the couplet of Sansome Street and Battery Street provides an important north-south route through the Financial District for emergency vehicles. While Merchant Street meets the minimum requirements specified by the SFFD’s Division of Planning and Research, larger vehicles may have difficulty accessing it and deploying necessary apparatus.



Vehicle Miles Traveled

Table 7 presents the existing average daily vehicle miles traveled (VMT) for residents in the nine-county San Francisco Bay Area and for transportation analysis zone (TAZ) 804,²⁰ the zone in which the proposed project and residential variant are located. TAZ 804 is bounded by Sansome Street to the west, Clay Street to the south, Battery Street to the east, and Washington Street to the north.

Table 7: Existing Vehicle Miles Traveled

Land Use	Bay Area Regional Average	Bay Area Regional Average Minus 15% (Significance Threshold)	TAZ 804
Residential	17.2	14.6	2.5
Office ¹	19.1	16.2	7.9
Retail ²	14.8	12.6	8.7

Notes:

1. The proposed project would not change the travel characteristics nor number of employees at the fire station and therefore would not result in a change to VMT associated with the fire station. The VMT associated with office is used as a proxy for the amount of VMT generated by the Fire Station 13 employees.
2. Retail is presented as a proxy for the proposed Gym and restaurant land uses as they would provide an amenity to residents, employees, and visitors in Downtown San Francisco in a similar manner to retail services. Due to the density of complementary land uses and high transit accessibility to the project site, they would generate substantially less VMT compared to the rest of the region. For similar reasons, the visitors and employees of the hotel would reflect the travel characteristics of retail and office space, with substantially lower VMT than the significance threshold.

Source: San Francisco Transportation Information Map, 2019, SF Planning; Fehr & Peers, 2020.

Loading

As shown in **Figure 2**, there are several on-street commercial loading (yellow) zones on the block faces surrounding the project site, which were confirmed during a site visit in November 2020. These loading zones include two spaces on Washington Street, one space on Sansome Street, seven spaces along the north side of Merchant Street, and four spaces along Battery Street. Additional on-street commercial loading is available on the west side of Sansome Street north and south of the Project site, on the west side of Battery Street south of the Project site, and on Washington Street to the west of Sansome Street. All of these spaces are metered and marked with yellow curb paint and either yellow-topped meters, for standard commercial vehicles, or red-topped meters, for vehicles with six wheels or more. These spaces are restricted to commercial loading between 7:00 a.m. and 6:00 p.m. Mondays through Saturdays.

²⁰ TAZs are subdivisions of census tracts. There are 981 TAZs within San Francisco that vary in size from single city blocks in the downtown core, to multiple blocks in outer neighborhoods, to even larger geographic areas in historically industrial areas like the Hunters Point Shipyard. TAZs are used by planners as part of transportation planning models for transportation analysis and other planning purposes.



There are currently no on-street passenger loading zones, identified with white curb paint, adjacent to the Project site. The nearest on-street passenger loading zones are on the north side of Washington Street at Hotaling Place and the north side of Clay Street west of Battery Street. Neither of these loading zones are close enough to serve the needs of the Project.

There are three curb cuts along Merchant Street. The first of these, on the north side of the street, serves the employee parking area for SFFD Station 13. The other two serve small receiving areas for buildings on the south side of Merchant Street. These areas are for the storage of trash and laundry bins for collection and the reception of large or bulky deliveries. These areas do not provide sufficient depth or clearance to serve off-street freight loading.

Field observations were conducted as part of the adjacent 447 Battery Street project during May 2017 (p.m. peak only) and December 2017 (all-day). These counts have been used to represent normal traffic conditions prior to the start of the ongoing COVID-19 pandemic, which has significantly altered traffic flows in the area. The latter study, conducted over three weekdays and one Saturday between 7:00 a.m. and 6:00 p.m., determined that average utilization of commercial loading spaces along the Merchant, Sansome, Washington, and Battery street block faces was only 50 percent, but that commercial loading activity only accounts for an average utilization of six percent of these spaces. The remaining use of these spaces was by non-permitted uses, including general parking (40 percent of activity) and passenger loading pick-up and drop-off (four percent of activity).²¹

²¹ Loading utilization rates presented in Appendix I of *447 Battery Street Transportation Impact Study Final Report* (AECOM, Case No. 2014-1036ENV, November 7, 2019).



Project Travel Demand

Project travel demand refers to the new vehicles, transit, pedestrian, and bicycle trips generated by the proposed project or residential variant. In addition, this section documents the project-generated passenger and freight loading demand. The travel demand and freight/service vehicle loading demand are estimated based on observed data and information contained in the 2019 SF Guidelines. The travel patterns associated with the SFFD Fire Station 13 are not presented because neither the proposed project nor the residential variant would alter the number of trips or travel patterns associated with this existing land use. **Appendix E** contains the travel demand calculations and assumptions.

The land use mix for the proposed project and residential variant analyzed in this study is summarized in **Table 2**.

Trip Generation

Table 8 and **Table 9** present the number of new person trips²² generated by travel demand for the proposed project and residential variant, respectively, on a daily basis and during the p.m. peak period (3:00 to 7:00 p.m.). Trip generation rates for hotel, residential, restaurant, and office are based on the 2019 SF Guidelines. The on-site restaurant uses at most hotels in the surrounding area are typically low-turnover establishments.²³ The proposed restaurant use at the proposed project site is likely to be a similar type of establishment. Therefore, the trip generation rate for the proposed restaurant use is based on a “quality sit-down” restaurant²⁴ Trip generation for the proposed gym is based on the athletic club rates provided in the 2002 SF Guidelines.²⁵ Travel demand estimates were not calculated for the existing office space and small-scale retail uses for the purposes of establishing trip credits due to the difficulty in establishing the existing travel demand during the COVID-19 pandemic.

²² The number estimated trips people would take to and from the proposed project or residential variant by all ways of travel, including walking, bicycling, transit, or automobile trips.

²³ Examples include the restaurant at the nearby Le Meridien San Francisco (333 Battery Street at Clay Street), Club Quarters San Francisco (424 Clay Street at Battery Street), Hilton San Francisco Financial District (750 Kearny Street at Washington Street), Omni San Francisco (500 California Street at Sansome Street), Loews Regency San Francisco (222 Sansome Street at California Street), and Hyatt Regency San Francisco (5 Embarcadero Center at Drumm Street/California Street) hotels. Source: 447 Battery Street Transportation Impact Study, AECOM, 2019.

²⁴ A “quality sit-down” restaurant is characterized by sit-down meals with table service and a lower turnover rate, which results in a lower trip generation rate compared to the composite restaurant rate, which primarily includes to-go service or meals without table service.

²⁵ Gym was not included as a land use in the 2019 SF Guidelines. Therefore, the analysis used the 2002 SF Guidelines for trip generation as this is the most recent information for this type of land use. To account for recent changes to travel patterns such as TNCs, the ways people travel for retail uses from the 2019 SF Guidelines were applied to the proposed Gym.



Table 8: Trip Generation for Proposed Project

Land Use ¹	Amount ²	Daily Trip Rate ³	P.M. Peak Hour Trip Rate	Daily Person Trips	P.M. Peak Hour Person Trips
Hotel	200 rooms	8.4	0.6	1,680	120
Gym	35,230 sf	57.1	6	2,075	218
Restaurant ⁴	8,770 sf	200	27	2,010	271
Office	40,490 sf	15.7	1.4	625	56
Total	-	-	-	6,390	665

Notes:

1. Travel demand associated with the SFFD Fire Station 13 is not included here or subsequent tables because the proposed project would replace the existing fire station in the same location with no change to the number of staff or operations, and thus would not alter the number of trips or travel patterns associated with this existing land use.
2. Travel demand estimates were not calculated for the existing office space use and no credit was taken due to the difficulty in establishing the existing travel demand with COVID-19. The trip generation and transportation analysis are based on a previous project description that included 36,350 sf gym, 10,050 sf restaurant, and 39,800 sf of office space. The final project description shown above would slightly decrease the total trip generation as the decreases in the trip generation associated with the land uses with higher trip generation (gym and restaurant) are greater than the small increase in the trip generation associated with office space, which generates fewer trips per square footage than a gym or restaurant.
3. Daily and p.m. peak hour trip generation rates based on 2019 SF Guidelines for residential, office, and retail, and on 2002 SF Guidelines for Gym. Trip rates are expressed per bedroom for the hotel and per ksf for all other uses.
4. Trip generation rate for the proposed restaurant use is based on a "quality sit-down" restaurant as defined in the SF Guidelines, given the project description and typical amenities provided at other hotels in Downtown San Francisco. The amount of restaurant space includes 2,300 sf on level B2.

Source: SOM, 2020; SF Guidelines, 2019, SF Planning Department; Fehr & Peers, 2020.

Table 9: Trip Generation for Residential Variant

Land Use ¹	Amount	Daily Trip Rate ²	P.M. Peak Hour Trip Rate	Daily Person Trips	P.M. Peak Hour Person Trips
Residential	348 bedrooms ³	4.5	0.4	1,566	139
Total	-	-	-	1,566	139

Notes:

1. Travel demand associated with the SFFD Fire Station 13 is not included here or subsequent tables because the proposed project would replace the existing fire station in the same location with no change to the number of staff or operations, and thus would not alter the number of trips or travel patterns associated with this existing land use.
2. Daily and p.m. peak hour trip generation rates based on 2019 SF Guidelines for residential. Trip rate is expressed per bedroom for residential.
3. 191 studios/1-bedrooms/Jr 1-bedrooms, 38 2-bedrooms, 27 3-bedrooms.

Source: SOM, 2020; SF Guidelines, 2019, SF Planning Department; Fehr & Peers, 2020.

Trip Distribution & Mode Split

The estimated ways people travel to and from the project site are presented in **Table 10** and **Table 11**. The estimated ways people travel for work and non-work trips were based on the methods contained in the 2019 SF Guidelines for hotel, residential, restaurant, and office. The 2019 SF Guidelines trip distribution and mode split for retail uses were applied to the proposed gym because the 2002 Guidelines do not account for recent changes to mode share, such as the introduction of TNCs.



Table 10: Daily and P.M. Peak Hour Trip Generation by Mode for Proposed Project

Trip Mode ¹	Daily Person Trips ²	P.M. Person Trips
Auto	856	87
Taxi / TNC	571	50
Public Transit	1,302	148
Walk	3,435	358
Bike	226	22
Total Person Trips	6,390	665
Vehicle Mode	Daily Vehicle Trips ²	P.M. Vehicle Trips
Auto	564	55
Taxi / TNC	352	31
Total Vehicle Trips	916	86

Notes:

1. The 2019 *Guidelines* was used to determine the mode split for all land uses. The retail mode split was applied to the gym land use as this land use would operate as an amenity to other uses in Downtown San Francisco similar to retail. The mode split from the 2019 *Guidelines* accounts for recent changes to travel patterns such as TNCs since the 2002 *Guidelines*.
2. "Person trips" refers to the number of trips people would take to and from the project. "Vehicle trips" refers to the number of trips made by people traveling by private auto, carpool, and for-hire vehicle (e.g., taxi/TNCs).

Source: *SF Guidelines*, 2019, SF Planning Department; Fehr & Peers, 2020.

Table 11: Daily and P.M. Peak Hour Trip Generation by Mode for Residential Variant

Trip Mode	Daily Person Trips ¹	P.M. Person Trips
Auto	392	35
Taxi / TNC	94	8
Public Transit	438	39
Walk	595	53
Bike	47	4
Total Person Trips	1,566	139
Vehicle Mode	Daily Vehicle Trips ¹	P.M. Vehicle Trips
Auto	259	23
Taxi / TNC	63	5
Total Vehicle Trips	322	28

Notes:

1. "Person trips" refers to the number of trips people would take to and from the project. "Vehicle trips" refers to the number of trips made by people traveling by private auto, carpool, and for-hire vehicle (e.g., taxi/TNCs).

Source: *SF Guidelines*, 2019, SF Planning Department; Fehr & Peers, 2020.

Table 12 and **Table 13** present the daily and p.m. peak hour vehicle trips generated by the proposed project and residential variant, broken down by private auto and by taxi/TNC. The distribution of person trips is presented in **Appendix E**. The p.m. peak hour vehicle volumes were assigned to the roadway network as described below and used to inform the effect of the proposed project on hazards, accessibility, and public transit delay.



Table 12: Daily and P.M. Peak Hour Vehicle Trip Generation for Proposed Project

Mode	Daily			P.M. Peak Hour		
	Total	In	Out	Total	In	Out
Auto¹	564	273	291	55	18	37
Taxi / TNC^{1,2}	352	170	182	31	11	20
Total	916	443	473	86	29	57

Notes:

1. The number of in trips does not match the number of out trips based on the 2019 SF Guidelines travel demand approach, which relies on the combination of the average observations of multiple similar sites and census travel data.
2. Taxi/TNC vehicle trips have not been doubled to account for separate vehicle trips both to and from the project site, although each trip end is accounted for in the vehicle trip assignment per SF Guidelines requirements.

Source: *SF Guidelines*, 2019, SF Planning Department; Fehr & Peers, 2020.

Table 13: Daily and P.M. Peak Hour Vehicle Trip Generation for Residential Variant

Mode	Daily			P.M. Peak Hour		
	Total	In	Out	Total	In	Out
Auto¹	259	145	114	23	18	5
Taxi / TNC^{1,2}	63	35	28	5	4	1
Total	332	180	142	28	22	6

Notes:

1. The number of in trips does not match the number of out trips based on the 2019 SF Guidelines travel demand approach, which relies on the combination of the average observations of multiple similar sites and census travel data.
2. Taxi/TNC vehicle trips have not been doubled to account for separate vehicle trips both to and from the project site, although each trip end is accounted for in the vehicle trip assignment per SF Guidelines requirements.

Source: *SF Guidelines*, 2019, SF Planning Department; Fehr & Peers, 2020.

Vehicle Trip Distribution and Assignment

The proposed project's and residential variant's p.m. peak hour vehicle trips were assigned to study intersections based on the trip distribution patterns shown in **Figure 8** and **Figure 9**, and access/egress points for the project's parking garage entrance and loading spaces. Based on the estimated trip distribution, vehicle-trips were assigned to six primary routes:

- To/from the northwest via Columbus Avenue and/or Broadway;
- To / from north via Battery Street (inbound) / Sansome Street (outbound);
- To/from east and southeast via Washington Street (inbound from Drumm Street or The Embarcadero) and Clay Street (outbound to Davis Street or The Embarcadero);
- To/from south and southeast via Front Street (inbound) / Battery Street (outbound);
- To/from south and southwest via Bush Street (inbound) / Montgomery Street (outbound); and,
- To/from west and southwest via Kearny Street (inbound) / Montgomery Street (outbound).

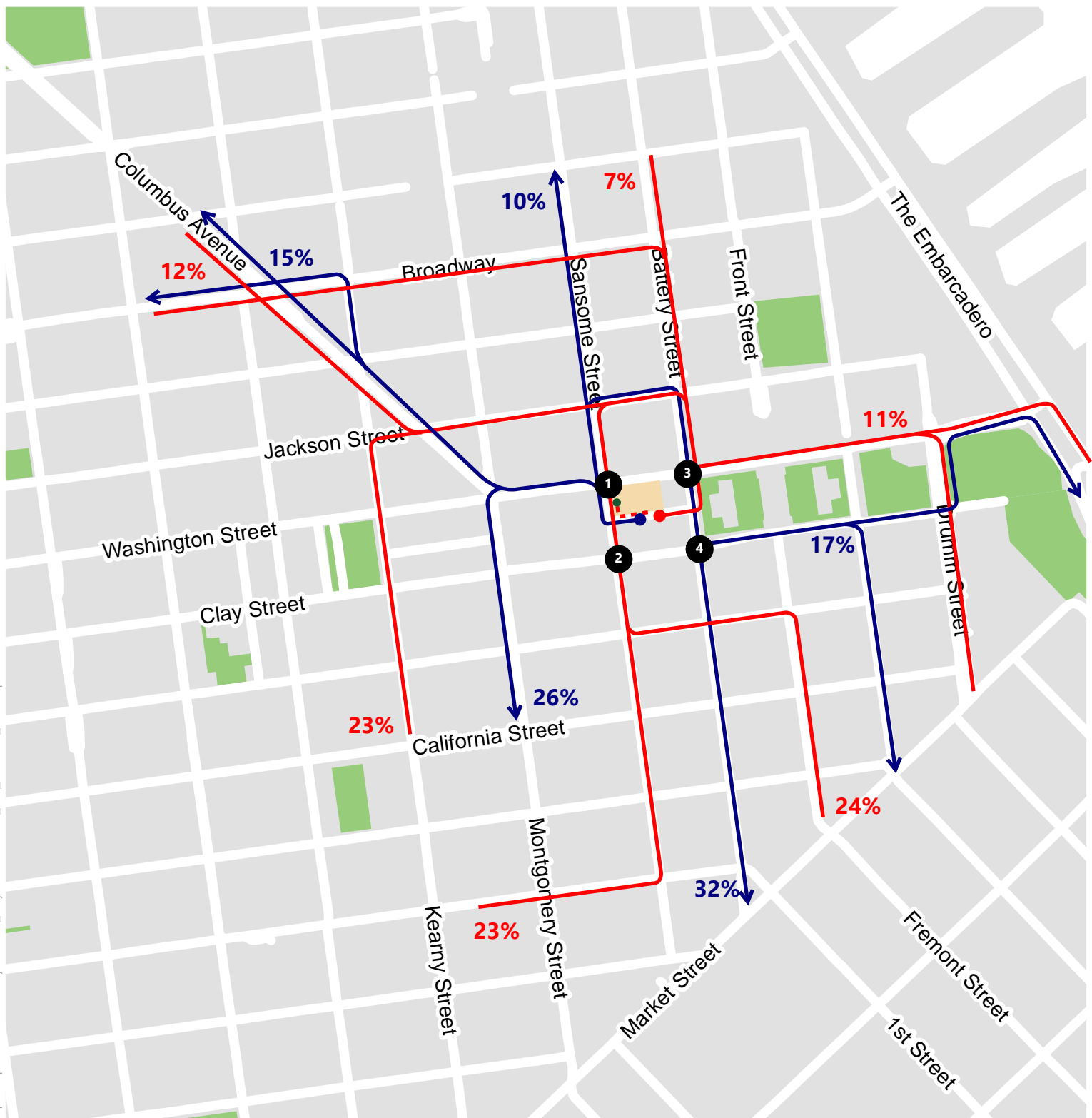


All automobile trips were assumed to use the valet service on Merchant Street or enter and exit the garage driveway on Merchant Street, and all Taxi / TNC trips would pick-up and drop-off at the Merchant Street during the p.m. peak period. During other periods of the day (outside of 3:00 p.m. to 7:00 p.m. on weekdays), the valet service and Taxi / TNC trips would pick-up and drop-off at the Sansome Street passenger loading zone. These assumptions would result in a conservatively high number of vehicle trips passing through the study intersections adjacent to the proposed project during the peak hour, representing a condition where cars may need to circle for parking as the 48 proposed parking spaces would not accommodate the 55 p.m. peak hour non-TNC/Taxi vehicles the project would generate. A more likely and less conservative analysis scenario would include many of the automobile trips parking in on-street parking on the surrounding blocks or parking garages outside of the study area, and thus travel through fewer study intersections.

The p.m. peak hour vehicle trips at the study intersections resulting from the proposed project and residential variant are presented in **Figure 10** and **Figure 11**, respectively. Traffic volumes at the four study intersections during the weekday P.M. peak hour under Existing plus Project Conditions are shown in **Figure 12** (proposed project) and **Figure 13** (residential variant).



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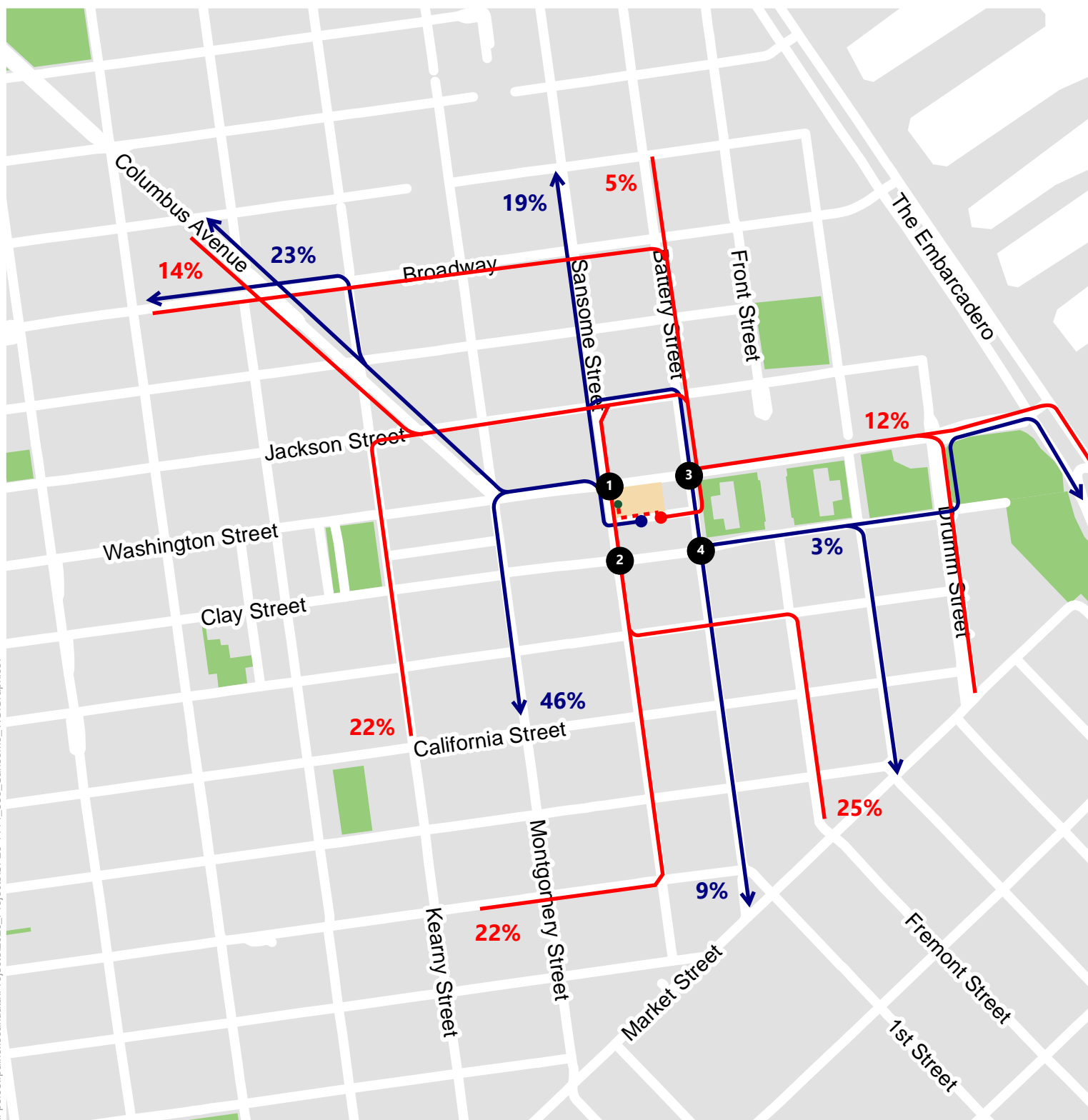
-  Project Site
-  Study Intersection
-  Inbound (Auto)
-  Outbound (Auto)
-  Pick-up/Drop-off Location



Figure 8
Trip Assignment/Distribution
Proposed Project

Note: The vehicle trips include the inbound and outbound legs for all TNC trips consistent with SF Guidelines requirements.

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-  Project Site
-  Study Intersection
-  Inbound (Auto)
-  Outbound (Auto)
-  Pick-up/Drop-off Location



Figure 9
Trip Assignment/Distribution
Residential Variant

Note: The vehicle trips include the inbound and outbound legs for all TNC trips consistent with SF Guidelines requirements.

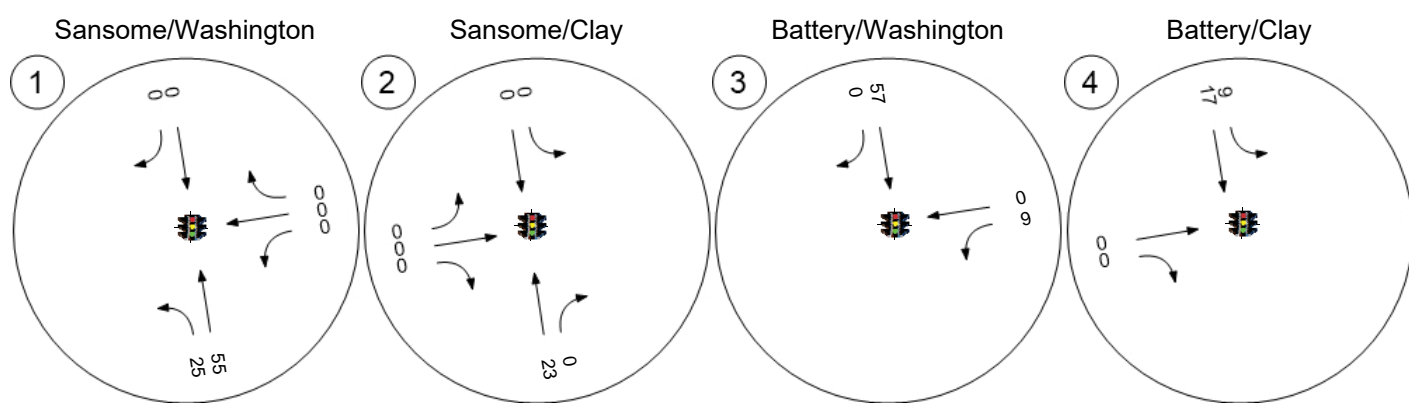
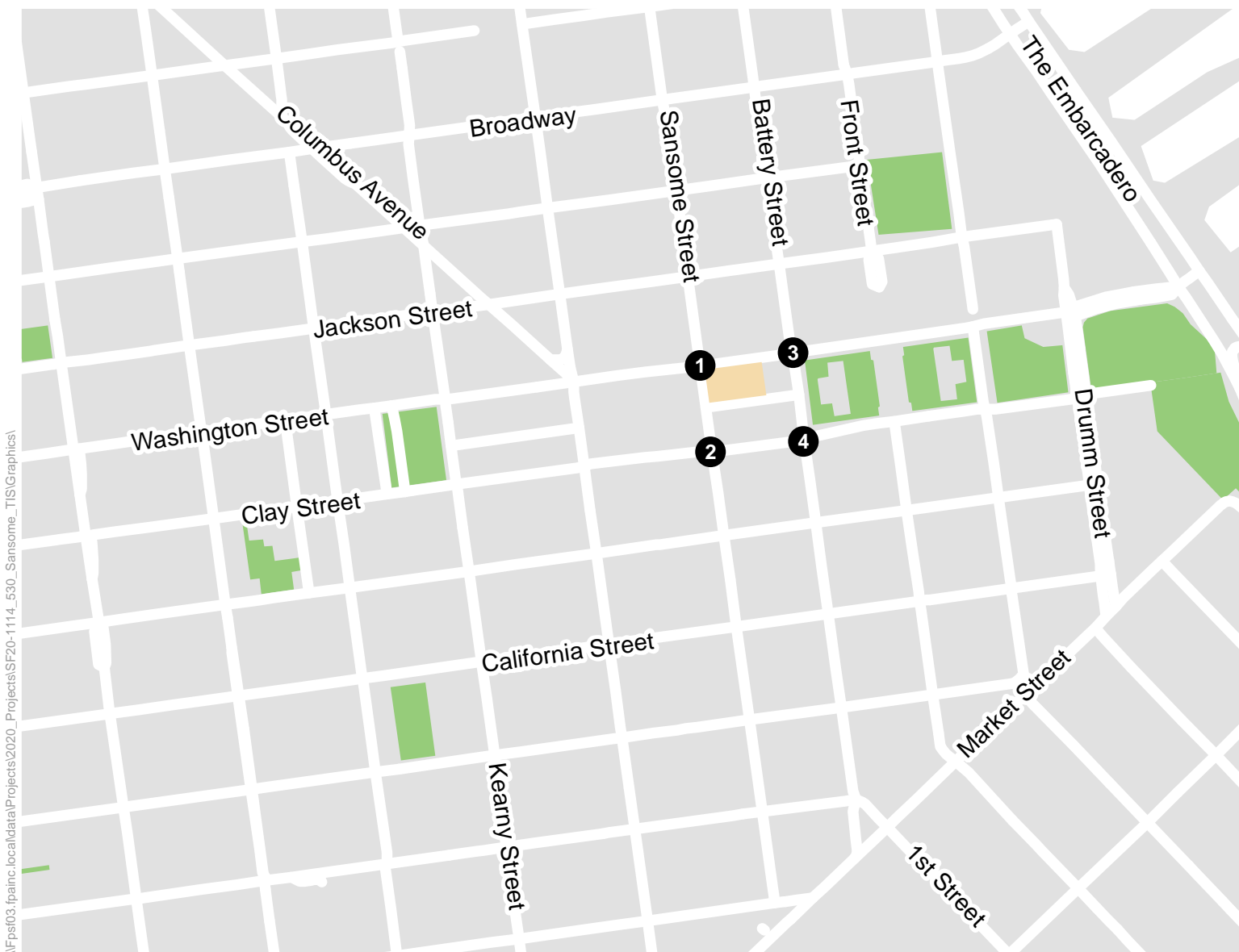


Figure 10
Intersection Traffic Volumes
Proposed Project

Note: The vehicle trips include the inbound and outbound legs for all TNC trips consistent with SF Guidelines requirements.

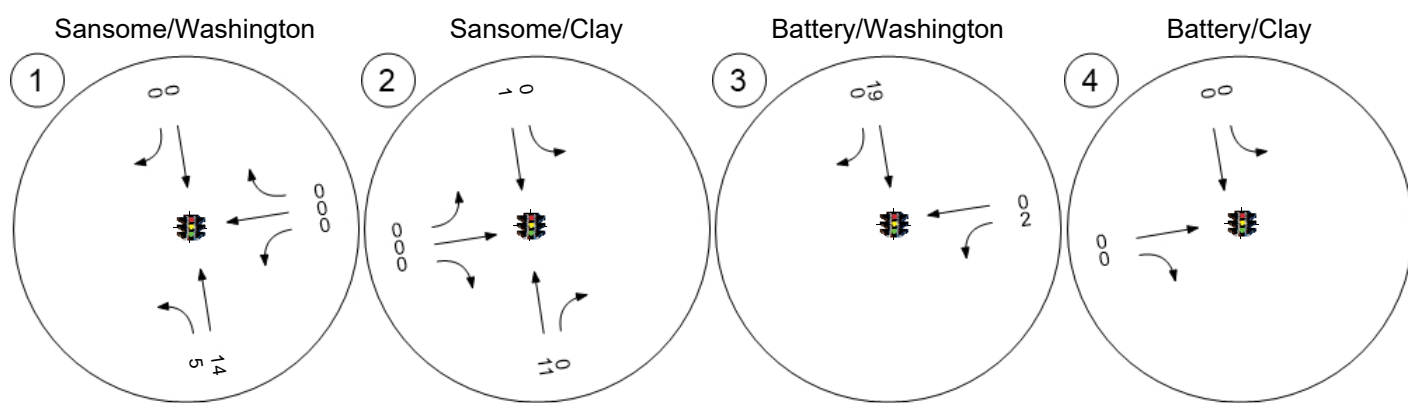
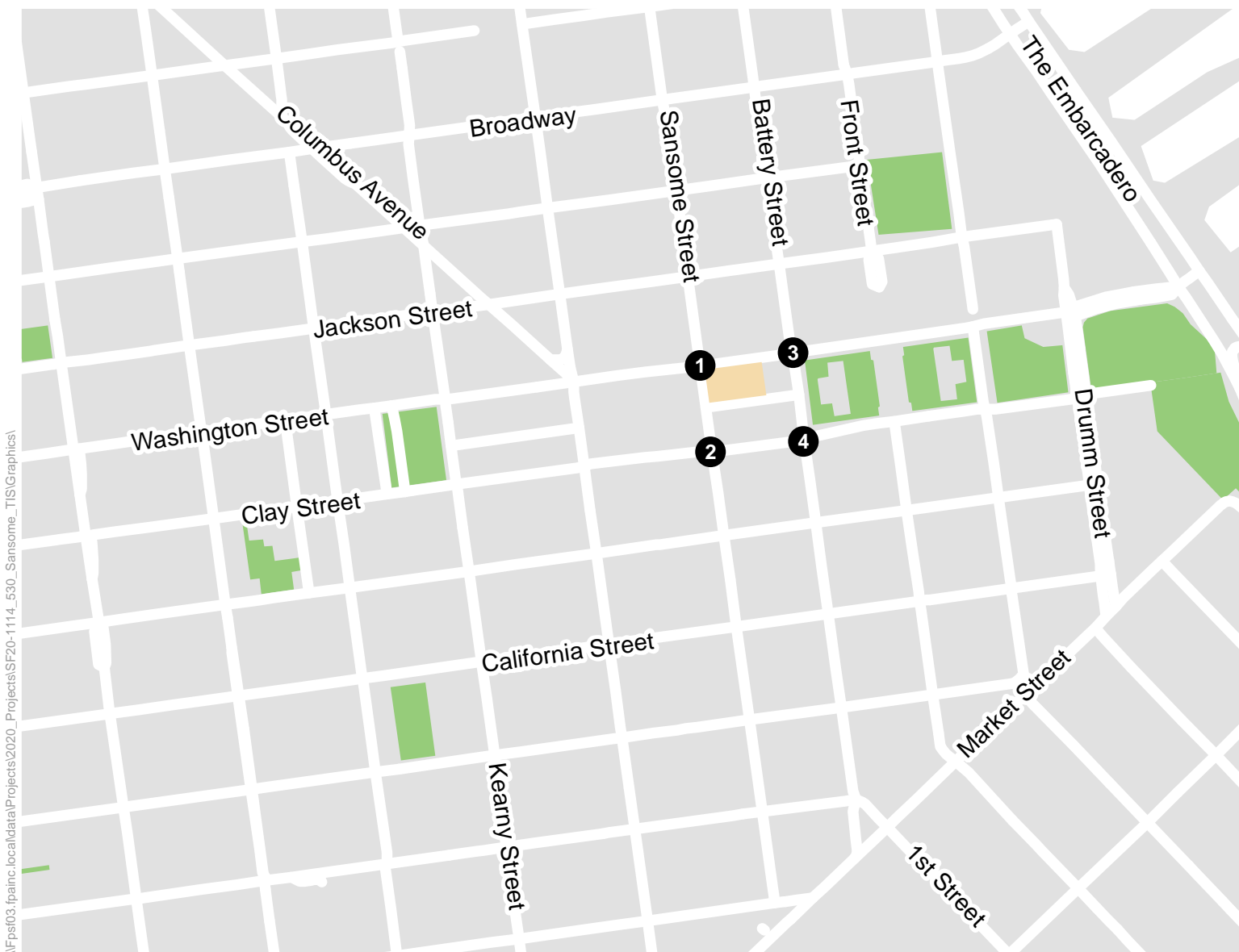
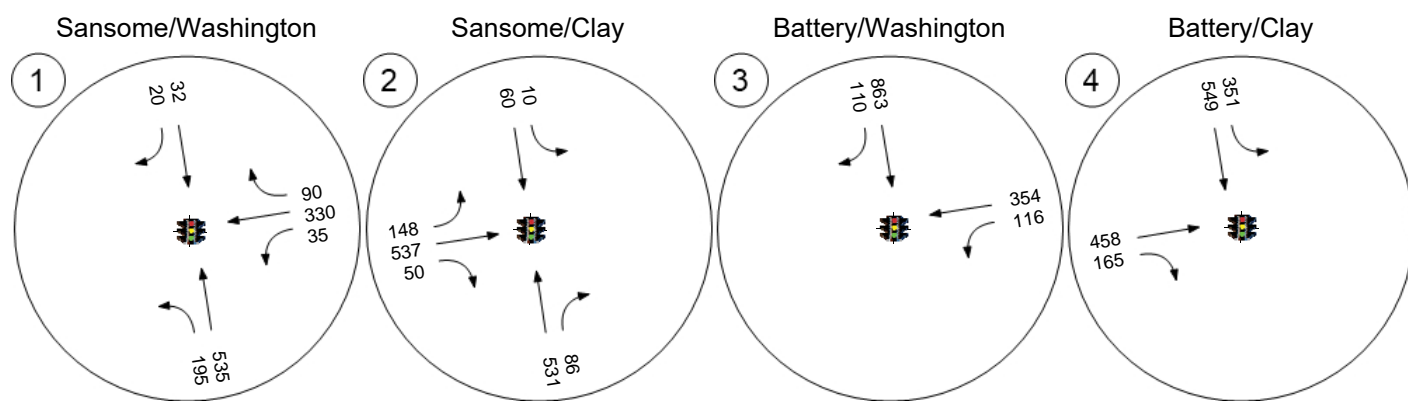
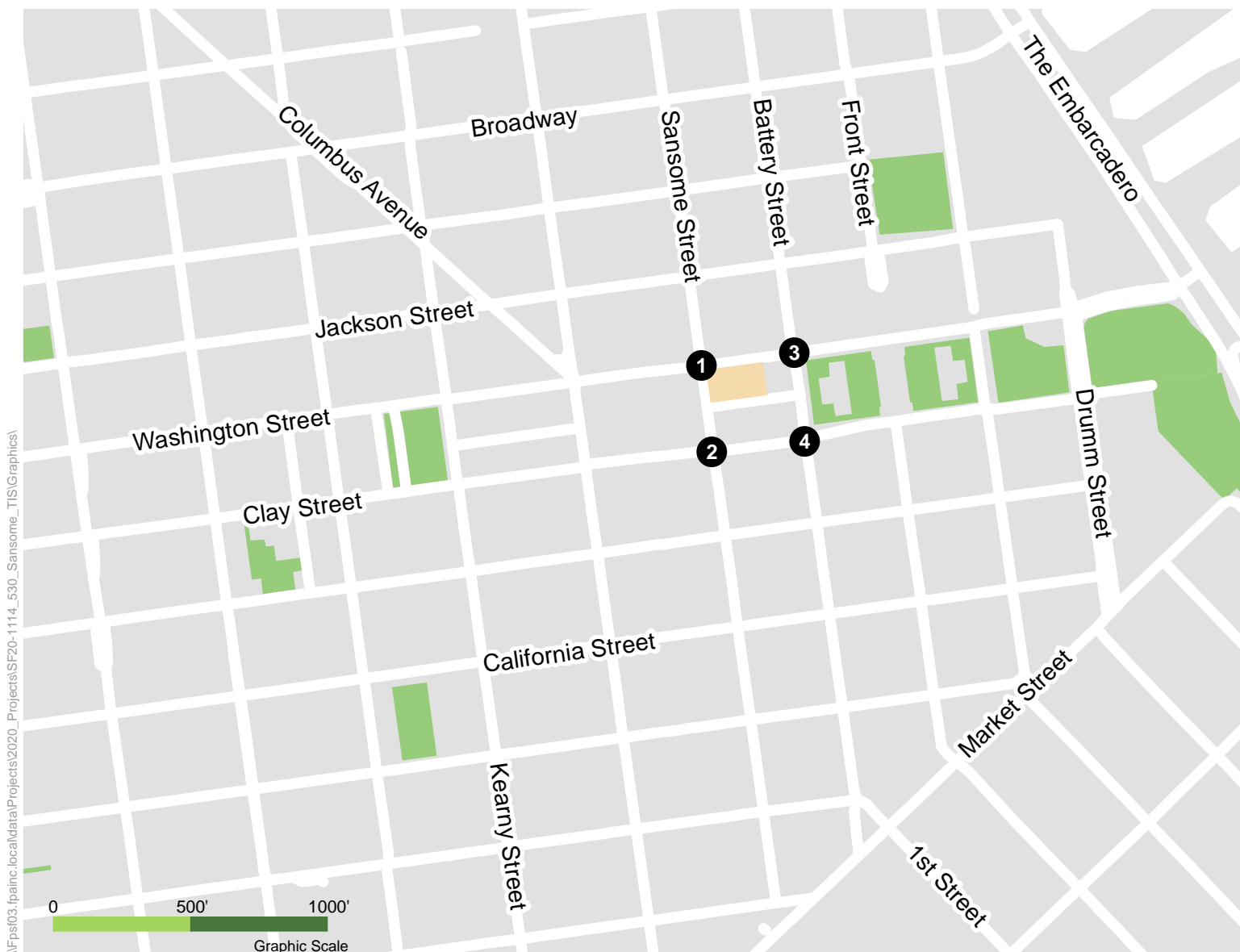


Figure 11
Intersection Traffic Volumes
Residential Variant

Note: The vehicle trips include the inbound and outbound legs for all TNC trips consistent with SF Guidelines requirements.

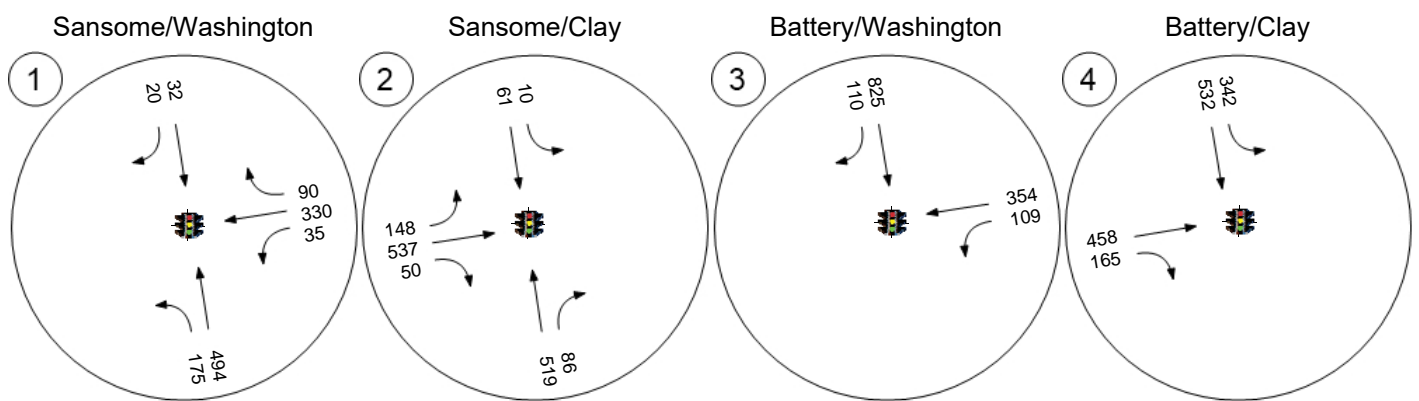
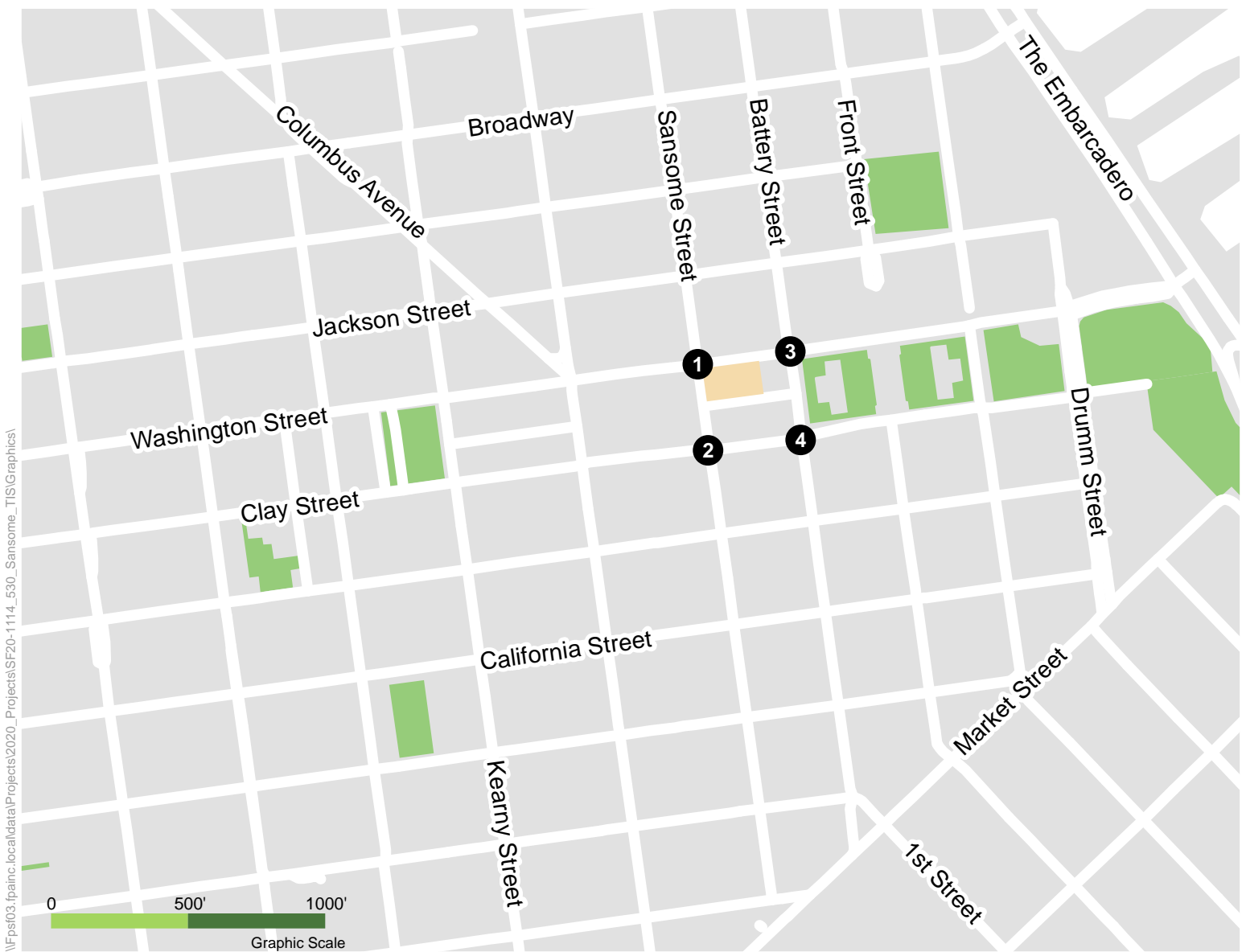


NOTE

1. Private vehicles turning onto Sansome Street from Washington Street are prohibited between 7 a.m. and 8 a.m. while the restriction does not apply to commercial vehicles, buses, taxis, and bicycles.
2. The vehicle trips include the inbound and outbound legs for all TNC trips consistent with SF Guidelines requirements.

Figure 12

P.M. Peak Hour Traffic Volumes
Proposed Project
Existing Plus Project



NOTE

1. Private vehicles turning onto Sansome Street from Washington Street are prohibited between 7 a.m. and 8 a.m. while the restriction does not apply to commercial vehicles, buses, taxis, and bicycles.
2. The vehicle trips include the inbound and outbound legs for all TNC trips consistent with SF Guidelines requirements.

Figure 13

P.M. Peak Hour Traffic Volumes
Residential Variant
Existing Plus Project

Loading Demand

Freight Loading Demand

The estimated freight loading demand (by land use) generated by the proposed project or residential variant during the p.m. peak hour is shown in **Table 14** and **Table 15**. Similar to the travel demand, the loading patterns associated with the SFFD Fire Station 13 are not presented because neither the proposed project nor the residential variant would alter the loading patterns of this existing land use. The proposed project or residential variant is expected to generate up to 31 daily truck trips and require two peak hour freight loading spaces. The 2002 SF Guidelines present hotel-specific loading data that indicate that 67 percent of freight loading occurrences would be from service vehicles; 28 percent from 30-foot-long single-unit trucks; and five percent from delivery vehicles larger than 30-foot-long single-unit trucks.

Table 14: Freight Loading Demand for Proposed Project

Land Use	Amount (sf) ¹	Daily Freight Loading Rate (per ksf)	Daily Truck Trips	Peak Hour Freight Loading Demand ² (spaces)
Hotel	149,965	0.09	13	0.75
Gym	35,230 sf	0.22	8	0.46
Restaurant	8,770 sf	0.22	2	0.12
Office	40,490 sf	0.21	8	0.46
Total	234,050	-	31	1.79³

Notes:

1. The hotel and restaurant space include 3,250 and 2,300 square feet on level B2, respectively, for the purpose of the transportation analysis.
2. The peak hour of truck trip generation generally occurs between 11:00 a.m. and 2:00 p.m. and is unrelated to the p.m. peak hour used in other transportation analyses per Appendix K of the 2019 TIA Guidelines. Peak hour truck trips are calculated as $[1.25 * (\text{total daily truck trips}) / 9\text{hr delivery window}]$. Peak hour freight loading demand is calculated using an average stop duration of 25 minutes. Freight loading would occur at the loading dock off Washington Street for all of the land uses; therefore, the peak hour freight loading demand by land use is not rounded to the nearest whole number as would be required for a project where freight loading occurs in separate locations for different land uses.
3. Rounded up to two freight loading spaces for the purposes of the impact analysis.

Source: *SF Guidelines*, 2019, SF Planning; Fehr & Peers, 2020.

Table 15: Freight Loading Demand for Residential Variant

Land Use	Amount (sf)	Daily Freight Loading Rate (per ksf)	Daily Truck Trips	Peak Hour Freight Loading Demand ¹ (spaces)
Residential	257,400	0.03	8	0.46
Total	257,400	-	8	0.46²

Notes:

1. The peak hour of truck trip generation generally occurs between 11:00 a.m. and 2:00 p.m. and is unrelated to the p.m. peak hour used in other transportation analyses. Peak hour truck trips are calculated as $[1.25 * (\text{total daily truck trips}) / 9\text{hr delivery window}]$. Peak hour freight loading demand is calculated using an average stop duration of 25 minutes.
2. Rounded up to one freight loading spaces for the purposes of the impact analysis.

Source: *SF Guidelines*, 2019, SF Planning; Fehr & Peers, 2020.



Passenger Loading Demand

Passenger loading demand for proposed project or residential variant during peak hour is two passenger car equivalents. Passenger loading demand was calculated according to the 2019 SF Guidelines and is summarized in **Table 16** and **Table 17**. Because Gym land uses are not included in the 2019 SF Guidelines, Gym passenger loading calculations use the passenger loading rate for retail in Place Type 1 for consistency with the mode split estimates presented above.²⁶

Table 16: Passenger Loading Demand for Proposed Project

Land Use	Passenger Loading % ¹	P.M. Peak Hour Loading Instances	Peak 15 Minute Spaces of Loading Demand ²
Hotel	21.8%	26	0.87
Gym ³	5.5%	12	0.40
Restaurant	5.5%	15	0.50
Office	7.3%	4	0.13
Total	-	57	1.90⁴

Notes:

1. Passenger loading percentage is the share of all person trips that involve a passenger loading event.
2. Peak loading demand is calculated using equations included in the *SF Guidelines* with an average stop duration of one minute and that half of peak hour loading demand occurs during the peak 15 minutes. Due to the PM peak period tow-way lane on Sansome Street, passenger loading for all land uses would occur in the proposed loading zone on Merchant Street during this period. Therefore, the peak hour passenger loading demand for each individual land use is not rounded to the nearest whole number as would be required for a project where passenger loading occurs in separate locations for different land uses.
3. Passenger loading rates were not calculated in the *2002 SF Guidelines* or provided in the *2019 SF Guidelines* for Athletic Club use. Given that the trip distribution and mode split information for retail uses is applied to the proposed Gym, Gym passenger loading calculations use the passenger loading rate for retail in Place Type 1 to provide a conservative estimate.
4. Rounded up to two passenger loading spaces for the purposes of the impact analysis.

Source: *SF Guidelines*, 2019; Fehr & Peers, 2020.

Table 17: Passenger Loading Demand for Residential Variant

Land Use	Passenger Loading % ¹	P.M. Peak Hour Loading Instances	Peak 15 Minute Spaces of Loading Demand ²
Residential	8.8%	12	0.4
Total	-	12	0.4³

Notes:

1. Passenger loading percentage is the share of all person trips that involve a passenger loading event.
2. Peak loading demand is calculated using equations included in the *SF Guidelines* with an average stop duration of one minute and that half of peak hour loading demand occurs during the peak 15 minutes.
3. Rounded up to two passenger loading spaces for the purposes of the impact analysis.

Source: *SF Guidelines*, 2019; Fehr & Peers, 2020.

²⁶ Geographic area that shares a similar mode share for vehicle use. The department identified three place types: "urban high density" (place type 1), "urban medium density" (place type 2), and "urban low density" (place type 3). Retail is presented as a proxy for the proposed Gym as they provide an amenity to residents, employees, and visitors in Downtown San Francisco in a similar manner to retail services.



Approach to Analysis

The following section describes the methodology for analyzing transportation impacts of the proposed project or residential variant and summarizes the quantitative threshold of significance for determining transportation impacts under existing plus project and cumulative plus project conditions. This analysis methodology uses data and guidance provided by the 2019 SF Guidelines. If the methodology differs from that in the guidelines, the following section summarizes such differences.

Significance Criteria

San Francisco Administrative Code chapter 31 directs the planning department to identify environmental effects of a project using as its base the environmental checklist form set forth in CEQA Guidelines Appendix G. As it relates to transportation and circulation, Appendix G asks whether the project would:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines section 15064.3(b), which pertains to VMT;
- Substantially increase potentially hazardous conditions due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); and
- Result in inadequate emergency access.

The planning department uses significance criteria to facilitate the transportation analysis and address the Appendix G checklist. The planning department separates the significance criteria into construction and operation.

Construction

Construction of the project would have a significant effect on the environment if it would require a substantially extended duration or intense activity; and the effects would create potentially hazardous conditions for people walking, bicycling, or driving, or public transit operations; or interfere with emergency access or accessibility for people walking or bicycling or substantially delay public transit.

Operations

The operational impact analysis addresses the following six significance criteria. A project would have a significant effect if it would:

- Create potentially hazardous conditions for people walking, bicycling, or driving or public transit operations
- Interfere with accessibility of people walking or bicycling to and from the project site, and adjoining areas, or result in inadequate emergency access



- Substantially delay public transit
- Cause substantial additional VMT or substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow travel lanes) or by adding new roadways to the network
- Result in a loading deficit and the secondary effects would create potentially hazardous conditions for people walking, bicycling, or driving; or substantially delay public transit
- Result in a substantial vehicular parking deficit and the secondary effects would create potentially hazardous conditions for people walking, bicycling, or driving; or interfere with accessibility for people walking or bicycling or inadequate access for emergency vehicles; or substantially delay public transit.

Analysis Periods and Scope

The geographic scope of potential transportation impacts encompasses the transportation study area and study intersections. The study area, shown in Figure 1, includes the block and adjacent intersections bordered by Washington Street to the north, Clay Street to the south, Sansome Street to the west, and Battery Street to the east.

The impact analysis was conducted for existing plus project and 2040 cumulative conditions. The existing plus project analysis assesses near-term project impacts, while the cumulative conditions analysis assesses near-term and long-term impacts of the proposed project in combination with cumulative development. The reasonably foreseeable projects relevant to the transportation analysis are presented in the cumulative plus project conditions section.

In San Francisco, the weekday extended p.m. peak period (Tuesday, Wednesday, or Thursday, 3:00 p.m. to 7:00 p.m.) is typically the period when the most overall travel happens. Although a substantial amount of travel occurs throughout the day, impacts from projects would typically be less during other periods; therefore, for most topics, the methodology focuses on the p.m. peak period (defined as 4:00 p.m. to 6:00 p.m.) as changes in travel demand or public right-of-way would be acute compared to other times of the day and days of the week.²⁷ The travel demand also presents daily person trip and vehicle trip generation. In addition, the methodology uses the 11:00 a.m. to 2:00 p.m. period to assess freight and commercial loading demand and 5:00 p.m. to 8:00 p.m. to assess passenger vehicle loading demand.

²⁷ While the 3:00 p.m. to 7:00 p.m. period is outlined in the 2019 *Guidelines* as the p.m. peak period, this study was limited to the availability of counts and observations representing pre-COVID conditions from the 447 *Battery Street Transportation Impact Study Final Report* (AECOM, Case No. 2014-1036ENV, November 7, 2019), as explained under the existing conditions section. As indicated in Appendix F of the 447 *Battery Street Transportation Impact Study Final Report*, the peak traffic volumes occurs between 5:15 and 5:30 at the study intersections and are generally consistent for the entire hour between 5:00 to 6:00 p.m., indicating that this hour is when the roadways are most saturated with vehicles on the surrounding Financial District streets.



Construction Impacts

The analysis for addressing project construction impacts uses preliminary project construction information. The evaluation addresses the staging and duration of construction activities, estimated daily worker and truck trips, truck routes, roadway and/or sidewalk closures, and evaluates the effects of construction activities on people walking, bicycling, or driving, and riding public transit and emergency vehicle operators. The analysis for addressing cumulative plus project construction impacts uses preliminary project construction information from reasonably foreseeable projects and applies the same impact methodology as existing plus project conditions.

Operational Impacts

The following describes the methodology for analysis of operational impacts, by significance criterion.

Vehicle Miles Traveled

Land Use Components

The department uses the following quantitative thresholds of significance to determine whether the project would generate substantial additional VMT:

- For residential projects, if it exceeds the regional household VMT per capita minus 15 percent.
- For office projects, if it exceeds the regional VMT per employee minus 15 percent.
- For retail projects, if it exceeds the regional VMT per retail employee minus 15 percent.²⁸
- For mixed-use projects, evaluate each land use independently, per the thresholds of significance described above.

The department uses VMT efficiency metrics (per capita or per employee) for thresholds of significance. VMT per capita reductions mean that individuals will, on average, travel less by automobile than previously but, because the population will continue to grow, it may not mean an overall reduction in the number of miles driven.

The department uses a map-based screening criterion to identify types and locations of land use projects that would not exceed these quantitative thresholds of significance. The San Francisco County Transportation Authority uses a model to present VMT for residential, office, and retail in San Francisco and the region, as described and shown under existing conditions. The department uses that data and

²⁸ Retail travel is not explicitly captured in San Francisco chained activity modeling process, rather, there is a generic "Other" purpose which includes retail shopping, medical appointments, visiting friends or family, and all other nonwork, non-school tours. The retail efficiency metric captures all of the "Other" purpose travel generated by Bay Area households. The denominator of employment (including retail; cultural, institutional, and educational; and medical employment; school enrollment, and number of households) represents the size, or attraction, of the zone for this type of "Other" purpose travel.



associated maps to determine whether a project site's location is below the aforementioned VMT quantitative threshold of significance.

Further, the department presumes residential, retail, and office projects, and projects that are a mix of these uses, proposed within one-half mile of an existing major transit stop (as defined by CEQA section 21064.3) or an existing stop along a high quality transit corridor (as defined by CEQA section 21155) would not exceed these quantitative thresholds of significance. However, this presumption would not apply if the project would: (1) have a floor area ratio of less than 0.75; (2) include more parking for use by residents, customers, or employees of the project than required or allowed, without a conditional use; or (3) is inconsistent with the applicable Sustainable Communities Strategy.²⁹

Transportation Components

The proposed project includes driveways for parking garages and loading docks, changes to color curbs, and pedestrian safety features such as curb bulb outs and raised crosswalks.

The department uses the following quantitative threshold of significance and screening criteria to determine whether transportation projects may substantially induce additional automobile travel: 2,075,220 VMT per year. This threshold is based on the fair share VMT allocated to transportation projects required to achieve California's long-term greenhouse gas emissions reduction goal of 40 percent below 1990 levels by 2030.

The department uses a list of transportation components that would not exceed this quantitative threshold of significance. If a project fits within the general types of projects (including combinations of types) listed below, then the department presumes that VMT impacts would be less than significant:

- Active Transportation, Rightsizing, and Transit Projects:
 - Infrastructure projects, including safety and accessibility improvements for people walking or bicycling
 - Installation or reconfiguration of traffic calming devices
 - Creation of new or addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for people walking, bicycling, and, if applicable, riding transit
- Other Minor Transportation Projects:
 - Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, or emergency breakdown lanes that are not used as through lanes

²⁹The SF Planning Department considers a project to be inconsistent with the Sustainable Communities Strategy if the project is located outside of areas contemplated for development in the Sustainable Communities Strategy.



- Timing of signals to optimize vehicle, bicycle, or pedestrian flow on local or collector streets
- Addition of transportation wayfinding signage
- Removal of off-street parking spaces

Cumulative Conditions

VMT by its nature is largely a cumulative impact. The number and distance of vehicular trips associated with past, present, and future projects might cause contribute to the secondary physical environmental impacts associated with VMT. It is likely that no single project by itself would be sufficient in size to prevent the region or state in meeting its VMT reduction goals. Instead, a project's individual VMT contributes to cumulative VMT impacts. The department uses near-term baseline plus project-level thresholds of significance based on levels at which the department does not anticipate new projects to conflict with state and regional long-term greenhouse gas emission reduction targets and statewide VMT per capita reduction targets.

Therefore, the department uses a map-based screening criterion to identify types and locations of land use projects that would not exceed the same quantitative thresholds of significance described under existing plus project conditions. The analysis uses the 2040 modeling of VMT estimates to present VMT for residential, office, and retail in San Francisco and the region. The department uses that data and associated maps to determine whether a project site's location is below the aforementioned VMT quantitative threshold of significance, including for the other land use types described above.

Loading

The methodology assesses the potential for convenient off- and on-street freight and passenger loading facilities to meet the project's loading demand during the average peak period. For the purposes of this section, convenient refers to facilities within 250 linear feet of a building entrance, either along the project frontage or across the street.

If convenient loading facilities meet the estimated demand, the analysis is complete. If convenient loading facilities do not meet the demand, then the methodology qualitatively addresses the potential for the project to exacerbate an existing or create a new potentially hazardous condition to people walking, bicycling, or driving or substantially delay public transit.

The analysis for addressing cumulative plus project loading impacts uses preliminary project loading information from reasonably foreseeable projects and applies the same impact methodology as existing plus project conditions.

Emergency Vehicle Access

The methodology qualitatively addresses the potential for the project to result in inadequate emergency access. The methodology accounts for the amount, movement type, sightlines, and speed of project vehicle trips and project changes to the public right-of-way in relation to emergency service operator



facilities. The analysis for addressing cumulative plus project emergency vehicle impacts uses preliminary project vehicle traffic information from reasonably foreseeable projects and applies the same impact methodology as existing plus project conditions.

Transportation Topics not Analyzed

In accordance with the proposed project's Circulation Study Final Scope of Work, dated October 2020, the following topic areas are not analyzed within this transportation study:

- Potentially hazardous conditions
- Accessibility
- Public transit delay
- Parking

The proposed project or residential variant, under existing plus project or cumulative plus project conditions, would not result in significant impacts related to these topics, as described below.

Potentially Hazardous Conditions

A "potentially hazardous condition" refers to a project generated vehicle potentially colliding with a person walking, bicycling, or driving or public transit vehicle that could cause serious or fatal physical injury, accounting for the aspects described below. Human error or non-compliance with laws, weather conditions, time-of-day, and other factors can affect whether a collision could occur. However, for purposes of CEQA, potentially hazardous conditions refer to engineering aspects of a project (e.g., speed, turning movements, complex designs, substantial distance between street crossings, sight lines) that may cause a greater risk of collisions that result in serious or fatal physical injury than a typical project.

The proposed project or residential variant would include design features that are consistent with the urban form of the surrounding blocks of the Financial District, which includes a mix of commercial, hotel, and residential towers with pedestrian oriented frontages on major streets and parking garage entrances on minor streets or alleyways. The proposed project or residential variant would provide streetscape features intended to reduce potentially hazardous conditions for people walking, such as the Merchant Street raised crosswalk at Sansome Street (raised crosswalk at Battery Street pending coordination with 447 Battery Street project) and the bulb-out at the corner of Sansome and Washington streets. The proposed project's POPOS programming on Merchant Street, including discouraging access for through vehicles, would not result in potentially hazardous conditions due to the low roadway volumes during the mid-day period (when POPOS programming would occur) and the design of the street that would require slow vehicle travel while entering and exiting the project's parking garage. The project sponsor would be required to include design features that ensure that the proposed project's POPOS operations would not create potentially hazardous conditions as a part of the POPOS condition of approval, subject to SFMTA and Planning Department approval. As there is no POPOS requirement for the residential variant, it would not include POPOS programming on Merchant Street. If the segment of the Merchant Street shared street fronting adjacent properties at 447 Battery Street is infeasible, the project sponsor and SFMTA would



incorporate standard design elements per the Better Streets Plan that provide for a transition between the existing alleyway east of the project site and the proposed shared street.

The proposed project and residential variant would generate 86 and 28 p.m. peak hour vehicle trips, respectively. As noted in the existing conditions section, the only roadway designated as a part of the Vision Zero network is Washington Street, from mid-block between Sansome and Battery streets extending to the west and is not located adjacent to any substantial concentrations of vulnerable populations. The proposed project and residential variant would add 25 and five vehicles to Washington Street during the p.m. peak hour, respectively. This represents up to a five percent increase in vehicles on the segment of Washington Street west of Sansome Street under the proposed project. Under cumulative plus project conditions, the 447 Battery Street project would add 10 vehicles to this roadway segment, other projects such as 545 Sansome Street project would add less than this.³⁰ The proposed project and residential variant would also generate 22 and 4 bicyclists, respectively, during the p.m. peak period onto the surrounding roadway network. This level of automobile traffic (five to 10 percent changes) and bicyclists would not represent a substantial increase in traffic nor result in potentially hazardous conditions along Washington Street or other surrounding streets.

Further, the SFFD emergency vehicle access on Washington Street includes audible warnings to alert people walking and bicycling and would not substantially change the existing fire station activities, and therefore would not substantially worsen existing conditions along Washington Street or other surrounding streets. Therefore, the proposed project or residential variant would not substantially exacerbate existing conditions or create a new potentially hazardous condition for people walking, bicycling, or driving, or public transit operations, nor would they combine with cumulative projects to result in a significant cumulative impact related to potentially hazardous conditions. The proposed TDM plan would further reduce the less than significant impacts associated with potentially hazardous conditions by reducing single occupant vehicle travel to the proposed project and residential variant. Potentially hazardous conditions are not discussed further in this study.

Accessibility

The department's methodology qualitatively addresses the potential for the project to interfere with the accessibility of people walking or bicycling. The proposed project or residential variant would include design features that are consistent with the urban form of the surrounding blocks of the Financial District, which includes a mix of commercial, hotel, and residential towers with pedestrian oriented frontages on major streets and parking garage entrances on minor streets or alleyways. As noted in the existing

³⁰ No transportation study is available for the 545 Sansome Street project (Planning Department Case No. 2020-001410ENV). Extrapolating the 14 p.m. peak hour office vehicle trip generation for the proposed 545 Sansome Street project's approximately 50,000 sf would result in fewer than 20 vehicle trips total on the roadway network. Based on the Memo to the Planning Commission (SF Planning, October 2020), the project would add 49,999 square feet of office space to the existing 55,759 square of office by replacing the adjacent one story retail building. Accessed by Fehr & Peers on March 25, 2021: <https://commissions.sfplanning.org/cpcpackets/2020-008009OTH.pdf>



conditions section, the surrounding blocks include adequate ADA facilities, and the proposed project or residential variant would reallocate the existing obstructions that reduce the effective sidewalk width to increase the effective width for people walking along Sansome and Washington streets to a minimum 7.5-foot-wide pathway for people walking (see **Appendix A** for sidewalk widths). The proposed project or residential variant would provide streetscape features that would improve accessibility for people walking and bicycling, such as the Merchant Street shared street (for the segment along the project site frontage) and the bulb-out at the corner of Sansome and Washington streets. Neither the proposed project nor the residential variant would create features that would interfere with accessibility for people walking or bicycling.

The proposed project or residential variant would not change the existing 10-foot-wide sidewalk along the project frontage on the south side Washington Street. While the proposed sidewalk width on Washington Street along the project frontage does not meet Better Streets Plan standards, which require a minimum 12 feet and recommended 15 feet width on typical commercial streets, the sidewalk width is sufficiently wide to accommodate the existing levels of pedestrian activity (500 people walking at the corner of Sansome and Washington streets). The project would add approximately 500 additional people walking (including transit riders) to the surrounding sidewalks during the p.m. peak period, or up to 665 people walking when accounting for passenger loading activity and people who may be walking from nearby parking garages. Most of these people would use Sansome Street or Merchant Street to access the primary entrances to the proposed building. The proposed project or residential variant would increase the width of Sansome Street to 12 feet and provide a shared street on Merchant Street to accommodate the increased activity associated to people accessing the proposed building. People walking on the southern sidewalk on Washington Street would be limited to a portion of those people walking to and from destinations to the east of the project site. In general, the increased level of pedestrian activity on Sansome or Washington streets would be less than pedestrian activity levels at places such as the southwest corner of Sansome and Clay streets (1,400 pedestrians) and would be similar to nearby locations on Washington, Battery, and Clay streets, which currently have adequate capacity for people walking. Therefore, even with an increased level of pedestrian activity, the proposed project or residential variant would not interfere with accessibility on surrounding streets. Along the Washington, Sansome, and Merchant Street frontages, the proposed hotel building would be partially set back from the property line to provide additional clear width, but this area is located on private property and architectural features and doorways protrude beyond the typical ground floor building edge, which prevent a continuous, uniform sidewalk width free of vertical obstructions. The Fire Station 13 building edge would be built to the property line on all public street frontages.

The proposed project's POPOS programming on Merchant Street, including discouraging access for through vehicles, would not interfere with accessibility as it would expand space for people walking while allowing vehicles to access the proposed project's parking garage. The project sponsor would be required to include design features in the proposed project that ensure that POPOS operations would not interfere with accessibility as a part of the POPOS condition of approval, subject to SFMTA and Planning Department approval, which would further reduce the proposed project's less-than-significant impact to accessibility of people walking or bicycling.



Other projects proposed for the area, such as 447 Battery Street and 545 Sansome Street projects, would improve accessibility for people walking or bicycling surrounding the project site through streetscape improvements described under the cumulative plus project conditions. While the sidewalk on Washington Street proposed by 530 Sansome would not meet the Better Streets Plan standards, the highest number of pedestrians generated by the 447 Battery Street or 545 Sansome Street project would occur along their project frontages. The sidewalks along the 530 Sansome Street project site frontage provide direct routes for a limited number of routes for people walking to and from the 447 Battery Street or 545 Sansome Street projects. Therefore, the 447 Battery Street or 545 Sansome Street project would not generate a substantial amount of people walking on the sidewalks fronting the 530 Sansome project. Similar to existing plus project conditions, the proposed sidewalks along the 530 Sansome frontage, in addition to other sidewalks in the project vicinity, would be sufficient for anticipated cumulative pedestrian volumes and activity. Therefore, the proposed project or residential variant would not interfere with accessibility for people walking or bicycling to or from the project site or adjoining areas, nor would they combine with cumulative projects to result in a significant cumulative accessibility impact. Accessibility for people walking or bicycling is not discussed further in this study. However, given that the proposed project and residential variant would include an emergency service facility (Fire Station 13), the accessibility for emergency vehicles is discussed further under existing plus project and cumulative plus project conditions.

Public Transit Delay

The planning department uses a quantitative threshold of significance and qualitative criteria to determine whether the project would substantially delay public transit. For individual transit lines, if the project would result in transit delay greater than or equal to four minutes or one-half headway, whichever is less, then it might result in a significant impact.³¹ The department considers the following qualitative criteria for determining whether that delay would result in significant impacts due to a substantial number of people riding transit switching to riding in private or for-hire vehicles: transit service headways and ridership, origins and destinations of trips, availability of other transit and modes, and competitiveness with private vehicles.

The proposed project or residential variant would not directly change facilities for public transit routes surrounding the project site, including Muni and Golden Gate Transit routes, nor would they add driveways to streets with transit. The proposed project and residential variant would generate 86 and 28 p.m. peak hour vehicle trips, respectively. This amount of traffic is substantially below the amount of traffic that could substantially delay public transit vehicles adjacent to a project site based on the screening criteria presented in Appendix I of the 2019 SF Guidelines (approximately 300 vehicles during the peak hour). Furthermore, the combination of the 530 Sansome Street project with the adjacent 447

³¹The threshold uses the adopted Transit First Policy, City Charter section 8A.103 85, percent on-time performance service standard for Muni, with the charter considering vehicles arriving more than four minutes beyond a published schedule time late.



Battery Street project (which would add an additional 48 p.m. peak hour trips during typical, non-special event conditions) would be substantially below this threshold under cumulative conditions. The only other project within a block of the project site, the 545 Sansome Street project, would expand an existing office space by approximately 50,000 sf and would add less than 20 vehicle trips to the roadway network during the p.m. peak hour. Therefore, the proposed project or residential variant would not substantially delay public transit service, nor would they combine with cumulative projects to result in a significant cumulative transit delay impact. Public transit delay is not discussed further in this study. The proposed TDM plan would further reduce the less than significant impacts to public transit by reducing single occupant vehicle travel to the proposed project and residential variant.

Parking

California Senate Bill 743 amended CEQA by adding California Public Resources Code (PRC) section 21099 regarding the analysis of parking impacts for certain urban infill projects in transit priority areas. PRC section 21099(d), effective January 1, 2014, provides that "... parking impacts of a residential, mixed-use residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment." Accordingly, parking is no longer to be considered in determining if a project has the potential to result in significant environmental effects for projects that meet all three criteria established in the statute. The proposed project or residential variant meet all of the criteria,³² and thus the transportation impact analysis does not consider the adequacy of parking in determining the significance of project impacts under CEQA. Parking is not discussed further in this study.

³² Senate Bill 743 Checklist, 530 Sansome Street, March 19, 2021.



Existing Plus Project Conditions

Construction Impacts

Proposed Project

The discussion of construction impacts is based on currently available information from the project sponsor, local and state regulations regarding use of the public right-of-way, and experience with typical construction practices in San Francisco. Changes to the transportation circulation network in the project area related to construction activities would be temporary and of limited duration.

Construction activities in San Francisco that have the potential to affect the transportation network are subject to SFMTA's San Francisco Regulations for Working in San Francisco Streets, also known as the Blue Book, as well as public works code and orders.³³ The authority for establishing the Blue Book is derived from the San Francisco Transportation Code. The Blue Book, which concerns primarily construction activities that affect the public right-of-way, is a manual for City agencies (public works, SFMTA, public utilities commission, the port, etc.), utility crews, private contractors, and others who work in San Francisco's public rights-of-way. It establishes rules for working safely and in a manner that results in the least possible interference with people walking, bicycling, taking transit, or driving and/or transit operations.

Should project construction activities not comply with regulations in the Blue Book or the traffic routing specifications in the City Contract,³⁴ or when two or more contractors work at a time on any one block,³⁵ the contractor would need to apply for a special traffic permit from SFMTA, which would specify conditions to ensure the safety and accessibility of all travel modes in and around the project site. A special traffic permit is issued for no more than 30 calendar days, after which the contractor is required to renew. The SFMTA may refuse to issue, extend, or revoke a special traffic permit depending on transportation network conditions at or near the project site.

With respect to public works, it is the policy of public works that a safe and accessible path of travel be provided for all people walking, including those with disabilities, around and/or through construction sites. To that end, the public works code includes requirements related to excavation in the public right-of-way (if this occurs) and development and implementation of a contractor's parking plan. Specifically,

³³ San Francisco Municipal Transportation Agency, *City and County of San Francisco Regulations for Working in San Francisco Streets*, eighth edition, January 2012, https://www.sfmta.com/sites/default/files/reports-and-documents/2020/06/blue_book_8th_edition_6-23-20.pdf. Accessed November 24, 2020.

³⁴ The SFMTA Traffic Routing Group is responsible for developing traffic routing specifications and traffic control plans for all street construction projects in the City. The specifications and plans are included in the final contract package. https://bsm.sfdpw.org/intern/announcements_xx/mta_20121107.aspx, accessed February 2021.

³⁵ Blue Book section 3.5.



the public works code section 724, which addresses temporary occupation of the public right-of-way, requires, among other things, a minimum clearance of four feet to accommodate pedestrian path of travel requirements. Section 724 also requires that lights, barriers, barricades, signs, cones, and other devices be provided to ensure pedestrian and traffic safety. Further, the public works code section 2.4.20, which addresses permits to excavate, requires that the applicant for an excavation for permit for major work, or excavation that will affect the public right-of-way,³⁶ that is 30 consecutive calendar days or longer to submit a contractor parking plan, including a proposal to reduce parking demand in the project site vicinity, to public works for its review.

In addition to Blue Book and public works regulations, contractors are responsible for complying with the City, state, and federal codes, rules, and regulations, including the California Manual of Uniform Traffic Control Devices,³⁷ as presented in **Appendix F**.

As stated above, project construction activities that do not comply with regulations in the Blue Book would require a special traffic permit from SFMTA, which would specify conditions to ensure the safety and accessibility of all travel modes in and around the project site. Examples of the types of work addressed through special traffic permits include sidewalk and walkway closures, alley and street closures, a temporary relocation of a transit stop and/or route, and bicycle route closures or detours.

Construction of the proposed project or residential variant are expected to begin in December 2021 and last approximately 29 months, with a completion date in April 2024. Construction activities would include, but not be limited to site demolition, preparation, grading and excavation, pile installation, foundation construction, building construction, architectural coating, the installation of utilities, paving, interior finishing and exterior streetscape, hardscaping, and landscaping.

The proposed project would generate up to 60 trucks per day during the excavation periods of the construction and 20 trucks per day during the remaining phases of construction. Trucks would use Third and Kearny streets to reach Clay Street then Sansome Street to reach the project site and Clay, Drumm, and Washington streets to reach The Embarcadero or Washington Street to Montgomery Street to leave the site. Trucks would enter and exit the site from Sansome or Washington streets, depending on where the construction is occurring. The proposed truck routes will be reviewed and approved by MTA to minimize conflicts and potentially hazardous conditions with other roadway users. The slower movement and larger turning radii of construction truck traffic may result in a temporary lessening of roadway capacities in the project area. Transit service may occasionally be temporarily delayed due to truck traffic in and out of the project site from Sansome Street; however, this level of truck traffic would not substantively delay public transit or result in hazardous conditions for people taking transit since trucks would be infrequent (average of five to six per hour between 7:00 a.m. and 6 p.m.) and would use streets

³⁶ The Public Works Code section 2.4.4 defines "major work" as any reasonably foreseeable excavation that will affect the public right-of-way for more than 15 consecutive calendar days.

³⁷ California Department of Transportation, *2014 California Manual of Uniform Traffic Control Devices*, revision 3, March 2018, <http://www.dot.ca.gov/trafficops/camutcd/>, accessed November 24, 2020.



designed to provide access to the existing fire station. Construction vehicles are not substantially larger than the fire department vehicles and are thus wide enough for large vehicles to maneuver into and out of the project site.

The approximate average number of construction workers onsite by shift would be 120, with a maximum of 270 workers per day between December 2022 and April 2024 during the building construction and architectural coating phases. Typical construction hours would be from 7:00 a.m. to 6:00 p.m., seven days a week. As required by Public Works Code section 2.4.20, the project would be required to prepare a contractor parking plan that addresses changes in parking supply. However, because parking shortfalls would be temporary in nature, variable depending on the construction activity, would occur prior to peak hours, and would be minimized by the contractor parking plan, the parking shortfall would not substantially affect conditions for people walking, bicycling, or public transit. The addition of worker-related transit trips is similarly temporary, variable, and off-peak, and would not substantially affect transportation conditions.

The project would stage all construction equipment on site, although at times Washington, Merchant, and Sansome streets would be required to stage equipment for unknown periods. Under the worst-case scenario (i.e., a most impactful scenario), the fronting sidewalks could be closed on Sansome, Washington, and Merchant streets simultaneously for the entire construction period (29 months). When a temporary closure of the sidewalk and parking lane on Washington Street is needed to stage equipment, a temporary sidewalk would be provided in the parking lane on Washington Street to maintain access for people walking as required by the Blue Book and to comply public works code section 724. The existing width of Washington Street (approximately 54 feet) with diagonal parking on the south side of the street means that approximately 20 feet of the roadway (in addition to the 10-foot sidewalk) is available on this frontage for staging and a walkway without requiring removal of travel lanes or parking on the north side of Washington Street. The temporary closure of the northern sidewalk on Merchant Street would require that people walk on the sidewalk on the south side of the alleyway. This would not substantially inhibit accessibility for people walking due to the short length of Merchant Street and the limited destinations people could be walking to. When closures of sidewalk on Sansome Street are required, such as during utility connections, repaving the sidewalk, or in the case of staging equipment on Sansome Street, the project sponsor will be required by the Blue Book and public works code section 724 to develop a traffic control plan with the SFMTA and Public Works to demonstrate how pedestrian pathways would be maintained without creating substantial delay to transit vehicles along Sansome Street. If additional closures to travel lanes are required, such as for tower crane erection, mat foundation placement, or utility work, the project sponsor would coordinate with the SFMTA to develop a traffic control plan required by the Blue Book and public works code section 724 to ensure the closures would not impede access at and around the project site. Notification and public meetings would be provided for any temporary traffic and transportation changes and reimbursement would be required to SFMTA for any signage and striping changes as required by the Blue Book.

Additionally, fire truck operations would be relocated during construction of the proposed project from Station 13 to nearby stations, including Stations 2, 28, 35, or 41, and continue to serve the Financial



District. These station locations are presented in **Appendix B**. Per San Francisco Fire Department,³⁸ the relocation would not cause a substantial disruption to emergency response coverage as those stations would be able to accommodate Station 13's operations and services at maintained at existing levels. Furthermore, the relocation of Station 13's operations would not require construction of any new facilities. The temporary relocation of fire vehicles and personnel to nearby stations is a part of routine operations for SFFD and would not represent a change to operations for the Station 13 service area. For these reasons, construction of the proposed project or residential variant would not interfere with emergency access or accessibility for people walking or bicycling.

Overall, construction activities would not be substantial enough to cause potentially hazardous conditions, delay public transit, or interfere with accessibility, and are required to be conducted in accordance with City requirements. Thus, the construction-related impacts of the proposed project would be less than significant.

Mitigation: None required.

Residential Variant

Construction of the residential variant would be the same as the proposed project as the building size and streetscape changes would not change. Construction activities associated with the residential variant would be required to comply with the relevant City requirements similar to the proposed project. Therefore, the construction details presented above for the proposed project, including the sequencing of project construction, the type and intensity of construction activities required, and the number of workers and trucks anticipated to be on site, would apply to the residential variant.

As the construction would not substantially differ between the proposed project and the residential variant, construction-related impacts associated with construction of the residential variant would similarly be less than significant.

Mitigation: None required.

Operational Impacts

Vehicle Miles Traveled (VMT)

Table 18 presents the existing average daily vehicle miles traveled (VMT) for residents in the nine-county San Francisco Bay Area and for TAZ 804, the zone in which the proposed project or residential variant site is located. TAZ 804 is bounded by Sansome Street to the west, Clay Street to the south, Battery Street to the east, and Washington Street to the north.

³⁸ Per email from Assistant Deputy Chief of Support Services Dawn DeWitt on Tuesday January 26, 2021.



Table 18: Existing Vehicle Miles Traveled

Land Use	Bay Area Regional Average	Bay Area Regional Average Minus 15% (Significance Threshold)	TAZ 804
Residential	17.2	14.6	2.5
Office ¹	19.1	16.2	7.9
Retail ²	14.8	12.6	8.7

Notes:

1. The proposed project would not change the travel characteristics nor number of employees at the fire station and therefore would not result in a change to VMT associated with the fire station. The VMT associated with office is used as a proxy for the amount of VMT generated by the Fire Station 13 employees.
2. Retail is presented as a proxy for the proposed Gym and restaurant land uses as they would provide an amenity to residents, employees, and visitors in Downtown San Francisco in a similar manner to retail services. Due to the density of complementary land uses and high transit accessibility to the project site, they would generate substantially less VMT compared to the rest of the region. For similar reasons, the visitors and employees of the hotel would reflect the travel characteristics of retail and office space, with substantially lower VMT than the significance threshold.

Source: San Francisco Transportation Information Map, 2019, SF Planning; Fehr & Peers, 2020.

The project site is located in a low VMT generating area. Adjacent office uses generate 7.9 VMT per employee, which is lower than 15 percent below the regional average for office uses (16.2 VMT). Adjacent retail uses generate 8.7 VMT per employee, which is lower than 15 percent below the regional average for retail uses (12.6 VMT). As noted in **Table 18**, the office and retail uses are used as proxy for the VMT generated by the fire station, hotel, gym, and restaurant uses due to the similar characteristics for the employees and visitors for each of these unique land uses. Furthermore, the proposed project would not change the travel characteristics nor number of employees at the fire station and therefore would not result in a change to VMT associated with Fire Station 13. Consistent with Planning Code section 169, proposed project includes a transportation demand management plan with measures and strategies to reduce single occupant vehicle travel to the project. The proposed transportation network changes include pedestrian amenities, driveways, a fire access lane, and color curb changes, which are not features that would induce automobile travel. Therefore, the VMT-related impacts to the proposed project would be less than significant. The proposed TDM plan would further reduce these less than significant impacts by reducing single occupant vehicle travel to the project.

Mitigation: None required.

Residential Variant

Similar to the proposed project, the residential variant would generate far less VMT per capita than the significance threshold as presented in **Table 18**. Adjacent residential uses generate 2.5 VMT per capita, which is lower than 15 percent below the regional average for residential uses (14.6 VMT). Consistent with Planning Code section 169, proposed project includes a transportation demand management plan with measures and strategies to reduce single occupant vehicle travel to the project. The proposed transportation network changes include pedestrian amenities, driveways, and color curb changes, which are not features that would induce automobile travel. Therefore, the VMT-related impacts due to the



residential variant would be less than significant. The proposed TDM plan would further reduce these less than significant impacts by reducing single occupant vehicle travel to the project.

Mitigation: None required.

Loading

Proposed Project

Freight Loading/Service Vehicles

As presented in **Table 2**, the proposed project would provide one off-street freight loading space and two service vehicle spaces. As presented in **Table 14**, the total freight loading demand generated by the proposed land uses would be an estimated 31 average daily freight loading occurrences and two peak hour freight loading occurrences. Therefore, the off-street freight loading space supply alone would not be sufficient to accommodate the peak hour freight loading demand. However, the majority of daily service vehicle activity associated with hotel consists of smaller vehicle types such as light trucks and panel vans that could be accommodated within the proposed off-street freight and service vehicle loading spaces.³⁹ Furthermore, the 2002 SF Guidelines include data that further corroborate the relationship between hotel uses and reliance on small service vehicles for most commercial vehicle activity. Specifically, the data indicate that 67 percent of freight loading occurrences would be from service vehicles; 28 percent from 30-foot-long single-unit trucks; and five percent from delivery vehicles larger than 30-foot-long single-unit trucks. Service vehicles would be able to access the service vehicle spaces in the parking garage at all times, including when vehicle through traffic is discouraged on Merchant Street during POPOS programming hours.

The off-street freight loading space would be located on the Washington Street frontage approximately 100 feet east of the Sansome Street curb face. The freight loading dock is proposed to be 30 feet long, which would adequately accommodate freight trucks without blocking the sidewalk on Washington Street. Freight trucks would pull past the loading dock on Washington Street and reverse into the loading dock. As shown in truck turning templates presented in **Appendix G**, these truck movements could be accommodated within Washington Street and would not interfere with SFFD vehicles exiting the fire station on Washington Street. Furthermore, a gate arm or other traffic control feature at this loading dock would restrict commercial vehicle egress from the loading dock during a SFFD departure event. There is no transit service on Washington Street east of Sansome Street that could be delayed by a freight loading turning movement. Approximately once or twice a day, a vehicle longer than 30 feet is expected to serve the project site⁴⁰ and would need to load at convenient loading zones (e.g., within 250 linear feet of the

³⁹ Figure 60, page 111 of the *San Francisco Travel Demand Update: Data Collection and Analysis* (Fehr & Peers, 2018). This document is also Appendix F of the February 2019 SF Guidelines.

⁴⁰ Five percent of 31 daily loading vehicles results in one to two large freight trucks per day.



project site) on adjacent streets, such as at the yellow loading zones on the west side of Sansome Street south of Mark Twain Street.

The proposed project would remove up to seven of the existing 14 freight loading spaces on the block surrounding the project site, including one space on Sansome Street, up to four spaces on Merchant Street adjacent to the project site, and two freight loading spaces on Washington Street. As noted in the existing loading section, only six percent of the existing freight loading spaces on the block surrounded by Washington, Battery, Merchant, and Sansome streets was used by freight vehicles on average, representing less than one freight vehicle serving the existing land uses on the project site. The remaining use of these spaces was for non-permitted uses, such as parking (40 percent average utilization) and for passenger loading (four percent average utilization) for adjacent commercial land uses. Therefore, the removal of the existing freight loading spaces as part of the 530 Sansome Street project would not substantially affect the ability for freight vehicles to serve adjacent properties.

For the above reasons, even though the freight loading activity generated by the proposed project would not be accommodated by the proposed off-street freight loading space accessible from Washington Street and the project would remove some of the existing freight loading spaces in the project site vicinity, the project would not create hazardous conditions people walking, bicycling, or driving, or create substantial delays to transit. Therefore, the proposed project would have a less than significant freight loading impact. Further, the driveway loading and operations conditions of approval would further reduce the proposed project's less-than-significant impact to other roadway users by creating protocols for managing infrequent large vehicle deliveries.

Passenger Loading

The project proposes an approximately 100-foot-long passenger loading zone (approximately five spaces) on Sansome Street and an approximately 40-foot-long p.m. peak period passenger loading zone⁴¹ (approximately two spaces) on Merchant Street. Both loading zones would be served by curbside valet stations where valet drivers would shuttle cars to and from the loading zones and the off-street parking facility accessible from Merchant Street. The valet service would increase the efficiency of the passenger loading zone and help ensure demand does not exceed supply and reduce potentially hazardous conditions for other roadway users through the active management by an attendant. The Sansome Street passenger loading zone is located in a peak hour tow-away lane, and therefore would be unavailable during the p.m. peak period (3:00 to 7:00 p.m.). During this time, the Merchant Street passenger loading zone would remain available for passenger loading activity. As presented in **Table 16**, the proposed project would generate demand for 57 p.m. peak-hour passenger loading occurrences and two passenger loading spaces per minute during the peak 15-minute periods. Peak loading demand is calculated using equations included in the SF Guidelines, which note that half of peak hour loading demand occurs during

⁴¹ The Merchant Street loading spaces would be utilized for loading during the PM peak period (3:00 pm to 7:00 pm) and programmed with movable furniture during typical business hours (i.e., for use as POPOS).



the peak 15 minutes and the average stop duration is one minute. The peak period for passenger loading demand occurs from 5:00 p.m. to 8:00 p.m. and therefore this demand could occur while the loading zone on Merchant Street is available from 5:00 p.m. to 7:00 p.m. or while the loading zone on Sansome Street is available from 7:00 p.m. to 8:00 p.m. Both passenger loading zones would accommodate the proposed project's estimated peak-hour demand.

Informal parking and loading activities associated with the SFFD that currently occur on Merchant Street would shift to the south side of Washington Street within the red curb zone shown on **Figure 3**. This activity is a part of regular SFFD operations, and the fire access lane would be wide enough to accommodate this activity without disrupting emergency access to the new fire station.

Therefore, the proposed project would accommodate peak hour passenger loading demand within convenient on-street loading zones and would not result in a passenger loading demand that would create potentially hazardous conditions or significant delays for people driving, riding transit, bicycling, or walking. The proposed project would have a less than significant impact on passenger loading conditions.

Mitigation: None.

Residential Variant

Freight Loading/Service Vehicles

Similar to the proposed project, the residential variant would provide one off-street freight loading space and two service vehicle spaces. As presented in **Table 15**, the residential variant would generate demand for fewer truck loading spaces than the proposed project, with an estimated eight average daily freight loading occurrences and one peak hour freight loading occurrence. Occasionally, residential buildings are served by trucks larger than 30 feet, such as for move-in/move-out activities. These vehicles would need to load at convenient loading zones (e.g., within 250 linear feet of the project site) on adjacent streets, such as at the yellow loading zones on the west side of Sansome Street south of Mark Twain Street. Individuals or building management would be required to reserve spaces through SFMTA's temporary signage program. Therefore, the off-street freight supply alone would be sufficient to accommodate the peak hour freight loading demand for the residential variant.

Similar to the proposed project, the residential variant's off-street freight loading space would be located on the Washington Street frontage approximately 100 feet east of the Sansome Street curb face and is designed to accommodate a 30-foot-long freight trucks without blocking the sidewalk on Washington Street. The loading dock would include features similar to those in the proposed project and would not conflict with operations of the proposed SFFD Fire Station 13. Further, the residential variant would include similar streetscape features that would remove a similar number of existing freight loading spaces and existing freight loading demand could be accommodated in nearby freight loading spaces. Therefore, freight loading activity generated by the residential variant and the removal of existing freight loading spaces would not result in an unmet freight loading demand that would create hazardous conditions people walking, bicycling, or driving, or create substantial delays to transit. The driveway loading and operations conditions of approval would create protocols for large vehicle deliveries (such as residential



move-in) to manage these infrequent activities. Thus, the residential variant would have a less than significant freight loading impact. Further, the driveway loading and operations conditions of approval would further reduce the residential variant's less-than-significant impact to other roadway users by creating protocols for managing infrequent large vehicle deliveries.

Passenger Loading

Similar to the proposed project, the residential variant would provide an approximately 100-foot-long passenger loading zone (approximately five spaces) on Sansome Street and an approximately 40-foot-long p.m. peak period passenger loading zone⁴² (approximately two spaces) on Merchant Street with valet service for residents at both locations. As presented in **Table 17**, the proposed project would generate demand for 12 p.m. peak-hour passenger loading occurrences and one passenger loading space per minute during the peak 15-minute periods. Peak passenger loading demand is calculated using equations included in the 2019 SF Guidelines, which note that half of peak hour passenger loading demand occurs during the peak 15 minutes and the average stop duration is one minute. Similar to the proposed project, the passenger loading demand generated by the residential variant would be accommodated within the passenger loading zones on Sansome or Merchant streets during the p.m. peak period. Therefore, similar to the proposed project, the residential variant would not result in an unmet passenger loading demand that would create potentially hazardous conditions or significant delays for people driving, riding transit, bicycling, or walking. The residential variant would have a less than significant impact on passenger loading conditions.

Mitigation: None required.

Because no significant impacts were identified, no mitigation is required.

Emergency Vehicle Access

Emergency vehicle access to the project site is currently provided along Washington, Sansome, and Merchant streets. Along Merchant Street and other alleys, larger emergency vehicles may have some difficulty negotiating turns or securing sufficient space to deploy outriggers or other apparatus due to narrower curb-to-curb widths. However, the proposed project would not include features that would inhibit emergency vehicle access serving the site and pedestrian features such as corner bulb outs, the Merchant Street shared street, and street trees would be designed to allow emergency vehicle access. The proposed project provides measures to support the relocated fire station access from Washington Street. These measures would include the emergency vehicle preemption system installed at the traffic signals on Washington Street at the Sansome Street and Battery Street intersections and a fire only lane and 'KEEP CLEAR' markings on Washington Street. As shown in truck turning templates presented in **Appendix G**, non-fire/freight truck movements into and out of the freight loading dock could be accommodated within Washington Street and would not interfere with SFFD vehicles exiting the fire station. Furthermore, a gate

⁴² The Merchant Street loading spaces would be utilized for loading during the PM peak period (3:00 pm to 7:00 pm).



arm or other traffic control feature at this loading dock would restrict commercial vehicle egress from the loading dock during a SFFD departure event. California Vehicle Code section 21806 requires that all non-emergency vehicles yield right-of-way to emergency vehicles so general traffic congestion in the vicinity of the Project site would not result in substantial delay to emergency vehicle response. Therefore, emergency vehicles would continue to be able to serve the project site and the proposed project would not interfere with accessibility for emergency services and impacts due to the proposed project would be less than significant.

Mitigation: None required.

Residential Variant

The residential variant would provide similar design features as the proposed project, including the location of the fire station's truck access, fire lane, and Keep Clear Zone on Washington Street and the shared street on Merchant Street. Similar to the proposed project, these design features would not interfere with accessibility for emergency services. Therefore, emergency access impacts due to the residential variant would be less than significant.

Mitigation: None required.



Cumulative (2040) Plus Project Conditions

Land Use and Transportation Changes

The analysis of Cumulative Conditions considers foreseeable changes to both land use development and the transportation network, as described in further details in the following subsections. There are several currently active development projects in the vicinity of the project site that are “small-site” development that generally comply with existing zoning and height/bulk restrictions. Given the size of the proposed project and the focus of the study area on transportation impacts related to construction, vehicle miles traveled, loading, and emergency vehicle access, the focus of this cumulative conditions analysis is on the cumulative effects of the nearby 447 Battery Street and 545 Sansome Street projects. Other development projects within one-quarter mile, as shown in **Appendix H**, obtained from the Preliminary Mitigated Negative Declaration for 530 Sansome Street project,⁴³ would not generate a substantial number of vehicle or other trips through the study area and would not otherwise contribute to transportation conditions adjacent to the project site. Therefore, these projects are not discussed further.

While citywide growth or growth envisioned through large developments or community plans such as the Central SoMa Plan or the Eastern Neighborhoods plans may result in traffic volume changes in the study area, the cumulative effect of this on construction impacts, vehicle miles traveled, loading activity, or emergency vehicle access would be negligible. The traffic volumes at the four study intersections during the weekday P.M. peak hour under Cumulative plus Project Conditions are shown in **Figure 14** and **Figure 15** for the proposed project and residential variant, respectively.

The nearby development and transportation projects considered in this cumulative analysis are summarized below.

447 Battery Street

A new mixed-use hotel building with approximately 198 guest rooms, 6,800 sf of ancillary event space, and 7,500 sf of restaurant use. The 447 Battery Street project includes streetscape and color curb changes to Merchant and Battery streets. The 447 Battery Street project includes driveway access from Merchant Street to a parking garage with 24 off-street automobile parking spaces on the western edge of that site, adjacent to the proposed project site. The 447 Battery Street project would include a freight loading dock within the parking garage and would establish a new 74-foot passenger loading zone (approximately three spaces) along the entire Battery Street frontage of that project site. The 447 Battery Street project

⁴³ Administrative Draft 1 Preliminary Mitigated Negative Declaration for 530 Sansome Street, Case No.: 2019-017481ENV, January 6, 2021.



proposed a similar shared street design as is currently being proposed by the proposed project and residential variant, and thus would extending the shared street for the entire block of Merchant Street. If the 447 Battery Street project is approved, it would be responsible for implementing the streetscape changes fronting the 447 Battery Street property on Merchant Street.

545 Sansome Street

An approximately 50,000 sf office and 2,400 sf retail addition to an existing mixed-use retail and office building for a total of 100,000 sf of office and 5,400 sf of retail uses. No off-street parking, driveways, or streetscape changes are proposed by this project.

Muni Forward

SFMTA is planning to implement the following Muni Forward service changes through the study area.

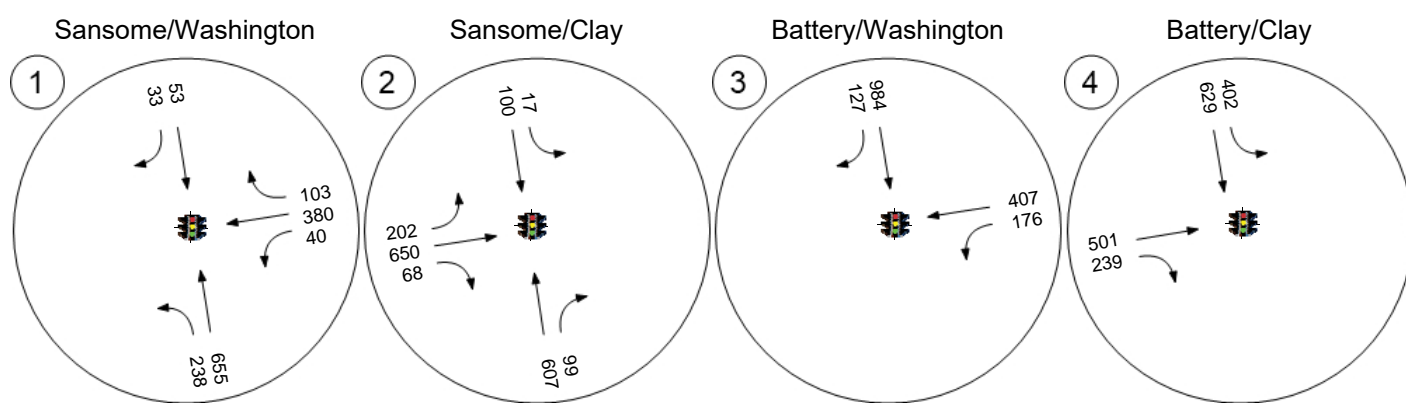
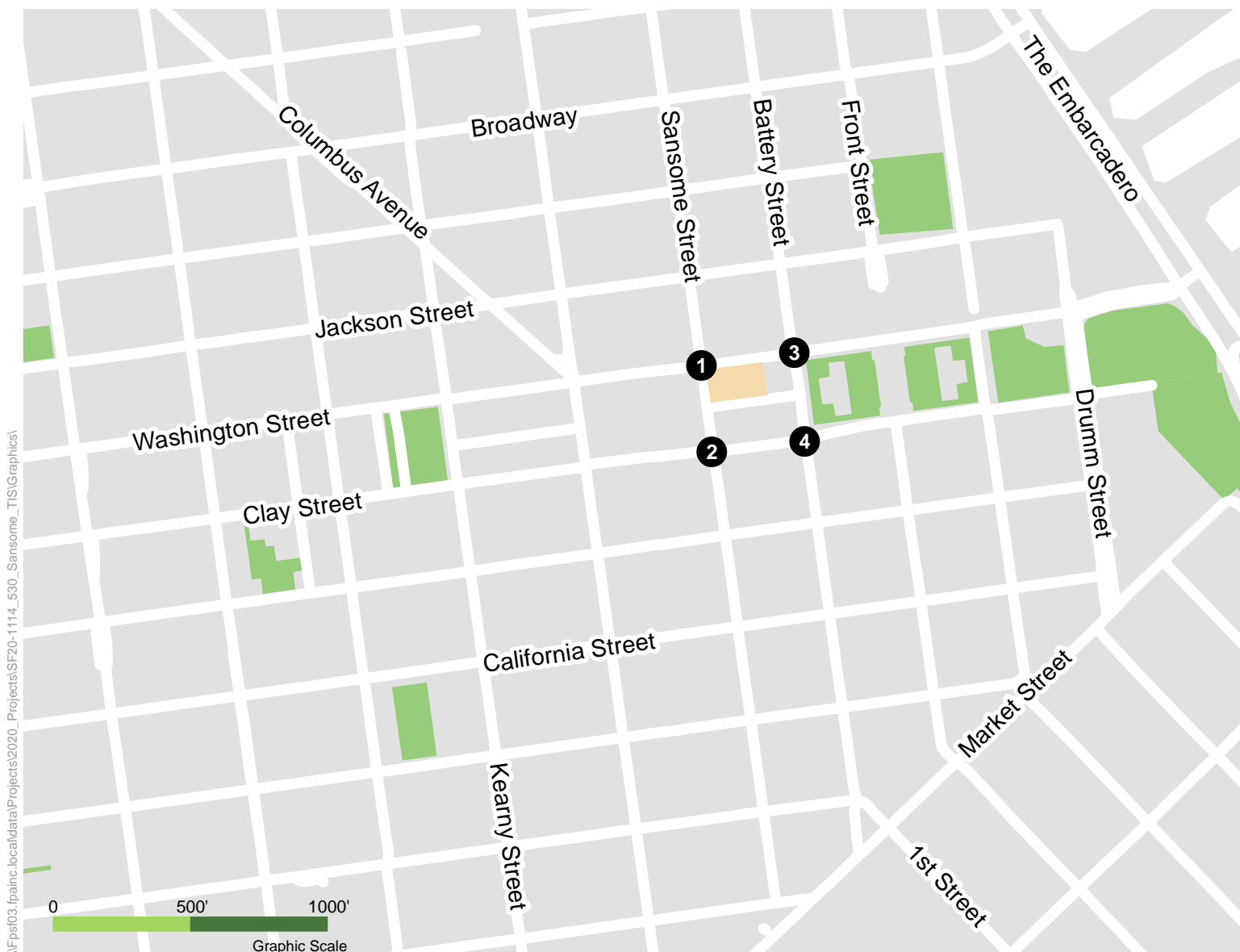
10 Townsend

Muni Forward proposes to improve headways during the weekday a.m. and p.m. peak periods (from 20 minutes to 6 minutes) and during the weekday midday period (from 20 minutes to 10 minutes). South of the study area Muni Forward proposes to change the route west of Fourth Street through Showplace Square and the northern portions of Potrero Hill (replacing the existing route via Townsend Street with a new route through Mission Bay) and at the southern terminal near San Francisco General Hospital.

12 Folsom / Pacific

Muni Forward proposes replace the 12 Folsom / Pacific south of Washington Street / Clay Street through the Financial District, Transbay, Central SoMa, West SoMa, and the Mission with a new 11 Downtown Connector, and to the north with a more frequent 10 Townsend. The new 11 Downtown Connector route will follow Columbus Avenue, Powell Street, and North Point Street through North Beach and Fisherman's Wharf to a terminus at Aquatic Park (Van Ness Avenue / North Point Street).



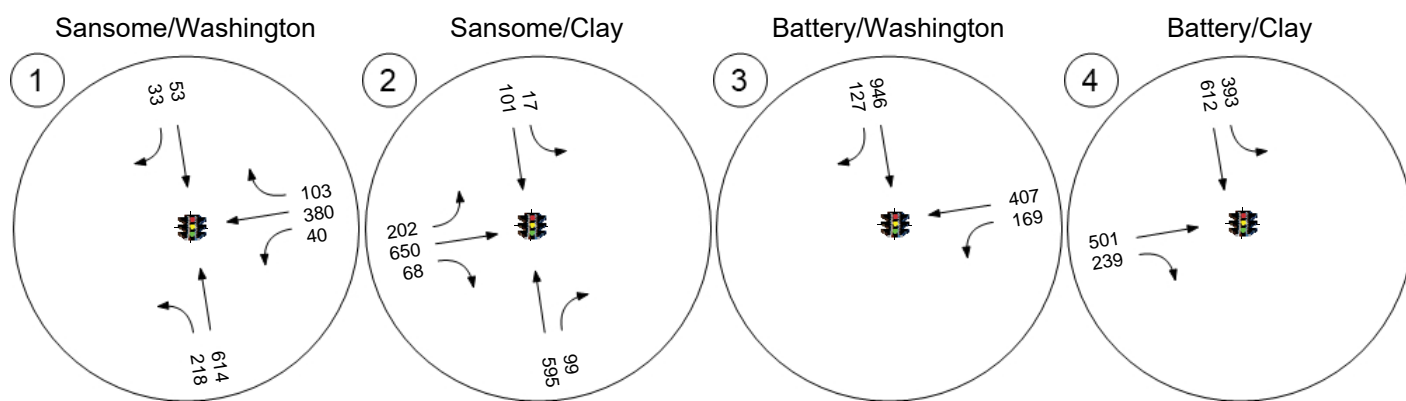
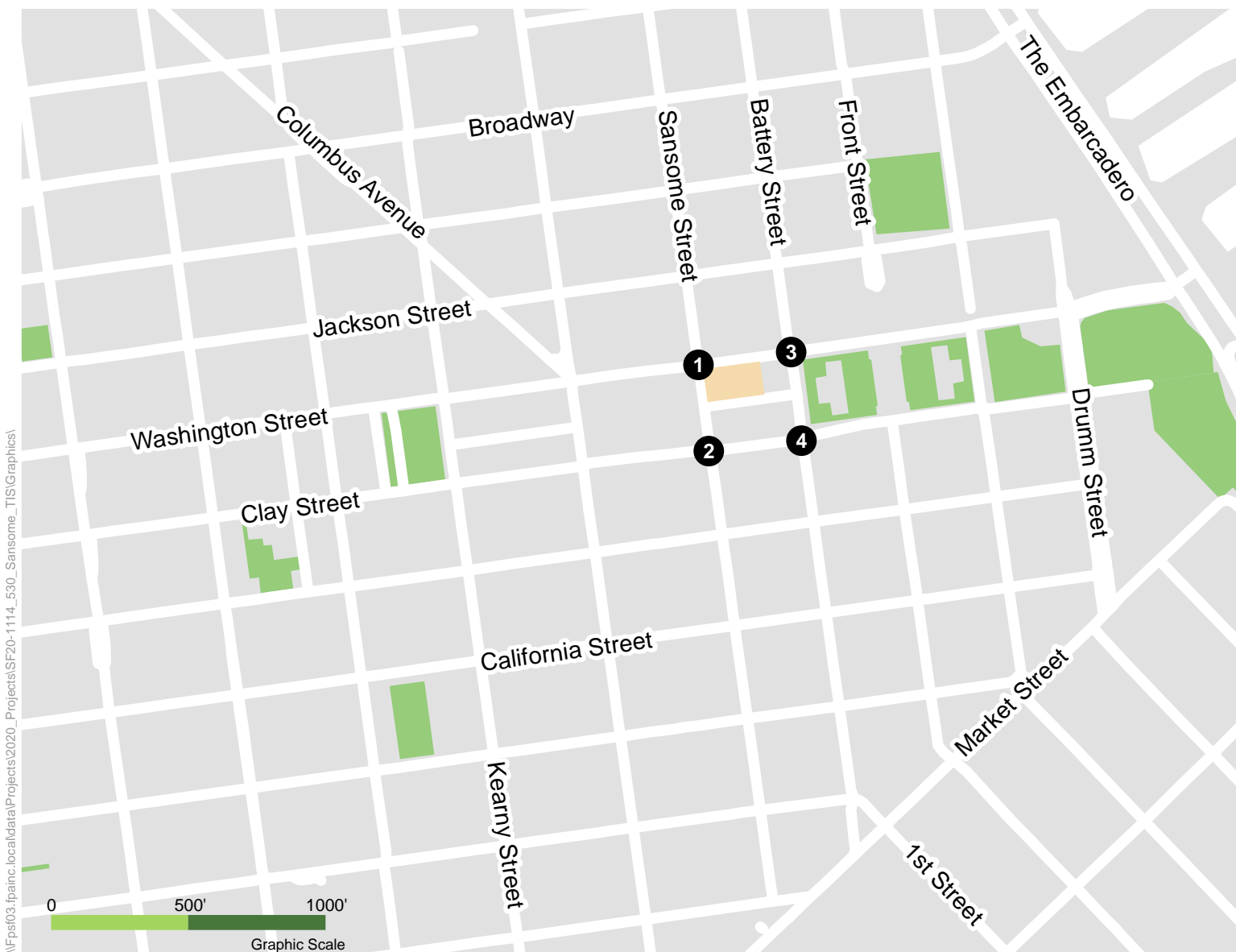


NOTE

1. Private vehicles turning onto Sansome Street from Washington Street are prohibited between 7 a.m. and 8 a.m. while the restriction does not apply to commercial vehicles, buses, taxis, and bicycles.
2. The vehicle trips include the inbound and outbound legs for all TNC trips consistent with SF Guidelines requirements.

Figure 14

P.M. Peak Hour Traffic Volumes
Proposed Project
Cumulative Plus Project



NOTE

1. Private vehicles turning onto Sansome Street from Washington Street are prohibited between 7 a.m. and 8 a.m. while the restriction does not apply to commercial vehicles, buses, taxis, and bicycles.
2. The vehicle trips include the inbound and outbound legs for all TNC trips consistent with SF Guidelines requirements.

Figure 15

P.M. Peak Hour Traffic Volumes Residential Variant Cumulative Plus Project

Construction Impacts

Proposed Project

Construction of the proposed project may overlap with the construction of the nearby projects at 447 Battery Street and 545 Sansome Street, which are directly adjacent to the proposed project site and across the street from the project site, respectively. The Muni Forward program does not include any physical construction through the study area.

While the construction timing of 447 Battery Street project is currently unknown, under a worst-case scenario (i.e., a most impactful scenario), it would start in December 2021 and overlap with construction of the proposed project. If construction were to start before or after this time, the impacts associated with the combined construction would be less than those assumed below as peak construction activities would not overlap. Demolition and construction of 447 Battery Street project are estimated to take approximately 31 months over six phases, including demolition (one month), site preparation (three months), grading/excavation (seven months), building construction (17 months), paving (two months), and architectural coating work (one month). In general, the two projects are expected to have similar truck routes, although the 447 Battery Street project would provide primary access to the project site from Washington and Battery streets rather than Sansome Street. The construction schedule for the 545 Sansome Street project is also unknown; however, it would be much less intensive than that for the 530 Sansome Street or 447 Battery Street project as it includes the expansion of an existing building rather than construction of a new building. For the purposes of a conservative analysis, the construction period for the 545 Sansome Street project is assumed to occur at the same time as the proposed project and the 447 Battery Street project.

As presented in **Appendix B**, the combination of the proposed project and 447 Battery Street project would increase the average number of truck trips accessing the site by 29 truck trips and 155 worker trips over the length of the proposed project's construction schedule for 29 months. The maximum daily number of trucks required at either site would increase from 60 trucks to 120 trucks during the site preparation and grading/excavation phases. While construction of the two projects according to this schedule could temporarily increase traffic to the proposed site, impacts associated with the construction of the proposed project under cumulative plus project condition would not substantially differ from the impacts under existing plus project condition. The construction schedules and truck and worker routes required for the 545 Sansome Street project is unknown. However, the construction activities for the 545 Sansome Street project would be relatively minor compared to the proposed project or 447 Battery Street project and would require fewer workers and vehicles on-site as it includes the expansion of an existing building rather than construction of a new building. Although the 545 Sansome Street project is across the street from the 530 Sansome Street project site, a different route would be required for construction trucks to access that site as trucks would not be allowed to turn left into the 545 Sansome Street project site from Sansome Street. Therefore, they would approach from Washington Street, which would generally not overlap with the primary access to the proposed project.



Given the uncertainty of the construction timing for the above projects, if construction periods do overlap for the proposed project and these projects, the proposed project would be required to obtain a special traffic permit from SFMTA prior to the commencement of any construction work and comply with all applicable requirements in the Blue Book and public work code. As conditions for the special traffic permit, the sponsor for the 530 Sansome Street project would be required to work with various City departments to develop measures to minimize potential construction impacts related to construction vehicle routing, traffic control, transit vehicle operations, and accessibility and safety for people walking and biking adjacent to the construction area.

Overall, because the proposed project's and the adjacent cumulative projects' construction activities would be temporary and limited in duration and conducted in accordance with existing City regulatory requirements intended to reduce construction impacts, the proposed project, in combination with reasonably foreseeable developments in the project site vicinity, would result in less-than-significant cumulative construction-related transportation impacts.

Mitigation: None required.

Residential Variant

Similar to existing plus project conditions, construction of the residential variant would be substantially similar to the proposed project as the building size and streetscape changes would not change. Construction activities associated with the residential variant would be required to comply with the relevant City regulatory requirements similar to the proposed project. As the construction would not substantially differ between the proposed project and the residential variant, the residential variant, in combination with reasonably foreseeable developments in the study area, would result in less-than-significant cumulative construction-related transportation impacts.

Mitigation: None required.

Operational Impacts

Vehicle Miles Traveled

Proposed Project

There are no roadway capacity-enhancing projects adjacent to the project site that would encourage higher levels of VMT under cumulative conditions. The proposed Muni Forward improvements would enhance transit service through the study area and would not induce VMT. Per SF Planning Department, the proposed project and residential variant fit within the active transportation project including safety and accessibility improvements for people walking and bicycling, not inducing higher level of VMT. As shown in **Table 19** below, projected 2040 average daily VMT per capita for the transportation analysis zone the project site is located in, TAZ 804, is below the project 2040 regional average daily VMT. Therefore, the cumulative VMT impacts of the proposed project would be less than significant.



Table 19: 2040 Vehicle Miles Traveled

Land Use	Bay Area Regional Average	Bay Area Regional Average Minus 15% (Threshold)	TAZ 804
Residential	16.1	13.7	2.2
Office ¹	17.1	14.5	6.3
Retail ²	14.6	12.4	7.9

Notes:

1. The proposed project would not change the travel characteristics nor number of employees at the fire station and therefore would not result in a change to VMT associated with the fire station. The VMT associated with office is used as a proxy for the amount of VMT generated by the Fire Station employees.
2. Retail is presented as a proxy for the proposed Gym and restaurant land uses as they would provide an amenity to residents, employees, and visitors in Downtown San Francisco in a similar manner to retail services. Due to the density of complementary land uses and high transit accessibility to the project site, they would generate substantially less VMT compared to the rest of the region. For similar reasons, the visitors and employees of the hotel would reflect the travel characteristics of retail and office space, with substantially lower VMT than the significance threshold.

Source: San Francisco Transportation Information Map, 2019, SF Planning; Fehr & Peers, 2020

Mitigation: None required.

Residential Variant

Similar to the proposed project, the residential variant would generate far less VMT per capita than the significance threshold under 2040 conditions. Therefore, similar to the proposed project, the cumulative VMT impacts of the residential variant would be less than significant.

Mitigation: None required.

Loading

Proposed Project

The combination of the proposed project and 447 Battery Street project would remove all of the existing freight loading along the faces of the project site block on Merchant, Battery, and Washington streets while also removing the existing land uses that generate demand for freight loading. The proposed Muni Forward improvements would not affect loading conditions in the study area. Under the condition where the Merchant Street shared street is extended the length of Merchant Street (in coordination with the proposed project or 447 Battery Street project), the four remaining freight loading spaces on the east side of Battery Street would serve the freight demand for existing land uses to the east of the project site. The 447 Battery Street project would accommodate its expected freight loading demand through an off-street loading dock and therefore would not create an unmet freight loading demand. As noted on page 62 of the 447 Battery Street project's TIS,⁴⁴ Improvement Measure I-Loading-1: Management of Freight Loading

⁴⁴ AECOM, 447 Battery Street Transportation Impact Study Final Report (Case No. 2014-1036ENV), November 7, 2019.



/ Service Vehicle Activities includes the provision for attendants to help manage the freight loading dock in the case that special events or other loading activities generate more freight loading demand than can be accommodate off-street. The plans for freight loading for the 545 Sansome Street project are not available. Freight loading activity associated with the 545 Sansome Street project would occur off-street, if loading dock access is provided, or within the existing on-street loading zone on Washington Street along the 545 Sansome Street frontage and would therefore not generate freight loading that would overlap with the proposed project. Therefore, freight loading activity generated by the proposed project and nearby projects would not create hazardous conditions people walking, bicycling, or driving, or create substantial delays to transit due to unmet loading demand. The cumulative freight loading impacts of the proposed project, in combination with the cumulative projects, would be less than significant.

Similar to the proposed project, the 447 Battery Street project would accommodate the anticipated passenger loading demand for that project (two simultaneous passenger loading events) within the proposed on-street passenger loading zone along the entire Battery Street frontage of that project site. As noted on page 64 of the 447 Battery Street project's transportation study,⁴⁵ Improvement Measure I-Loading-2: Management of Passenger Loading Activities includes the provision to monitor passenger loading activity to ensure that loading demand does not exceed supply and provide attendants to actively manage loading during special events that could occur at the hotel proposed as part of the 447 Battery Street project. Passenger loading activity on Battery Street associated with the 447 Battery Street project would not overlap with the passenger loading for the proposed project due to the adjacency of new loading zones to each project's main building entrances. The additional office space proposed by the 545 Sansome Street project would generate less passenger loading activity compared to the 447 Battery Street project due to the smaller size of the project. This activity would occur along the 545 Sansome Street project's frontage on Washington Street and would not interfere with passenger loading activities of the proposed project on Sansome and Merchant streets, as people arriving at or leaving a building or other destination typically do so as close to the entrance as possible.

Therefore, passenger loading activity generated by the proposed project and nearby cumulative projects would not combine to create hazardous conditions people walking bicycling, or driving, or create substantial delays to transit due to unmet passenger loading demand. The cumulative passenger loading impacts of the proposed project, in combination with the cumulative projects, would be less than significant.

Mitigation: None required.

Residential Variant

The residential variant would generate less freight and passenger demand than the proposed project while providing the same amount of space for that loading to occur. Therefore, similar to the proposed

⁴⁵ AECOM, *447 Battery Street Transportation Impact Study Final Report* (Case No. 2014-1036ENV), November 7, 2019.



project, the cumulative passenger and freight loading impacts of the residential variant, in combination with the cumulative projects, would be less than significant.

Mitigation: None required.

Emergency Vehicle Access

Proposed Project

Similar to the existing plus project conditions, the combination of the proposed project with other reasonably foreseeable projects would not create design features that would result in inadequate emergency access. As noted in the 447 Battery Street project's transportation study, that project's proposed streetscape changes on Merchant Street were reviewed to ensure that they provide adequate access for larger emergency vehicle trucks and were approved by the City's Street Design Advisory Team. The proposed project includes consistent streetscape elements with those proposed by the 447 Battery Street project, and they have undergone similar review and approval process to ensure that emergency vehicle access is not inhibited by the combination of streetscape changes for the two projects. The adjacent 447 Battery Street and 545 Sansome Street projects do not propose driveways or other physical features that would inhibit emergency vehicle access into or out of the rebuilt Fire Station 13. The proposed driveway for 447 Battery Street project would be located on Merchant Street, same as the proposed project, and the 545 Sansome Street does not propose any driveways for off-street facilities. The proposed project's measures to prioritize SFFD emergency access would ensure that traffic growth under cumulative conditions, including traffic generated by the nearby 447 Battery Street and 545 Sansome Street projects, would not interfere with emergency vehicle access. These measures include the preemption traffic signal system on Washington Street at the Sansome Street and Battery Street intersections and a fire only lane and 'KEEP CLEAR' markings on Washington Street. For these reasons, the proposed project in combination with cumulative projects would not interfere with emergency access. Therefore, cumulative impacts to emergency access would be less-than-significant.

Mitigation: None required.

Residential Variant

The residential variant would provide similar design features as the proposed project and would not interfere with accessibility for emergency services. Therefore, similar to the proposed project, cumulative impacts to emergency vehicle access under the residential variant, in combination with the cumulative projects, would be less-than-significant.

Mitigation: None required.



Mitigation and Improvement Measures

This section summarizes the mitigation measures required to reduce any significant transportation-related impacts generated by the proposed project or residential variant to less-than-significant levels.

Existing Plus Project Conditions

Construction Impacts

As discussed in Existing Plus Project Conditions section, impacts generated by the Project construction activities would be less-than-significant for proposed project and residential variant. Therefore, no mitigation is required.

Vehicle Miles Traveled Impacts

As discussed in Existing Plus Project Conditions section, impacts related to vehicle miles traveled would be less-than-significant for proposed project and residential variant. Therefore, no mitigation is required.

Loading Impacts

As discussed in Existing Plus Project Conditions section, impacts to loading would be less-than-significant for proposed project and residential variant. Therefore, no mitigation is required.

Emergency Vehicle Access Impacts

As discussed in Existing Plus Project Conditions section, impacts to emergency vehicle access would be less-than-significant for proposed project and residential variant. Therefore, no mitigation is required.

Cumulative Plus Project Conditions

Construction Impacts

As discussed in Cumulative Plus Project Conditions section, impacts generated by the cumulative construction activities would be less-than-significant for proposed project and residential variant. Therefore, no mitigation is required.

Vehicle Miles Traveled Impacts

As discussed in Cumulative Plus Project Conditions section, cumulative impacts related to vehicle miles traveled would be less-than-significant for proposed project and residential variant. Therefore, no mitigation is required.



Loading Impacts

As discussed in Cumulative Plus Project Conditions section, cumulative impacts related to loading would be less-than-significant for proposed project and residential variant. Therefore, no mitigation is required.

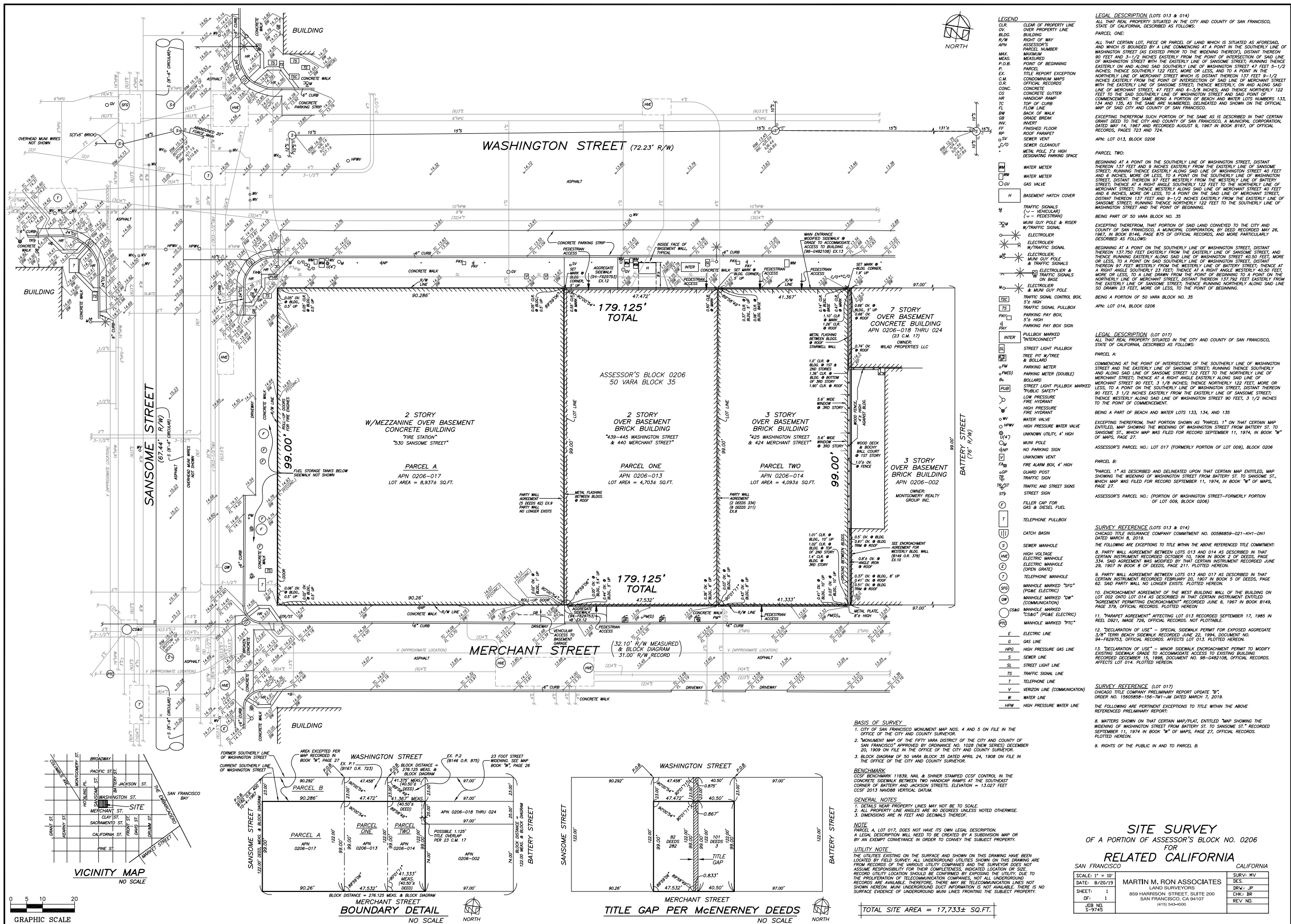
Emergency Vehicle Access Impacts

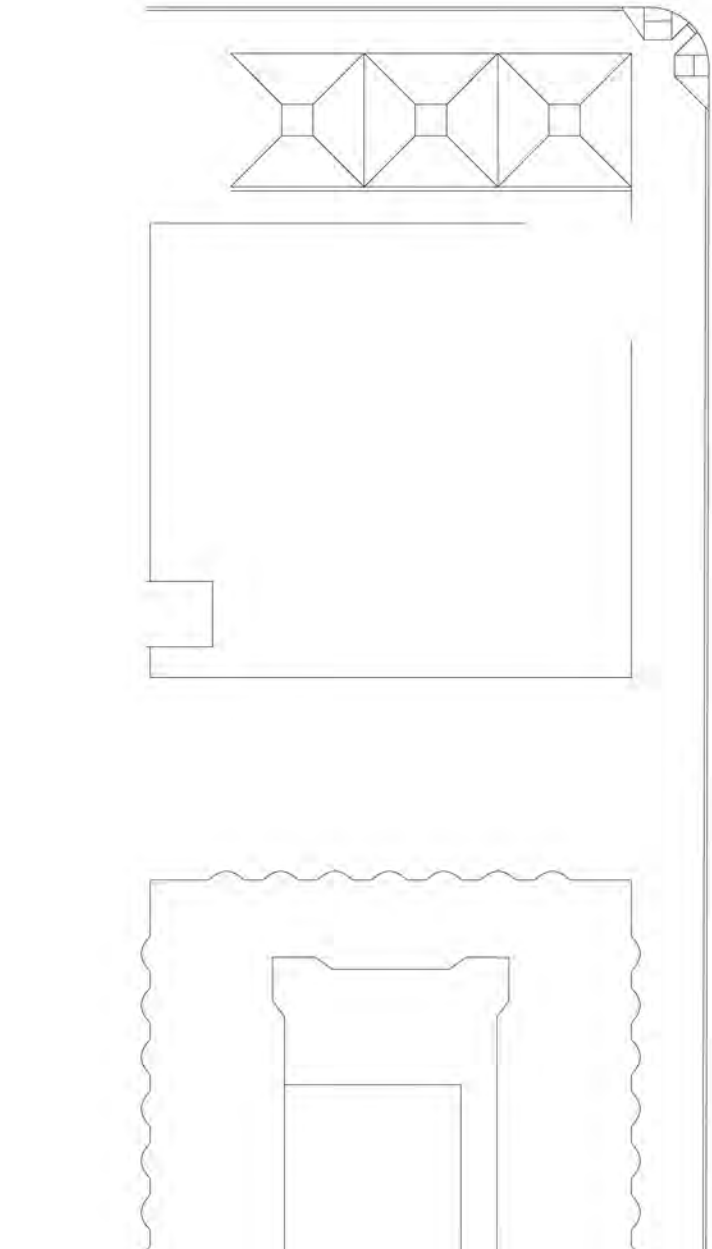
As discussed in Cumulative Plus Project Conditions section, cumulative impacts related to emergency vehicle access would be less-than-significant for proposed project and residential variant. Therefore, no mitigation is required.



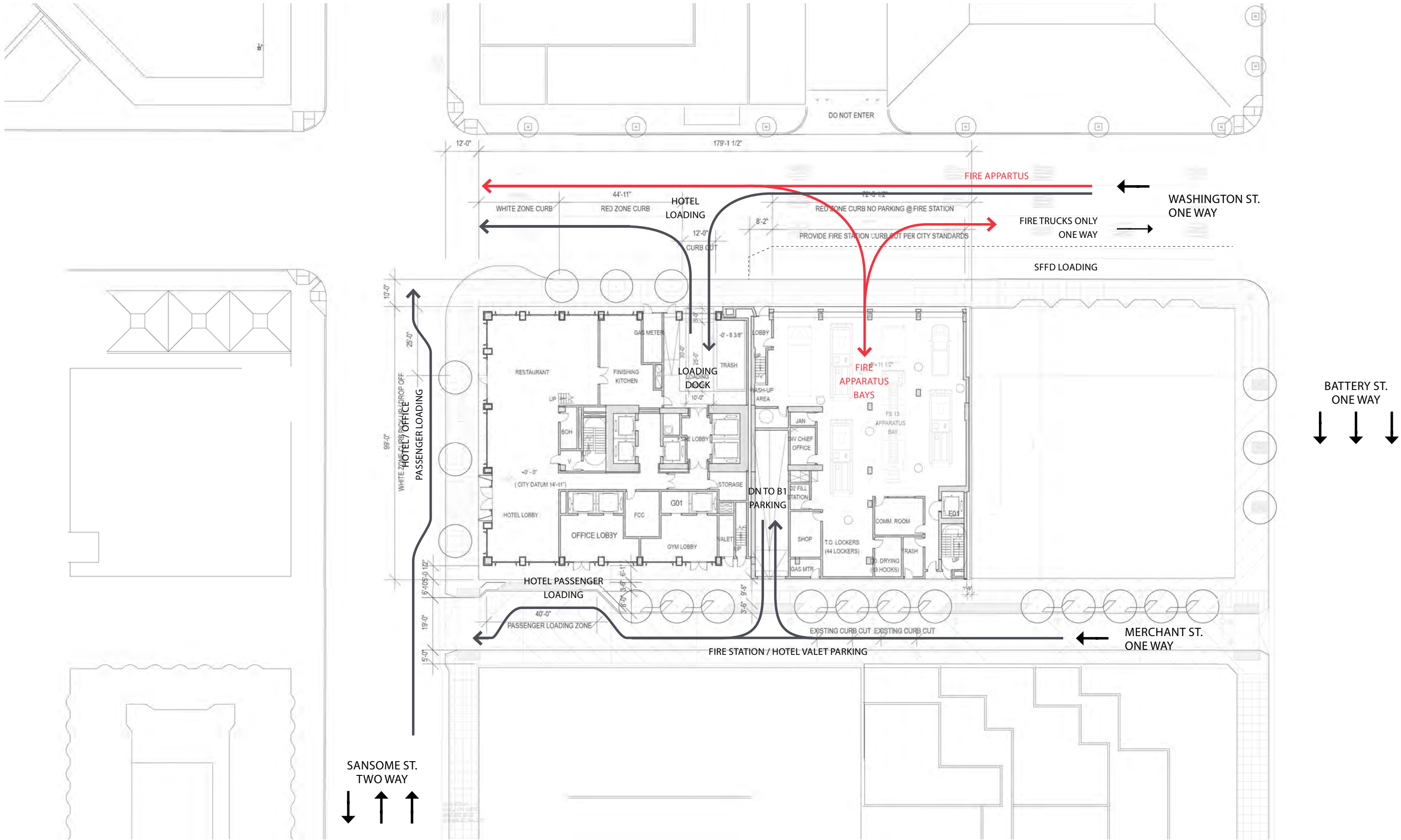
Appendix A:

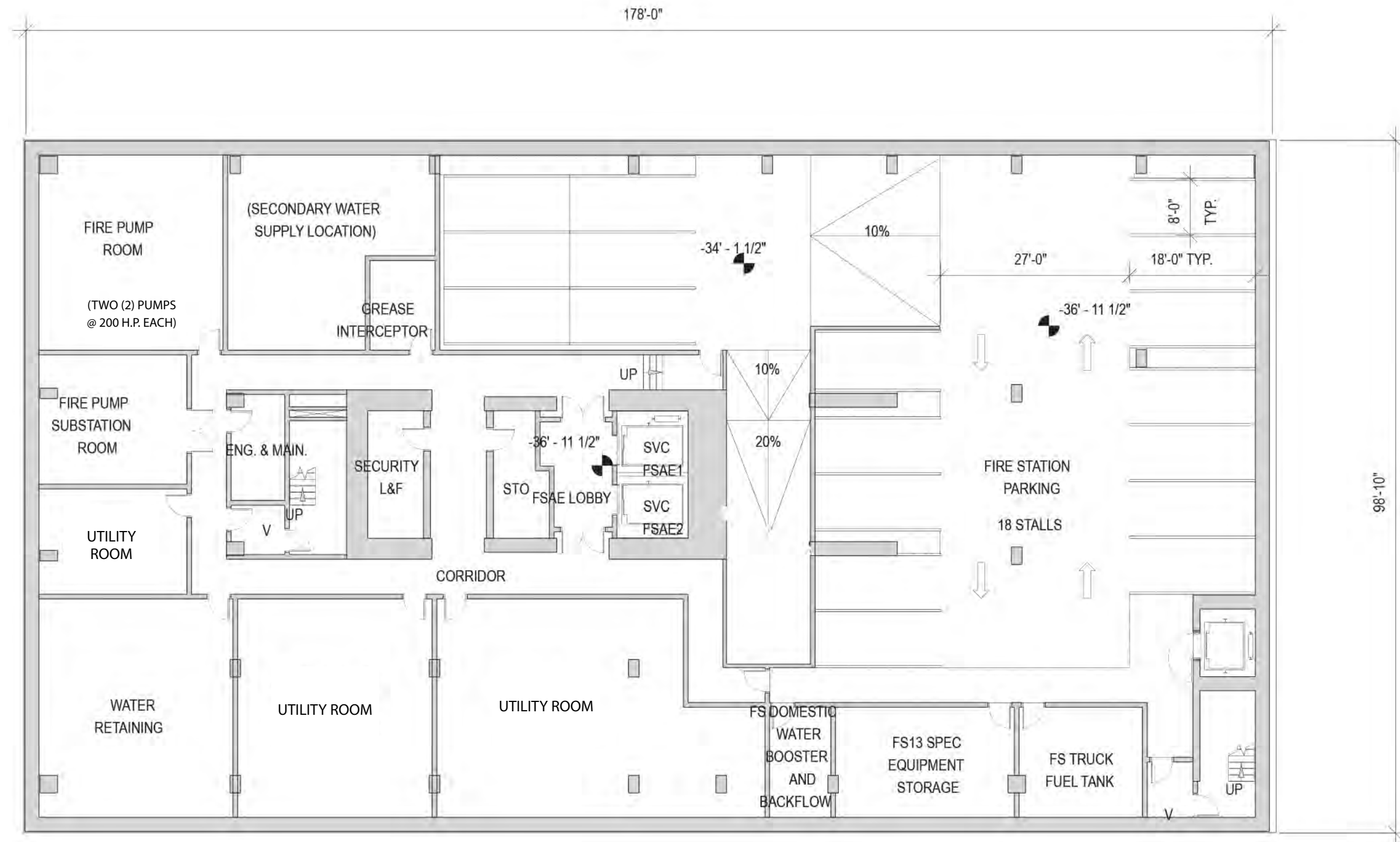
Project Site Plans

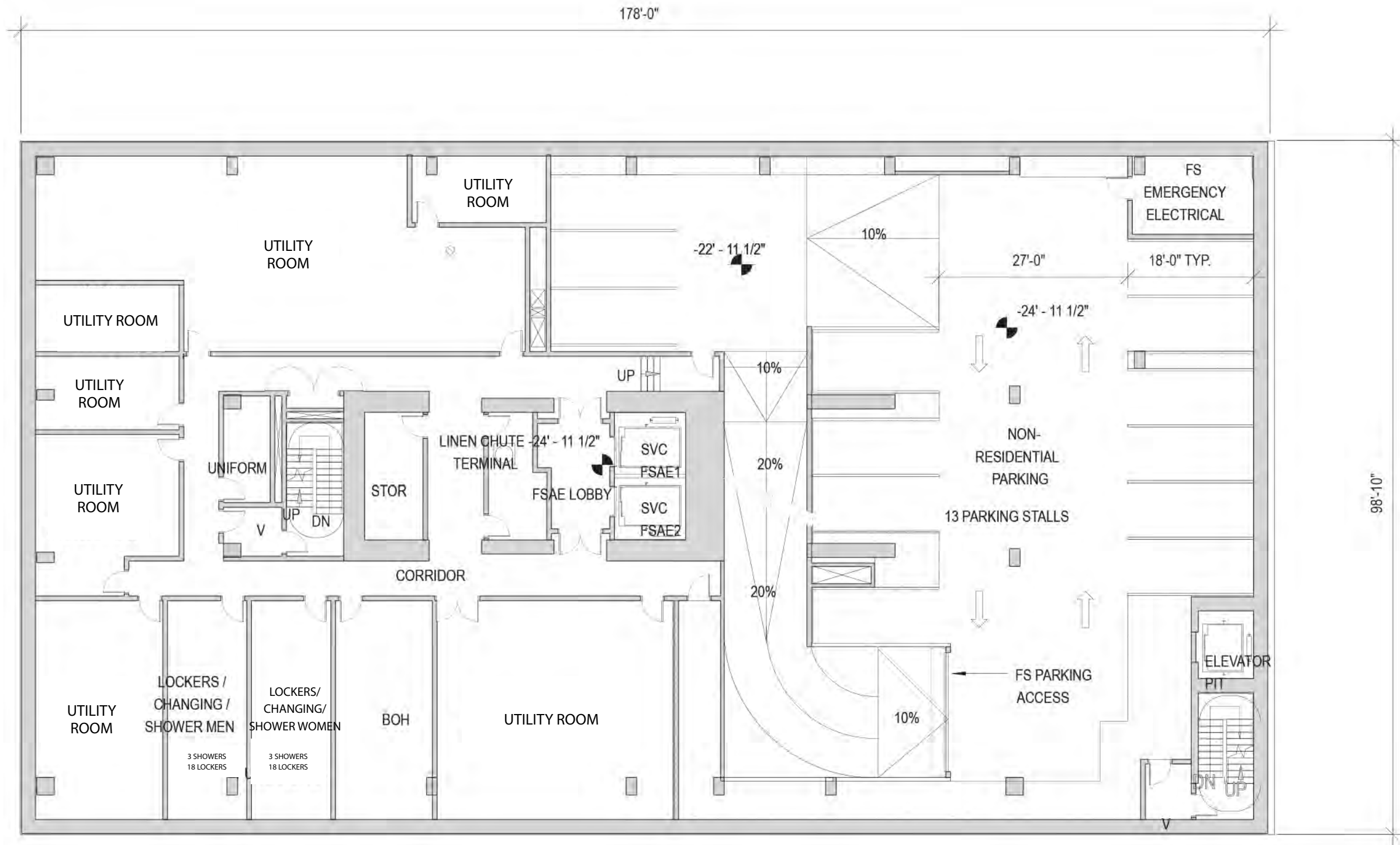


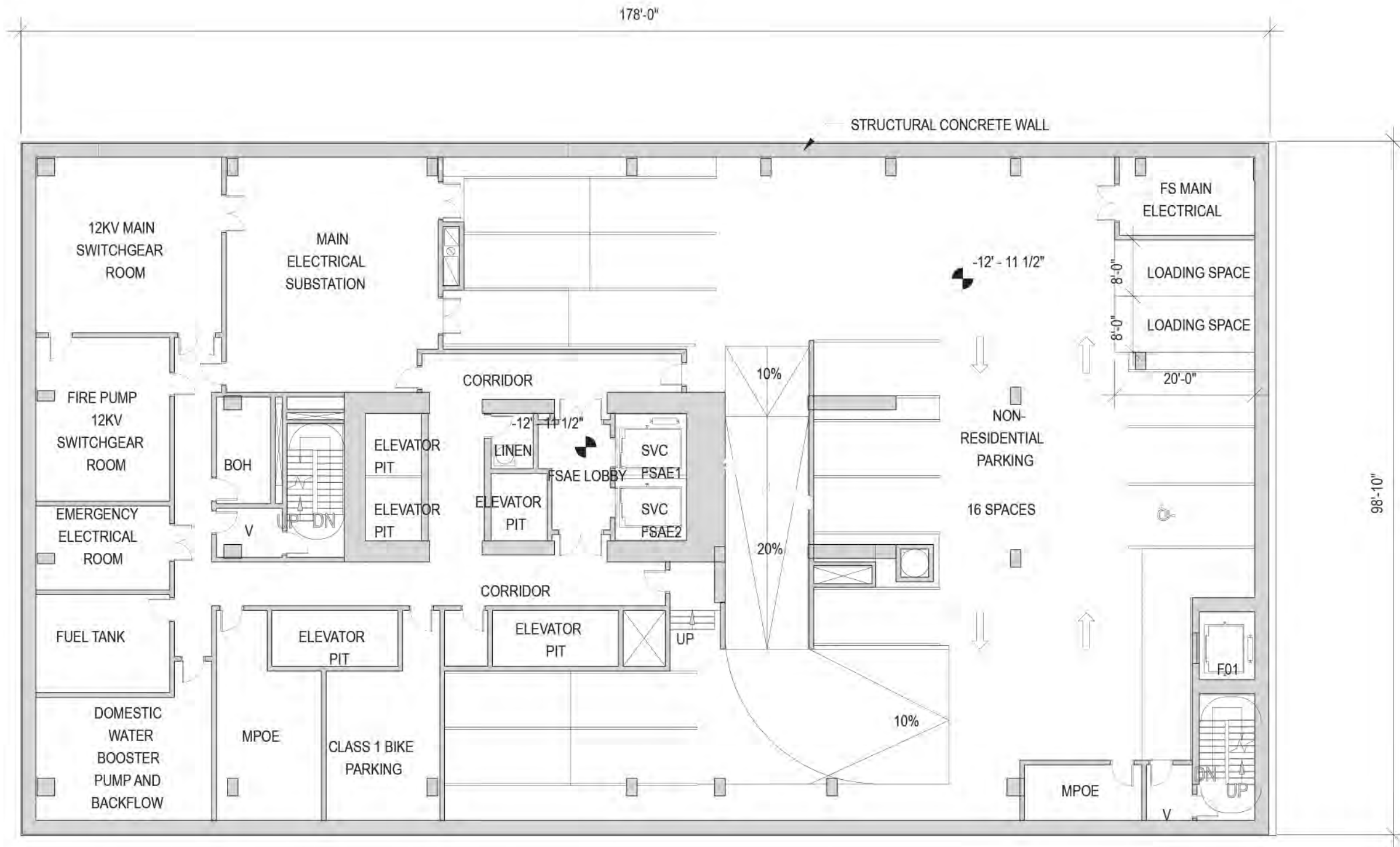


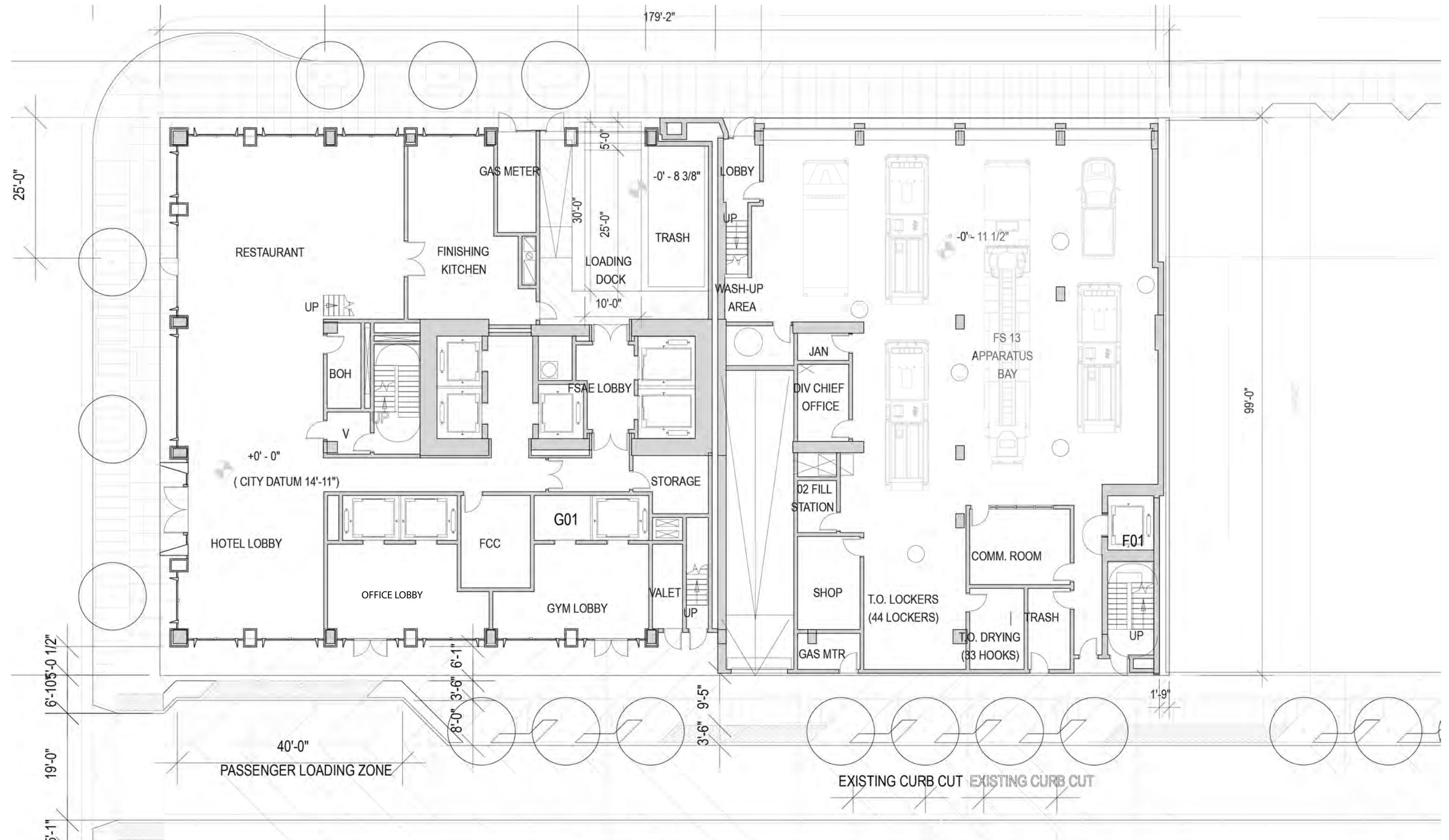
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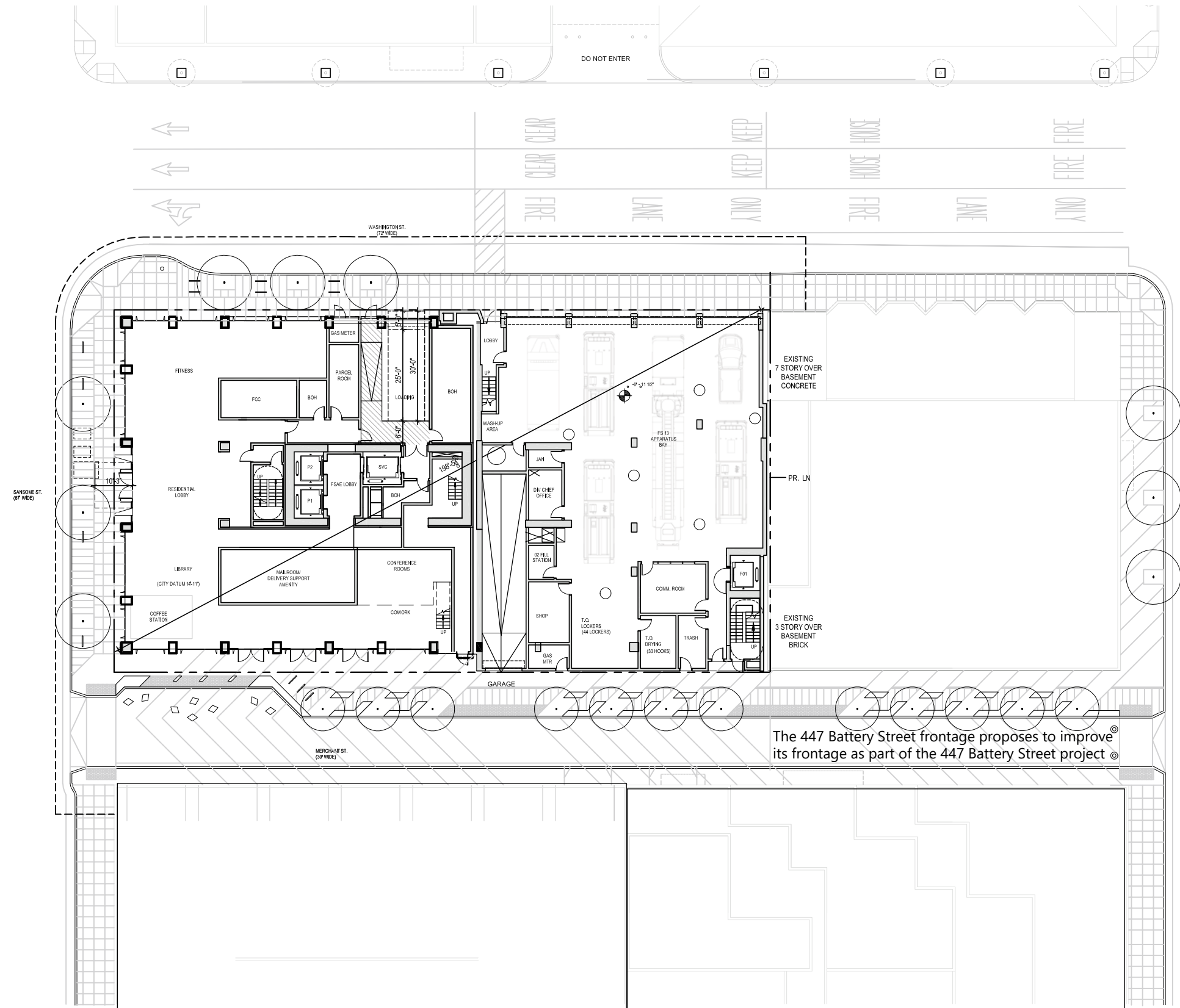


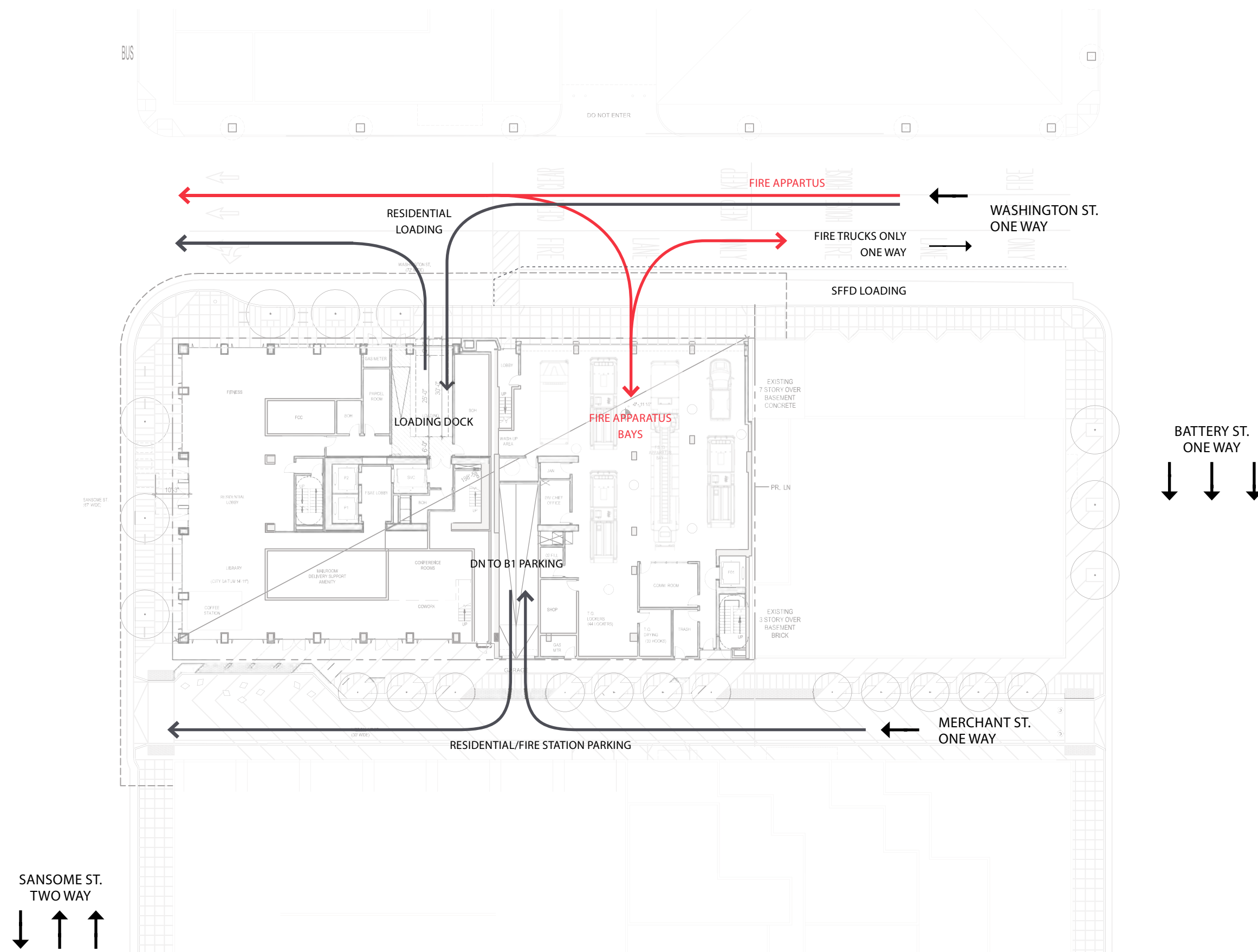


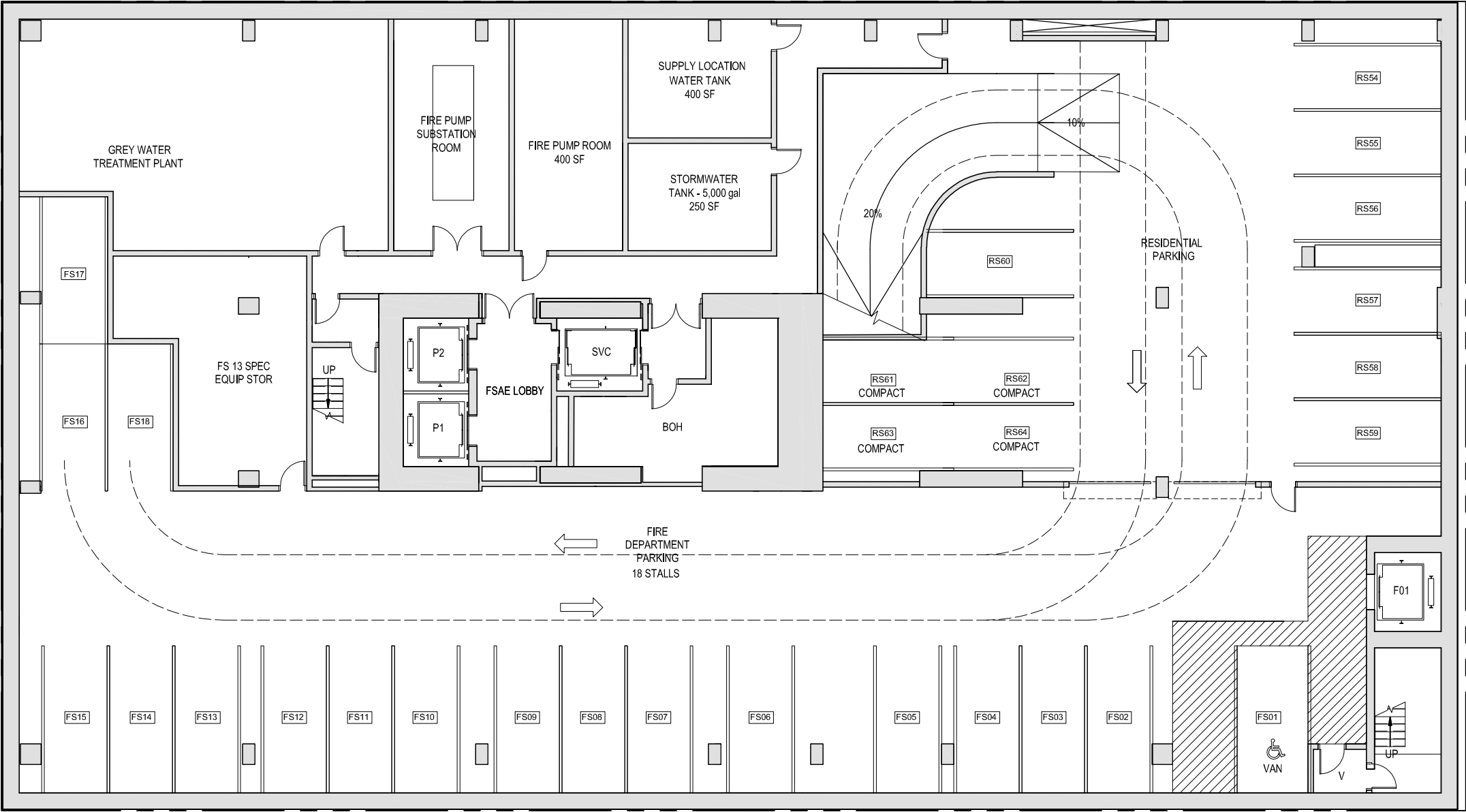


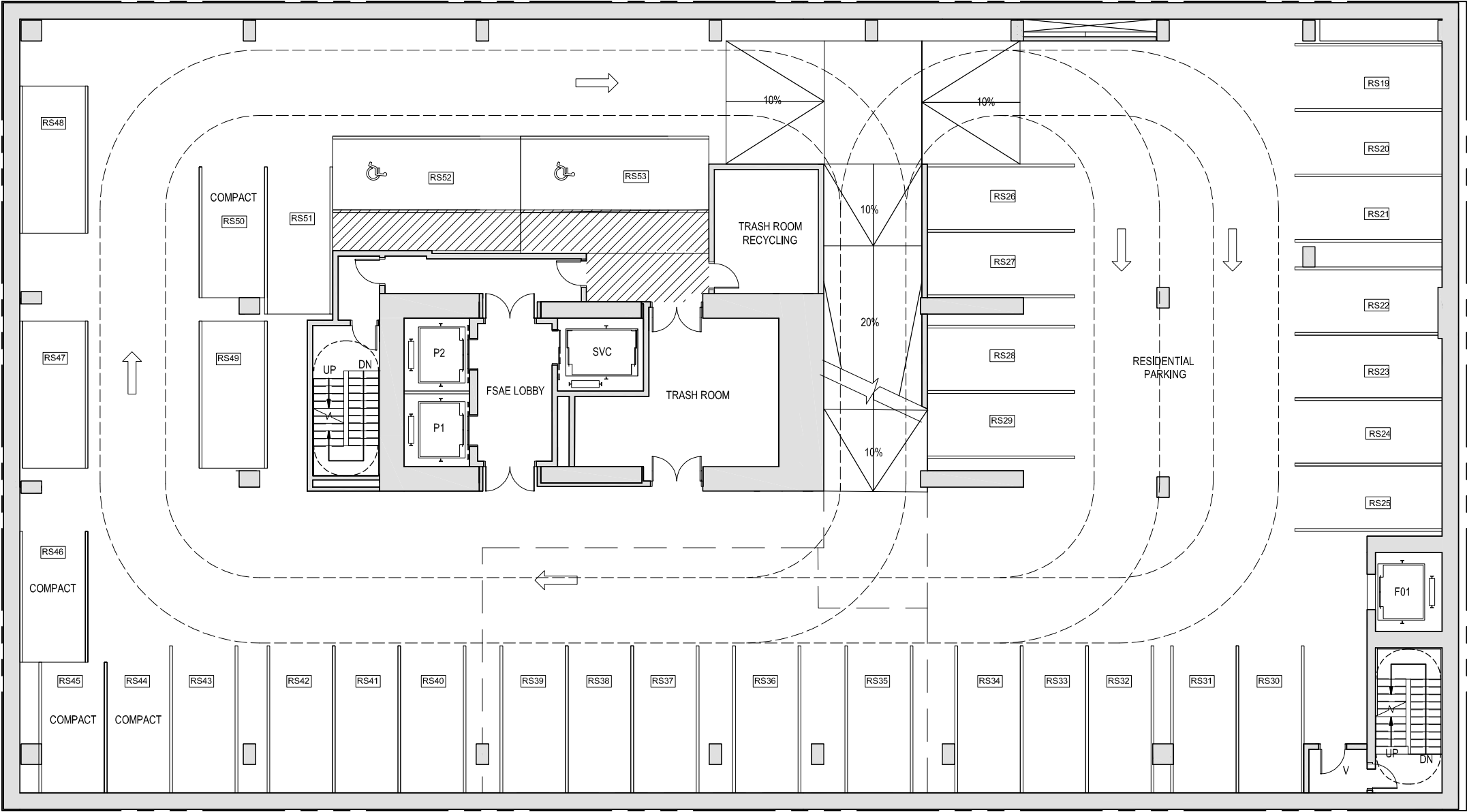


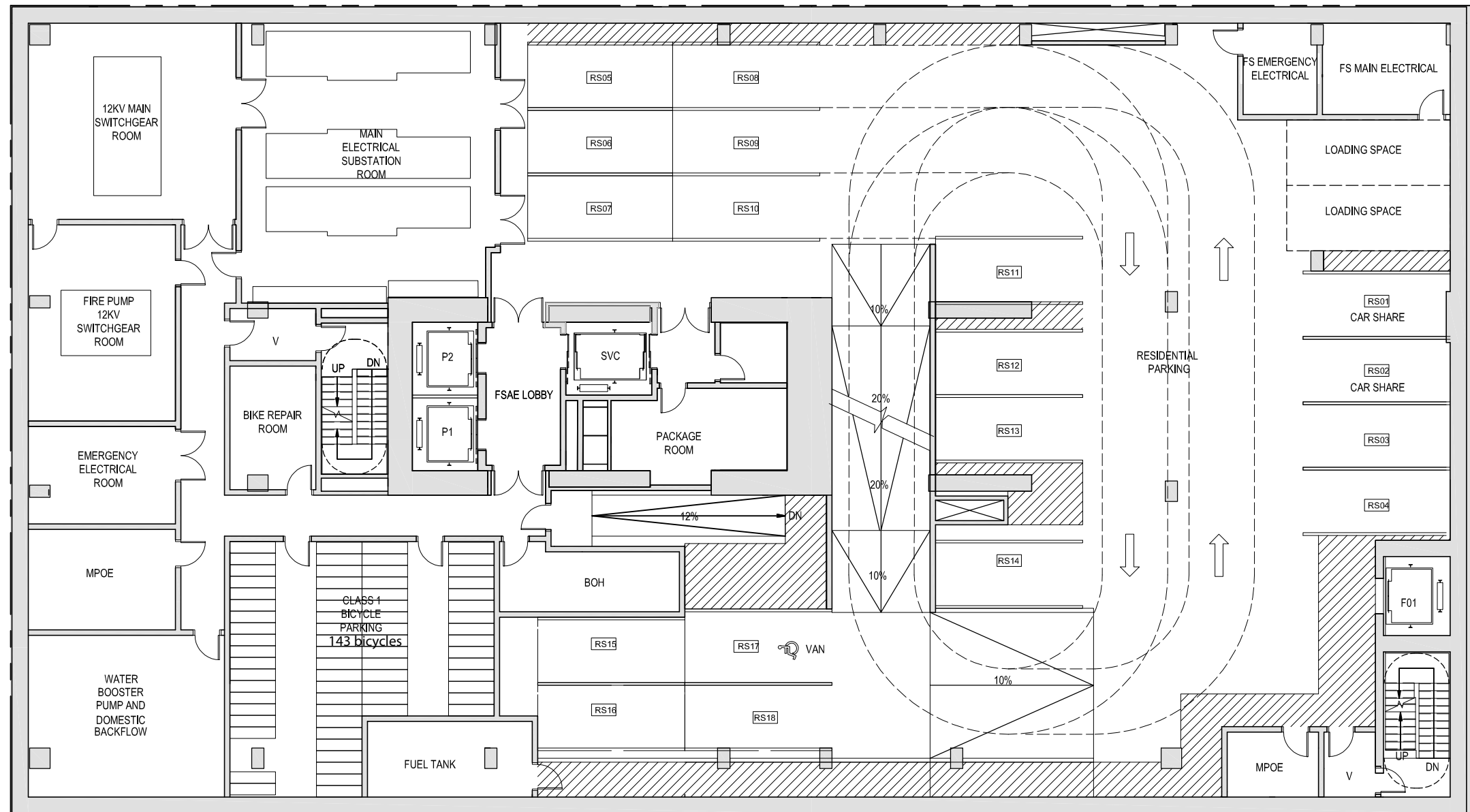
Plans show extension of extension of Sansome Street sidewalk from 10.5' to 12' which has been approved by SFMTA.

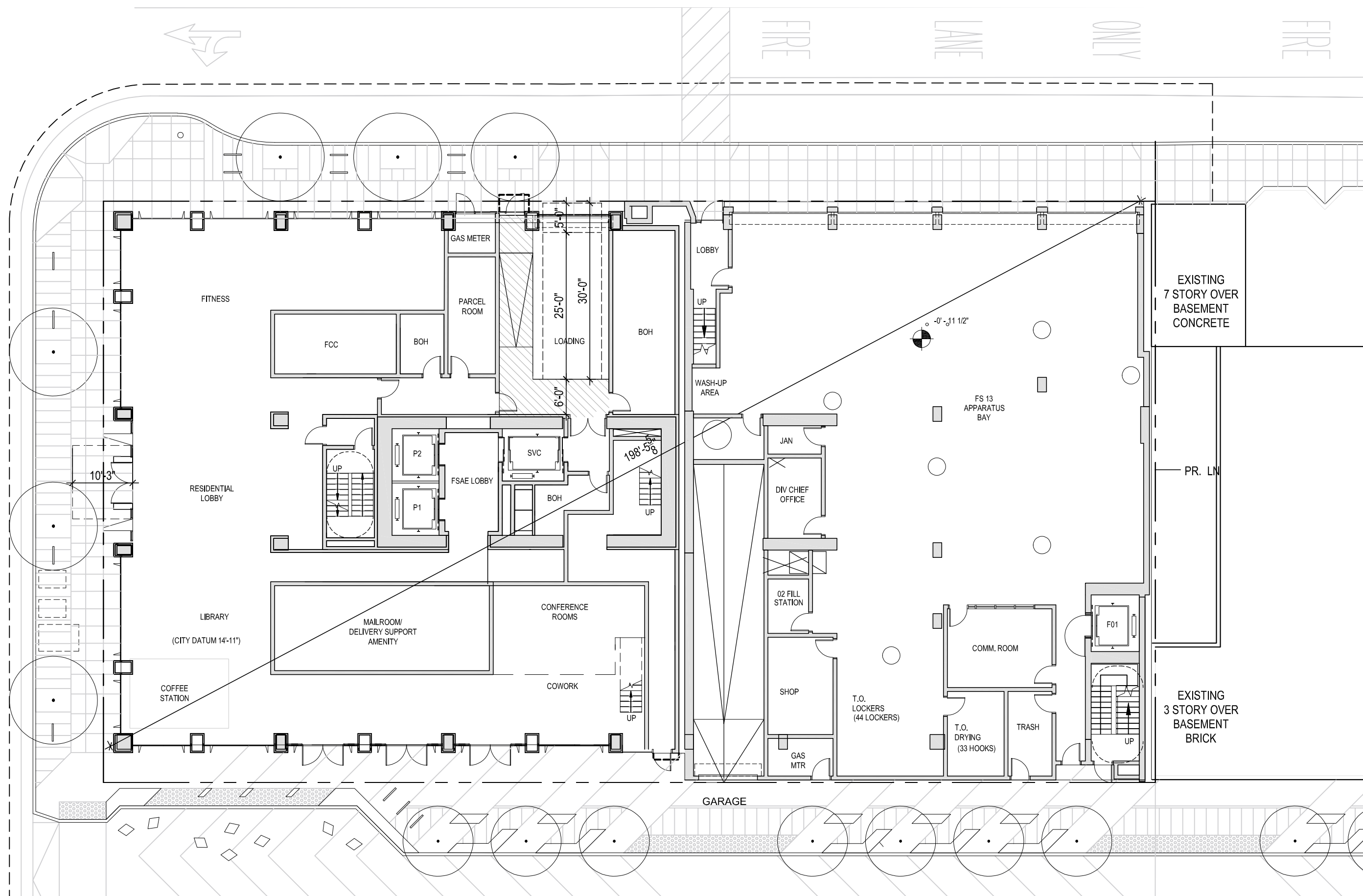




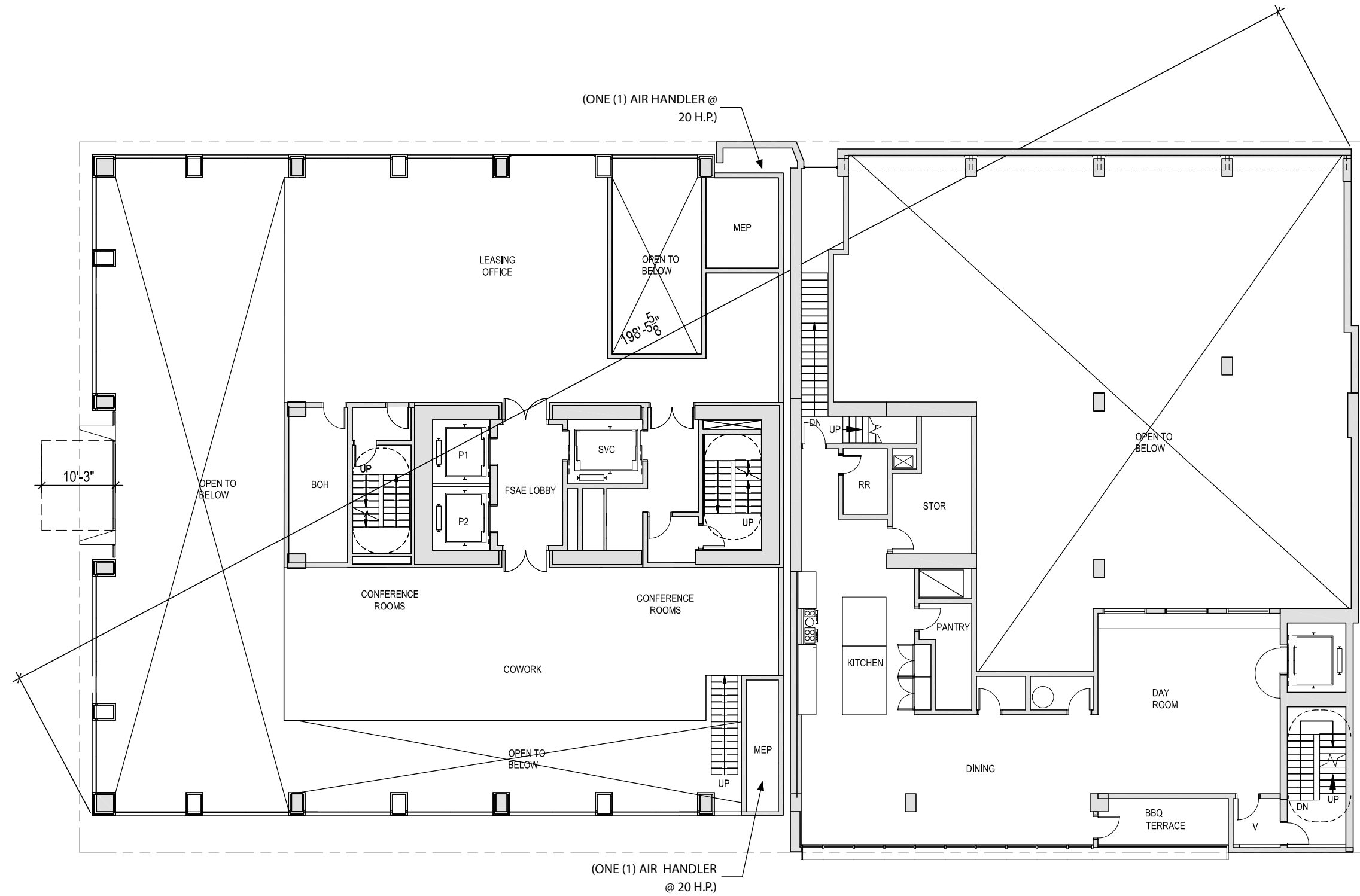








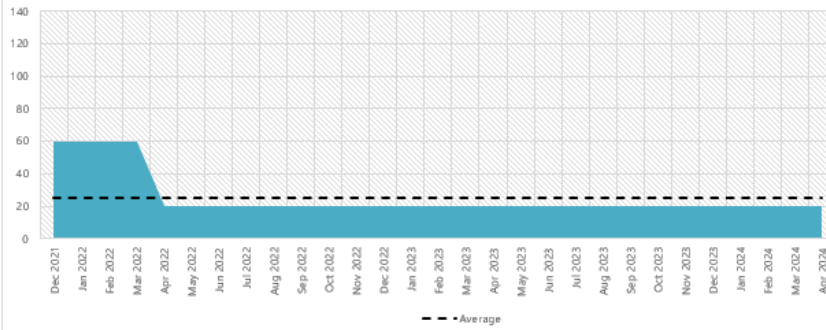
Notes: Final Class 2 bicycle parking for residential project variant is 19 spaces, not the 26 spaces shown on this figure.



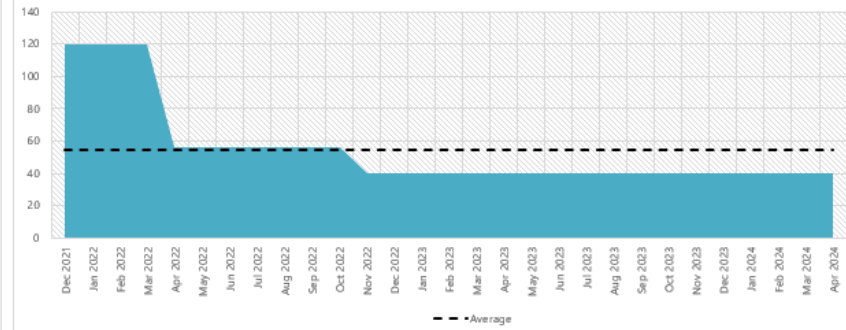
Appendix B:

Construction Information

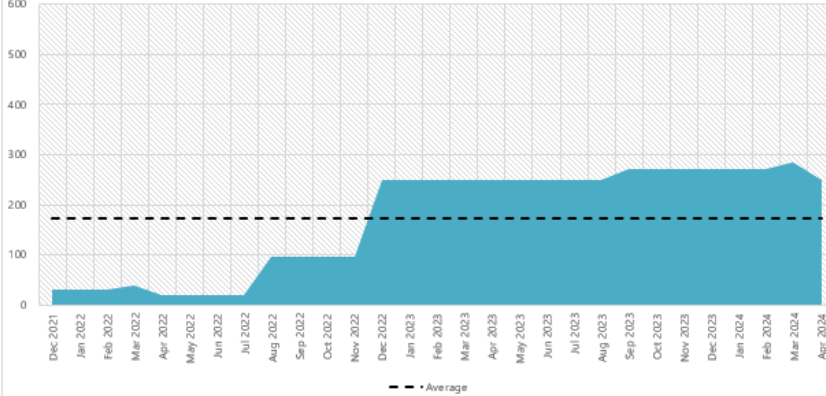
530 Sansome Average Daily Truck Trips - Existing Plus Project



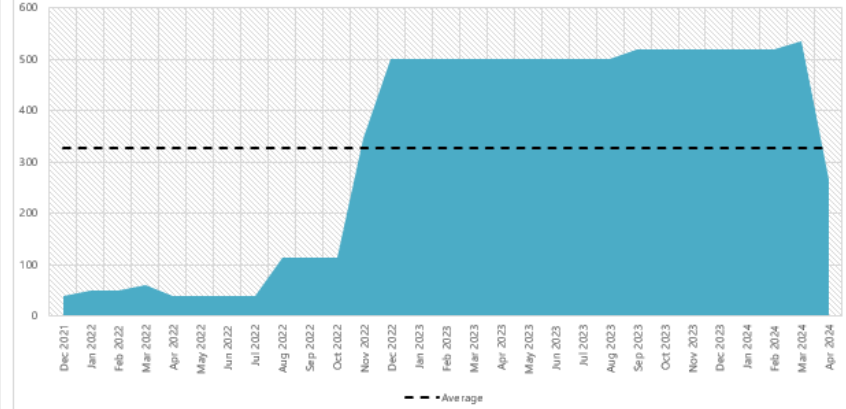
530 Sansome Average Daily Truck Trips - Cumulative



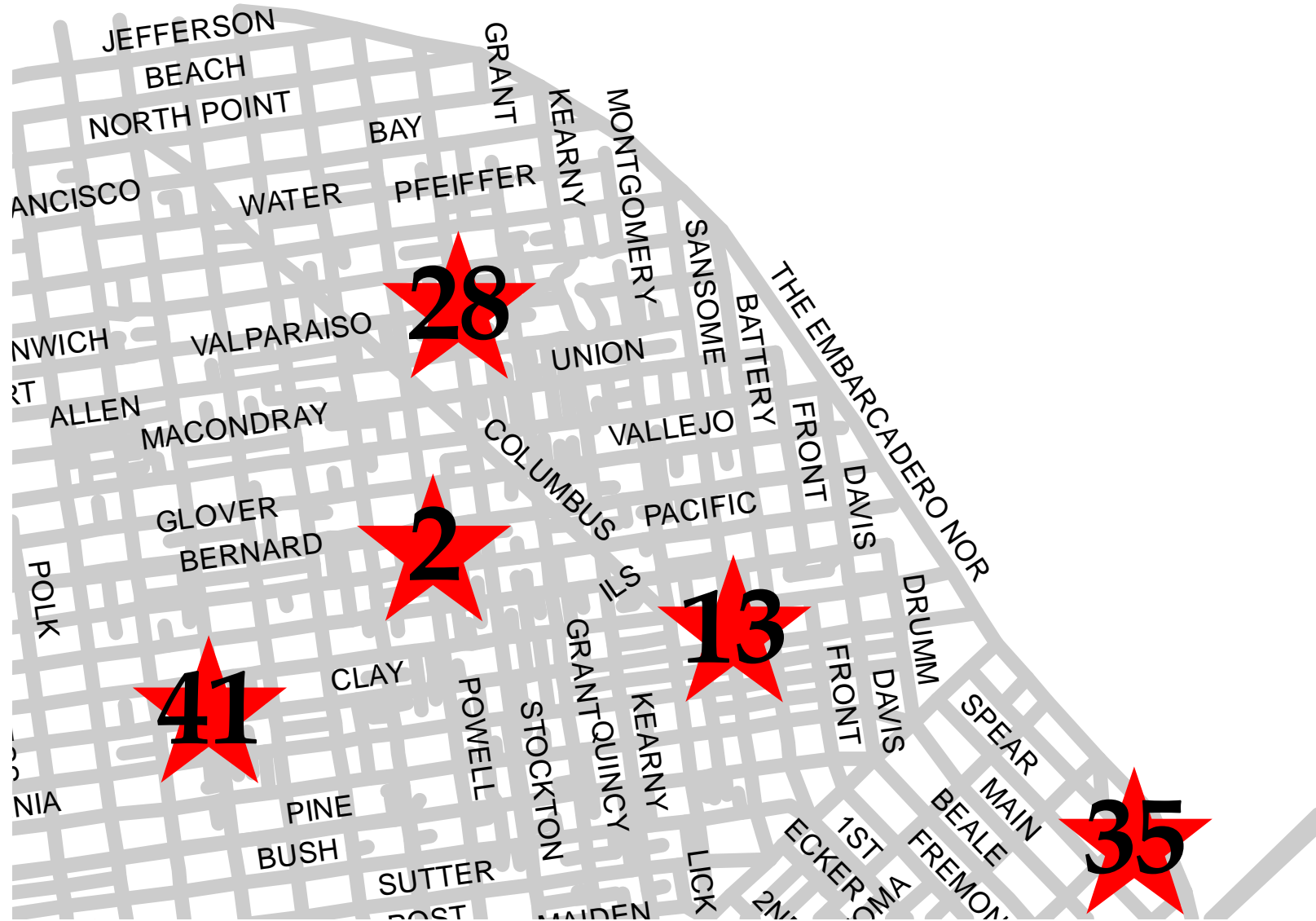
530 Sansome Average Daily Worker Trips - Existing Plus Project



530 Sansome Average Daily Worker Trips - Cumulative



Fire Department Station Locations: 2, 28, 35 and 41



Source: *Fire Station Location Map*, Fire Department, City and County of San Francisco

Appendix C:

City Sidewalk and Grade Map

IRVINE, CALIFORNIA

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA

PLAN HOLD CORPORATION

RECORD 2744

RECORD 2744

RECORD 2744

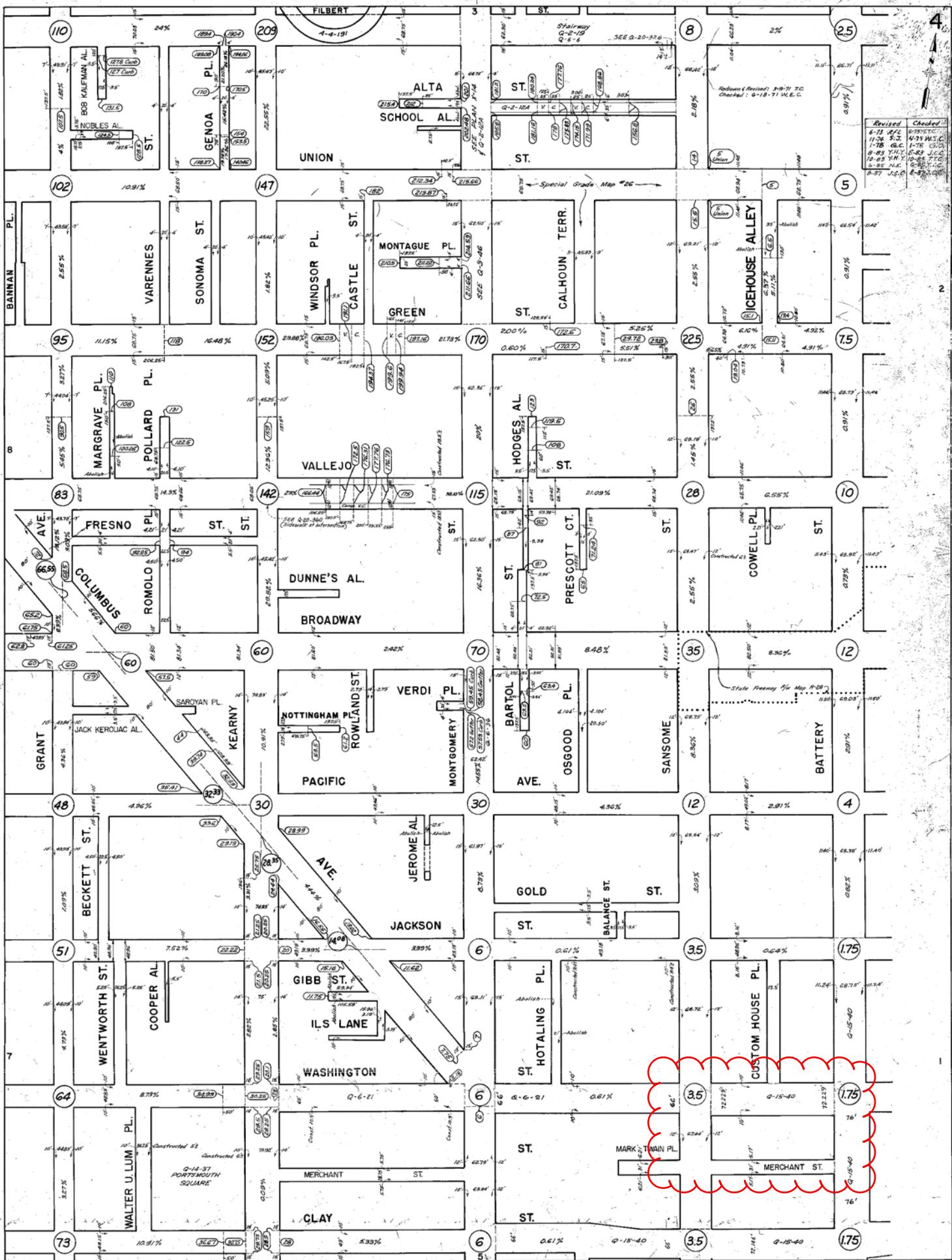
RECORD 2744

SEE PLAN 2744

SEE PLAN 2744

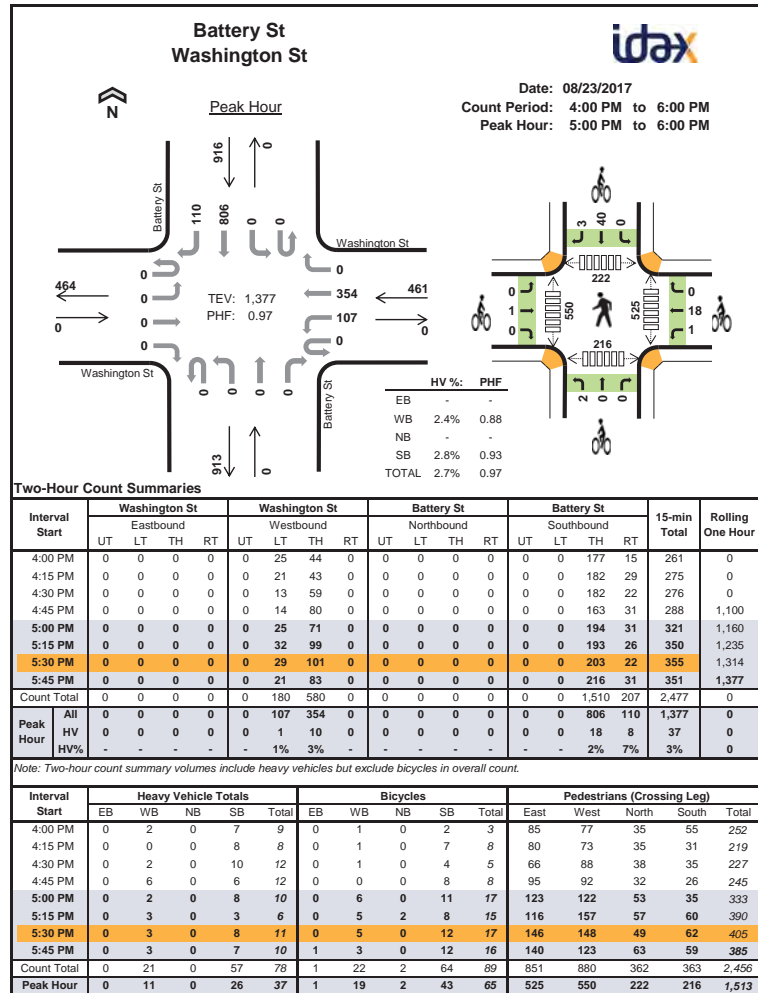
SEE PLAN 2744

SEE PLAN 2744



Appendix D:

Intersection Pedestrian and Bicycle Counts



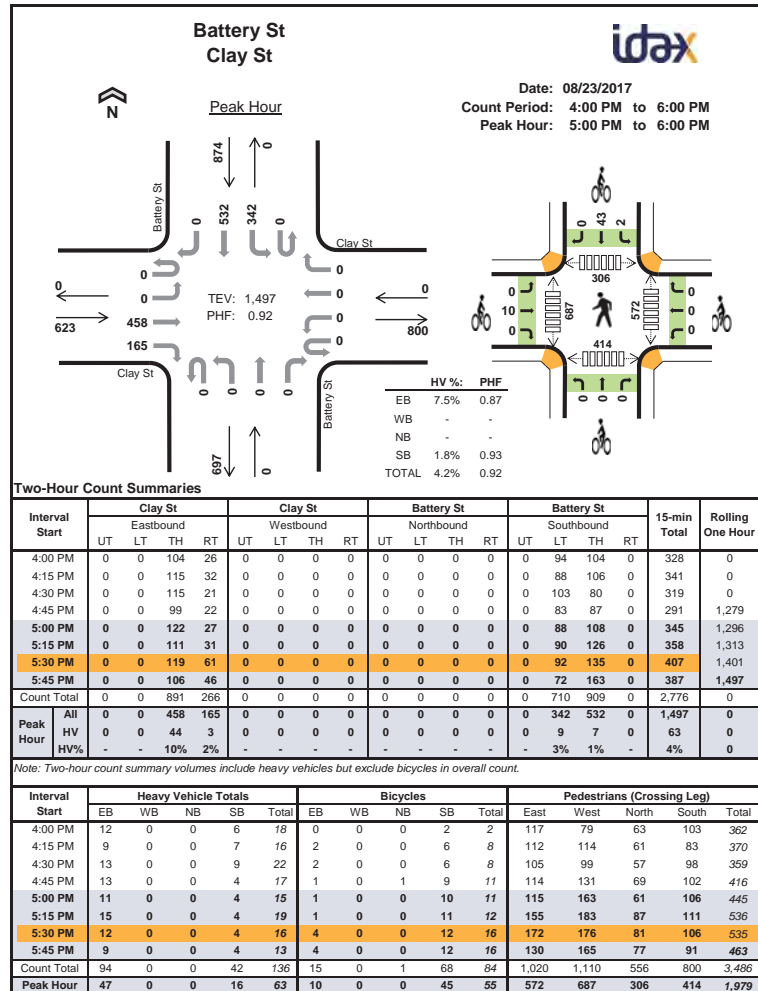
Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Washington St Eastbound				Washington St Westbound				Battery St Northbound				Battery St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	5	2	9	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	1	8	0
4:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	8	2	12	0
4:45 PM	0	0	0	0	0	1	5	0	0	0	0	0	0	0	4	2	12	41
5:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	6	2	10	42
5:15 PM	0	0	0	0	0	1	2	0	0	0	0	0	0	0	2	1	6	40
5:30 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	5	3	11	39
5:45 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	5	2	10	37
Count Total	0	0	0	0	0	2	19	0	0	0	0	0	0	0	42	15	78	0
Peak Hour	0	0	0	0	0	1	10	0	0	0	0	0	0	0	18	8	37	0

Two-Hour Count Summaries - Bikes

Interval Start	Washington St Eastbound			Washington St Westbound			Battery St Northbound			Battery St Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	1	0	0	0	0	0	1	1	3	0
4:15 PM	0	0	0	0	1	0	0	0	0	0	5	2	8	0
4:30 PM	0	0	0	0	1	0	0	0	0	0	4	0	5	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	7	1	8	24
5:00 PM	0	0	0	0	6	0	0	0	0	0	9	2	17	38
5:15 PM	0	0	0	0	5	0	2	0	0	0	8	0	15	45
5:30 PM	0	0	0	1	4	0	0	0	0	0	11	1	17	57
5:45 PM	0	1	0	0	3	0	0	0	0	0	12	0	16	65
Count Total	0	1	0	1	21	0	2	0	0	0	57	7	89	0
Peak Hour	0	1	0	1	18	0	2	0	0	0	40	3	65	0

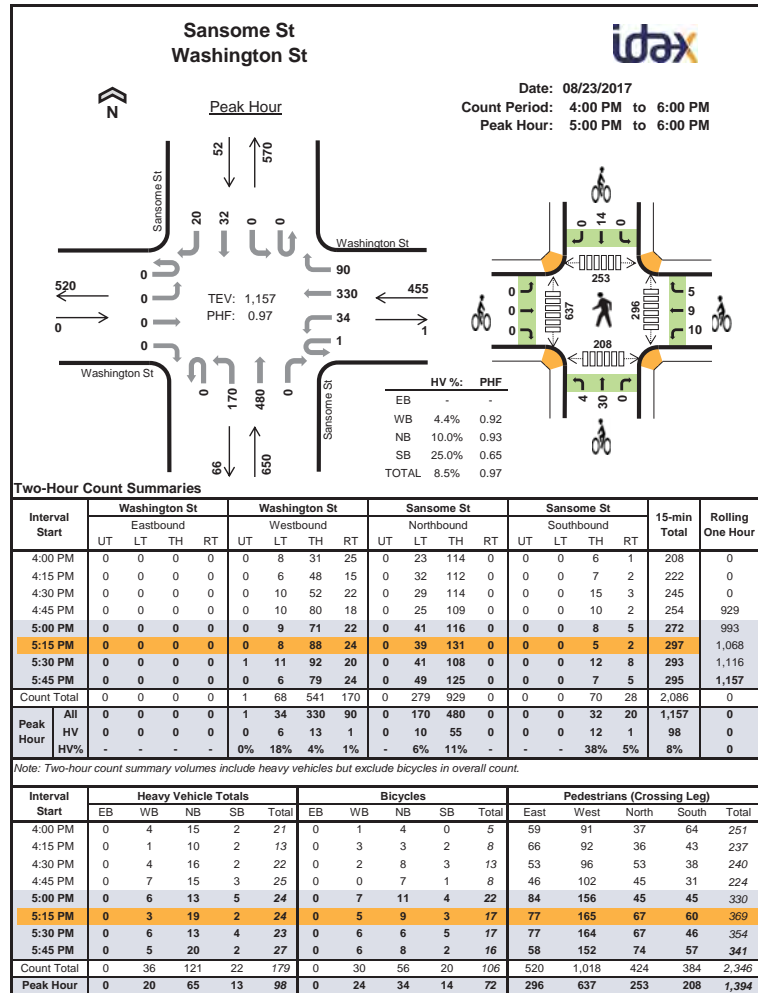
Note: U-Turn volumes for bikes are included in Left-Turn, if any.



Two-Hour Count Summaries - Heavy Vehicles																			
Interval Start	Clay St Eastbound				Clay St Westbound				Battery St Northbound				Battery St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	0	10	2	0	0	0	0	0	0	0	0	0	5	1	0	18	0
4:15 PM	0	0	0	8	1	0	0	0	0	0	0	0	0	0	5	2	0	16	0
4:30 PM	0	0	0	12	1	0	0	0	0	0	0	0	0	0	8	1	0	22	0
4:45 PM	0	0	0	13	0	0	0	0	0	0	0	0	0	0	3	1	0	17	73
5:00 PM	0	0	0	11	0	0	0	0	0	0	0	0	0	0	2	2	0	15	70
5:15 PM	0	0	0	13	2	0	0	0	0	0	0	0	0	0	3	1	0	19	73
5:30 PM	0	0	0	11	1	0	0	0	0	0	0	0	0	0	1	3	0	16	67
5:45 PM	0	0	0	9	0	0	0	0	0	0	0	0	0	0	3	1	0	13	63
Count Total	0	0	0	87	7	0	0	0	0	0	0	0	0	0	30	12	0	136	0
Peak Hour	0	0	0	44	3	0	0	0	0	0	0	0	0	0	9	7	0	63	0

Two-Hour Count Summaries - Bikes																		
Interval Start	Clay St Eastbound				Clay St Westbound				Battery St Northbound				Battery St Southbound				15-min Total	Rolling One Hour
	LT	TH	TH	RT	LT	TH	TH	RT	LT	TH	TH	RT	LT	TH	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0
4:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	1	5	0	0	8	0
4:30 PM	0	1	1	0	0	0	0	0	0	0	0	0	1	5	0	0	8	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	1	1	8	0	0	11	29
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	10	0	0	11	38
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	10	0	0	12	42
5:30 PM	0	4	0	0	0	0	0	0	0	0	0	0	1	11	0	0	16	50
5:45 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	12	0	0	16	55
Count Total	0	14	1	0	0	0	0	0	0	0	0	1	5	63	0	0	84	0
Peak Hour	0	10	0	0	0	0	0	0	0	0	0	0	2	43	0	0	55	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



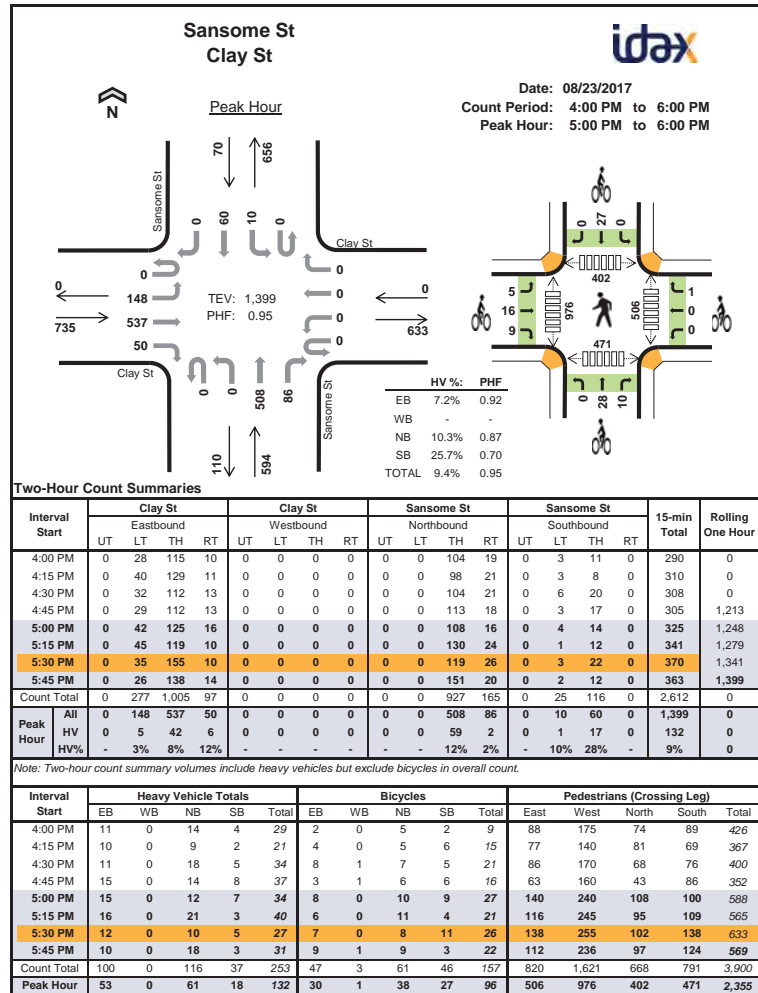
Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Washington St Eastbound				Washington St Westbound				Sansome St Northbound				Sansome St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	2	1	1	0	2	13	0	0	0	2	0	21	0
4:15 PM	0	0	0	0	0	1	0	0	0	2	8	0	0	0	1	1	13	0
4:30 PM	0	0	0	0	0	3	1	0	0	2	14	0	0	0	2	0	22	0
4:45 PM	0	0	0	0	0	5	2	0	0	2	13	0	0	0	3	0	25	81
5:00 PM	0	0	0	0	0	3	3	0	0	1	12	0	0	0	4	1	24	84
5:15 PM	0	0	0	0	0	1	2	0	0	3	16	0	0	0	2	0	24	95
5:30 PM	0	0	0	0	0	1	5	0	0	4	9	0	0	0	4	0	23	96
5:45 PM	0	0	0	0	0	1	3	1	0	2	18	0	0	0	2	0	27	98
Count Total	0	0	0	0	0	17	17	2	0	18	103	0	0	0	20	2	179	0
Peak Hour	0	0	0	0	0	6	13	1	0	10	55	0	0	0	12	1	98	0

Two-Hour Count Summaries - Bikes

Interval Start	Washington St Eastbound				Washington St Westbound				Sansome St Northbound				Sansome St Southbound				15-min Total	Rolling One Hour
	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	LT	TH	RT	UT			
4:00 PM	0	0	0	0	0	1	0	0	1	3	0	0	0	0	0	5	0	
4:15 PM	0	0	0	0	1	1	1	0	1	2	0	0	2	0	0	8	0	
4:30 PM	0	0	0	0	0	2	0	0	2	6	0	0	3	0	0	13	0	
4:45 PM	0	0	0	0	0	0	0	0	1	6	0	0	1	0	0	8	34	
5:00 PM	0	0	0	0	4	3	0	0	2	9	0	0	4	0	0	22	51	
5:15 PM	0	0	0	0	1	3	1	0	1	8	0	0	3	0	0	17	60	
5:30 PM	0	0	0	0	4	0	2	0	1	5	0	0	5	0	0	17	64	
5:45 PM	0	0	0	0	1	3	2	0	0	8	0	0	2	0	0	16	72	
Count Total	0	0	0	0	11	13	6	0	9	47	0	0	20	0	0	106	0	
Peak Hour	0	0	0	0	10	9	5	0	4	30	0	0	14	0	0	72	0	

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Clay St Eastbound				Clay St Westbound				Sansome St Northbound				Sansome St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	10	1	0	0	0	0	0	0	14	0	0	1	3	0	29	0
4:15 PM	0	2	8	0	0	0	0	0	0	0	9	0	0	0	2	0	21	0
4:30 PM	0	0	10	1	0	0	0	0	0	0	16	2	0	0	5	0	34	0
4:45 PM	0	2	12	1	0	0	0	0	0	0	13	1	0	0	8	0	37	121
5:00 PM	0	1	10	4	0	0	0	0	0	0	12	0	0	0	7	0	34	126
5:15 PM	0	1	14	1	0	0	0	0	0	0	19	2	0	0	3	0	40	145
5:30 PM	0	1	10	1	0	0	0	0	0	0	10	0	0	1	4	0	27	138
5:45 PM	0	2	8	0	0	0	0	0	0	0	18	0	0	0	3	0	31	132
Count Total	0	9	82	9	0	0	0	0	0	0	111	5	0	2	35	0	253	0
Peak Hour	0	5	42	6	0	0	0	0	0	0	59	2	0	1	17	0	132	0

Two-Hour Count Summaries - Bikes

Interval Start	Clay St Eastbound			Clay St Westbound			Sansome St Northbound			Sansome St Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	2	0	0	0	0	0	5	0	1	1	0	9	0
4:15 PM	0	4	0	0	0	0	0	4	1	0	6	0	15	0
4:30 PM	0	7	1	0	0	1	0	6	1	0	5	0	21	0
4:45 PM	1	1	1	1	0	0	0	6	0	0	6	0	16	61
5:00 PM	0	3	5	0	0	0	0	8	2	0	9	0	27	79
5:15 PM	0	6	0	0	0	0	0	9	2	0	4	0	21	85
5:30 PM	1	5	1	0	0	0	0	7	1	0	11	0	26	90
5:45 PM	4	2	3	0	0	1	0	4	5	0	3	0	22	96
Count Total	6	30	11	1	0	2	0	49	12	1	45	0	157	0
Peak Hour	5	16	9	0	0	1	0	28	10	0	27	0	96	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Appendix E:

Travel Demand Assumptions

Proposed Project Travel Demand
Source: 2019 SF Guidelines for residential, office and retail; 2002 SF Guidelines for Athletic Club (adjusted to include taxi/TNC)

Land Use	Amount	Proposed Project
Hotel	# of Rooms	200
	KSF	147.85
Residential	# of Rooms	0
	KSF	0
Retail/Commercial	KSF	46.4
	KSF	36.35
Gym	KSF	10.05
Restaurant*	KSF	39.8
	KSF	21.348
Office	KSF	20.6
	KSF	0
Fire Station**	KSF	0
Other (Loading and BOH)	KSF	0
Below Grade BOH/MEP/Other	KSF	0
Above Grading Loading and BOH	KSF	0

* Not consider the existing retail uses on the site because COVID conditions make it hard to verify what the actual occupancy and travel patterns are. 10 ksf are considered to be restaurant.
** Trips associated with the fire station were not calculated because there would be no change to the travel.

Land Use	Amount (ksf)	Amount (bd)	Daily Trip Rate	PM Trip Rate	Daily Person Trips	PM Person Trips	Daily Vehicle Trip Rate	PM Vehicle Trip Rate
Retail/Commercial	Hotel	147.9	8.4	0.60	1,680	120	1.9	0.14
	Gym	36.4	57.1	6.0	2,075	218	5.6	0.58
	Restaurant	10.1	200	27.0	2,010	271	19.7	2.59
	Office	39.8	15.7	1.4	625	56	3.2	0.30
Total					6,390	665		

PM Person Trips	Hotel	Gym	Restaurant	Office	Total
Auto	21.0	24.6	30.7	10.3	86.56
Taxi/TNC	23.5	10.0	12.5	3.4	49.43
Public Transit	7.1	55.4	68.9	16.0	147.45
Walk	66.1	119.7	149.0	23.6	358.40
Bike	2.3	8.1	10.0	2.1	22.45
Total	120	218	271.07865	55.3	664.29

PM Vehicle Trips	Total	In	Out
Auto Only	55	18	37
Taxi/TNC Only	31	11	20
Total	86	29	57

Daily Person Trips	Hotel	Gym	Restaurant	Office	Total
Auto	294	228.23	221.10	112.47	855.8
Taxi/TNC	329	103.74	100.50	37.49	571.0
Public Transit	99	518.70	502.50	181.21	1,301.5
Walk	926	1,141.14	1,105.50	262.44	3,434.8
Bike	32	82.99	80.40	31.24	226.6
Total	1,680	2,074.80	2,010.00	624.86	6,390

Daily Vehicle Trips	Total	In	Out
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Person Trips Splits

PM Person Trips	Hotel	Gym	Restaurant	Office
Auto Only	18%	11%	11%	18%
Taxi/TNC	20%	5%	5%	6%
Public Transit	6%	25%	25%	29%
Walk	55%	55%	55%	42%
Bike	2%	4%	4%	5%
100%		100%	100%	100%

PM Vehicle Trips by Land Use	Total	In	Out
Hotel	27	10	17
Gym	21	8	13
Resaurant	26	10	16
Office	12	1	11
Total	86	29	57

Daily Vehicle Trips by Land Use	Total	In	Out
Hotel	385	185	200
Gym	204	98	106
Resaurant	198	95	103
Office	129	65	64
Total	916	443	473

Residential Variant Travel Demand

Source: 2019 SF Guidelines for residential, office and retail; 2002 SF Guidelines for Athletic Club (adjusted to include taxi/TNC)

Land Use	Amount	Residential Variant
Hotel	# of Rooms	0
	KSF	0
Residential	# of Rooms	348
	KSF	257.4
Retail/Commercial Gym Restaurant*	KSF	0
	KSF	0
	KSF	0
Office	KSF	0
Fire Station**	KSF	9.224
Other (Loading and BOH)	KSF	0
Below Grade BOH/MEP/Other	KSF	17.6
Above Grading Loading and BOH	KSF	1.4

* Not consider the existing retail uses on the site because COVID conditions make it hard to verify what the actual occupancy and travel patterns are. 10 ksf are considered to be restaurant.

** Trips associated with the fire station were not calculated because there would be no change to the travel.

Land Use	Amount (ksf)	Amount (bd)	Daily Trip Rate	PM Trip Rate	Daily Person Trips	PM Person Trips
Residential	257	348	4.5	0.4	1,566	139

PM Person Trips	Residential	Residential
Auto	35	25%
Taxi/TNC	8	6%
Public Transit	39	28%
Walk	52	38%
Bike	4	3%
Total	138	99%

34.800	25%
8.352	6%
38.976	28%
52.896	38%
4.176	3%
139	100%

Residential Vehicle Trips	Daily Total	In	Out	PM Total	In	Out
Total (Auto + TNC)	322	180	142	28	22	6
Auto Only	259	145	114	23	18	5
Taxi / TNC	63	35	28	5	4	1

Daily Person Trips	Residential	Residential
Auto	388.37	25%
Taxi/TNC	93.96	6%
Public Transit	438.48	28%
Walk	590.38	38%
Bike	45.41	3%
Total	1,556.60	99%

391.500	25%
93.960	6%
438.480	28%
595.080	38%
46.980	3%
1566	100%

Proposed Project Auto and Taxi/TNC Trip Distribution

Source: 2019 SF Guidelines for residential, office, and retail; 2002 SF Guidelines for Athletic Club (adjusted to include taxi/TNC, and converted to 2019 districts)

		INBOUND												OUTBOUND													
		Downtown/North Beach	SoMa	Marina/Western Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total	Downtown/North Beach	SoMa	Marina/Western Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total
Auto+TNC	Hotel	39.0%	8.0%	8.6%	13.7%	4.9%	1.4%	7.1%	3.5%	0.0%	4.8%	6.8%	2.1%	100.0%	28.4%	2.7%	13.1%	9.9%	9.0%	1.9%	2.1%	2.5%	0.0%	21.0%	5.6%	3.9%	100.0%
	Gym	39.0%	8.0%	8.6%	13.7%	4.9%	1.4%	7.1%	3.5%	0.0%	4.8%	6.8%	2.1%	100.0%	28.4%	2.7%	13.1%	9.9%	9.0%	1.9%	2.1%	2.5%	0.0%	21.0%	5.6%	3.9%	100.0%
	Restaurant	39.0%	8.0%	8.6%	13.7%	4.9%	1.4%	7.1%	3.5%	0.0%	4.8%	6.8%	2.1%	100.0%	28.4%	2.7%	13.1%	9.9%	9.0%	1.9%	2.1%	2.5%	0.0%	21.0%	5.6%	3.9%	100.0%
	Office	48.1%	0.0%	2.4%	0.0%	46.1%	0.0%	0.0%	0.0%	0.0%	0.0%	3.4%	0.0%	100.0%	10.4%	1.2%	9.7%	1.8%	20.1%	5.0%	2.4%	2.1%	0.0%	13.2%	23.0%	11.1%	100.0%
	Overall	39.25%	7.79%	8.40%	13.31%	6.21%	1.36%	6.92%	3.39%	0.00%	4.67%	6.65%	2.05%	100%	24.99%	2.38%	12.41%	8.35%	11.09%	2.51%	2.19%	2.43%	0.00%	19.48%	8.93%	5.24%	100%
Auto+TNC	Hotel	4	1	1	1	1	0	1	0	-	0	1	0	10	5	0	2	2	1	0	0	0	-	3	1	1	17
	Gym	3	1	1	1	0	0	1	0	-	0	1	0	8	4	0	2	1	1	0	0	0	-	3	1	1	13
	Restaurant	4	1	1	1	0	0	1	0	-	0	1	0	10	5	0	2	2	1	0	0	0	-	3	1	1	16
	Office	0	-	0	-	0	-	-	-	-	-	0	-	1	1	0	1	0	2	1	0	0	-	1	2	1	11
	Overall	11	2	2	4	2	0	2	1	-	1	2	1	29	14	1	7	5	6	1	1	1	-	11	5	3	56
Auto	Hotel	2	0	0	1	0	0	0	0	-	0	0	0	5	2	0	1	1	1	0	0	0	-	2	0	0	8
	Gym	2	0	0	1	0	0	0	0	-	0	0	0	6	3	0	1	1	1	0	0	0	-	2	1	0	9
	Restaurant	3	1	1	1	0	0	0	0	-	0	0	0	7	3	0	1	1	1	0	0	0	-	2	1	0	11
	Office	0	-	0	-	0	-	-	-	-	-	0	-	1	1	0	1	0	2	0	0	0	-	1	2	1	8
		4	1	1	1	0	0	0	0	0	0	0	0	11	5	0	3	2	2	0	0	0	0	4	2	1	20
TNC	Hotel	2	0	0	1	0	0	0	0	-	0	0	0	5	2	0	1	1	1	0	0	0	-	2	0	0	9
	Gym	1	0	0	0	0	0	0	0	-	0	0	0	2	1	0	0	0	0	0	0	0	-	1	0	0	4
	Restaurant	1	0	0	0	0	0	0	0	-	0	0	0	3	1	0	1	0	0	0	0	0	-	1	0	0	5
	Office	0	-	0	-	0	-	-	-	-	-	0	-	0	0	0	0	0	1	0	0	0	-	0	1	0	3
		4	1	1	1	1	0	1	0	0	0	1	0	11	5	0	3	2	2	0	0	0	0	4	2	1	20

Residential Variant Auto and Taxi/TNC Trip Distribution

Source: 2019 SF Guidelines for residential, office, and retail; 2002 SF Guidelines for Athletic Club (adjusted to include taxi/TNC, and converted to 2019 districts)

		INBOUND														OUTBOUND													
		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot rero	OuterMisio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total	Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot rero	OuterMisio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total		
Auto+TNC	Residential	39.3%	7.5%	8.1%	0.0%	19.9%	3.7%	0.8%	8.8%	0.0%	5.8%	4.6%	1.5%	100.0%	41.7%	5.0%	37.8%	0.0%	0.0%	11.3%	4.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%		
Auto+TNC		9	2	2	-	4	1	0	2	-	1	1	0	22	3	0	2	-	-	1	0	-	-	-	-	-	6		
Auto		7	1	1	-	3	1	0	2	-	1	1	0	18	2	0	2	-	-	1	0	-	-	-	-	-	5		
TNC		2	0	0	-	1	0	0	0	0	-	0	0	4	1	0	0	-	-	0	0	-	-	-	-	-	1		
		39.3%	7.5%	8.1%	0.0%	19.9%	3.7%	0.8%	8.8%	0.0%	5.8%	4.6%	1.5%		41.7%	5.0%	37.8%	0.0%	0.0%	11.3%	4.1%	0.0%	0.0%	0.0%	0.0%	0.0%			

Project Loading Demand

Source: 2019 SF Guidelines for residential, office, and retail; 2002 SF Guidelines for Athletic (adjusted to include taxi/TNC)

Proposed Project

							Passenger Loading	Daily Truck Trip Gen
Land Use	Amount (ksf)	Amount (bd or ksf)	Daily Trip Rate	PM Trip Rate	Daily Person Trips	PM Person Trips	pct person trips	per KSF, from 2002 Guidelines
Hotel	147.9	200	8.4	0.6	1,680	120	21.8%	0.09
Gym	36		57.1	6.0	2,075	218	5.5%	0.22
Restaurant	10.1		200.0	27.0	2,010	271	5.5%	0.22
Office	39.8		15.7	1.4	625	56	7.3%	0.21
Total	234.1				6,390	665		

BY LAND USE

Land Use	Passenger Loading %	PM Peak Hour Loading Instances	Peak 15 Minute Spaces of Loading Demand
Hotel	21.8%	26	0.87
Gym	5.5%	12	0.40
Restaurant	5.5%	15	0.50
Office	7.3%	4	0.13
Total		57	1.90

Land Use	Freight Loading Rate	Daily Truck Trips	Daily Freight Loading Demand
Hotel	0.09	13	0.75
Gym	0.22	8	0.46
Restaurant	0.22	2	0.12
Office	0.21	8	0.46
Total		31	1.79

Project Loading Demand

Source: 2019 SF Guidelines for residential, office, and retail; 2002 SF Guidelines for Athletic (adjusted to include taxi/TNC)

Residential Variant

							Passenger Loading	Daily Truck Trip Gen
Land Use	Amount (ksf)	Amount (bd or ksf)	Daily Trip Rate	PM Trip Rate	Daily Person Trips	Person Trips	pct person trips	per KSF, from 2002 Guidelines
Residential	257.4	348	4.5	0.4	1,566	139	8.8%	0.03

Land Use	Passenger Loading %	PM Peak Hour Loading Instances	Peak 15 Minute Spaces of Loading Demand
Residential	8.8%	12	0.40

Land Use	Freight Loading Rate	Daily Truck Trips	Daily Freight Loading Demand
Residential	0.03	8	0.46

Appendix F:

Regulatory Framework

Regulatory Framework

This section provides a summary of the plans and policies of the City and County of San Francisco, and regional, state, and federal agencies that have policy and regulatory control over the project site. No federal regulations, plans, or policies are relevant to the project.

State

CEQA Section 21099(B)(1) (Senate Bill 743)

California Environmental Quality Act (CEQA) Section 21099(b)(1) requires that the Office of Planning and Research (OPR) develop revisions to the CEQA Guidelines and establish criteria for determining the significance of the transportation impacts of projects that “promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.” CEQA Section 21099(b)(2) states that, upon certification of the revised guidelines for determining transportation impacts, pursuant to Section 21099(b)(1), automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment under CEQA.

In January 2016, OPR published for public review and comment a *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA*, recommending that transportation impacts for projects be measured using a VMT metric. On March 3, 2016, based on compelling evidence in that document and the department’s independent review of the literature on level of service and VMT, the San Francisco Planning Commission adopted OPR’s recommendation to use the VMT metric instead of automobile delay to evaluate the transportation impacts of projects (resolution 19579). In December 2018, the California Natural Resources Agency certified and adopted the CEQA Guidelines update package, including the section implementing Senate Bill 743 (section 15064.3). The Office of Planning and Research developed a *Technical Advisory on Evaluating Transportation Impacts in CEQA*, which contains OPR’s technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures.

Regional

Plan Bay Area 2040

Plan Bay Area 2040 is a state-mandated integrated long-range transportation and land use plan. As required by SB 375, all metropolitan regions in California must complete a Sustainable Communities Strategy as part of a Regional Transportation Plan. This strategy integrates transportation, land use, and housing to meet greenhouse gas reduction targets set by the California Air Resources Board. Plan Bay Area 2040 meets those requirements. In addition, the plan sets a roadmap for future transportation investments and identifies what it would take to accommodate expected growth. The plan neither funds specific transportation projects nor changes local land use policies.

In the Bay Area, the Metropolitan Transportation Commission and the Association of Bay Area Governments adopted the latest plan in 2017. To help meet the greenhouse gas reduction targets, the plan identified priority development areas (PDAs). The agencies estimate approximately 77 percent of housing and 55 percent of job growth will occur in a PDA between 2010 and 2040. These PDAs tend to be centrally located, with high levels of transit service, and lower than average VMT generation per capita. The project site is located in the Downtown/Van Ness/Northeast Neighborhoods PDA.

Local

Transit First Policy

The City's Transit First Policy, adopted by the board of supervisors in 1973 and amended in 1998, is contained in section 8A.115 of the City Charter. The Transit First Policy is a set of principles that emphasize the City's commitment to give pedestrian, bicyclist, and public transit use of public rights-of-way priority over the private automobile. These principles are embodied in the policies and objectives of the Transportation Element of the San Francisco General Plan. All City boards, commissions, and departments are required by law to implement the City's Transit First Policy principles in conducting the City's affairs.

Vision Zero

In 2014, the San Francisco Board of Supervisors adopted a resolution to implement an action plan that would reduce traffic fatalities to zero by 2024 through engineering, education, and enforcement (resolution 91-14). The numerous San Francisco agencies responsible for the action plan adopted similar resolutions. In 2017, the Board of Supervisors amended the Transportation and Urban Design elements of the San Francisco General Plan to implement Vision Zero (ordinance 175-17).

San Francisco General Plan

The Transportation Element of the general plan General Plan is composed of objectives and policies that relate to the eight aspects of the citywide transportation system: general, regional transportation, congestion management, vehicle circulation, transit, pedestrians, bicycles, citywide parking, and goods management. The transportation element references the City's Transit First Policy in its introduction and contains objectives and policies that are pertinent to the proposed project. It includes objectives related to locating development near transit facilities, prioritizing sustainable modes of travel, integrating and connecting land use development and transportation investments, and designing streets for walking, bicycling, and public transit.

Downtown Plan

Approved by the Board of Supervisors in 1985, the Downtown Plan establishes land use policies and objectives around a vision of maintaining and improving the City's downtown as a world-renowned cultural and economic center. Key land use and transportation policy objectives include encouraging commercial development, prioritizing high-capacity transportation modes, and enhancing the public realm. The project site is within the Downtown Plan's boundaries which are commonly defined as the C-3 zoning district.

Better Streets Plan, Policy and Requirements

In 2006, the San Francisco Board of Supervisors adopted the Better Streets Policy. Since then, the board has amended the policy several times, including in 2010 to reference the Better Streets Plan. The Better Streets Plan creates a unified set of standards, guidelines, and implementation strategies to govern how San Francisco designs, builds, and maintains its pedestrian environment. The planning code requires certain new development projects to make changes to the public right-of-way so that it is consistent with the Better Streets Plan (section 138.1). The planning code requires most projects to plant and maintain street trees and some larger projects to submit a streetscape plan, which may require elements such as sidewalk widening, transit boarding islands, and medians.

San Francisco Regulations for Working in San Francisco Streets (Blue Book)

The San Francisco Regulations for Working in San Francisco Streets (the Blue Book) contains regulations that are prepared and regularly updated by the San Francisco Municipal Transportation Agency (SFMTA), under the authority derived from the San Francisco Transportation Code, to serve as a guide for contractors working in San Francisco streets. The manual establishes rules and guidance so that work can be done safely and with the least possible interference with pedestrians, bicyclists, and transit and vehicular traffic. The manual also contains relevant general information, contact information, and procedures related to working in the public right-of-way when it is controlled by agencies other than SFMTA.

In addition to the regulations presented in the manual, all traffic control, warning, and guidance devices must conform to the California Manual on Uniform Traffic Control Devices. Furthermore, contractors are responsible for complying with all applicable city, state, and federal codes, rules, and regulations. The party responsible for setting up traffic controls during construction shall be held accountable and responsible if such controls do not meet the guidance and requirements established by the manual and any applicable state requirements.

Summary of Public Works Code sections 724 and 2.4.20

Section 724 of the San Francisco Public Works Code¹ addresses the temporary occupation of the public-right-of way. This section contains requirements for clearances to SF Fire Department equipment, traffic-signal equipment, noticing, pedestrian clearances, parking plans, trash cleanup, and city indemnification.

San Francisco Public Works Code section 724(a)(1) requires that material and equipment not occupy more than the designated parking lane width and not more than half of the official sidewalk width along the boundary of the fronting property unless permission is granted pursuant to sections 724.7 and 724.8 for temporary occupancy of additional street space. Material and equipment shall mean only construction material used at the site, construction equipment, vehicles bearing the logo or other identifying

¹ San Francisco Public Works Code,
https://codelibrary.amlegal.com/codes/san_francisco/latest/sf_publicworks/0-0-0-3684,
accessed December 2020.

information so that the City could verify that it belongs to the contractor or a subcontractor working at the site and refuse containers for construction debris.

For purposes of section 724.1(b), which addresses the required fee amount related to temporary street space occupancy for any purpose other than a building construction operation, material and equipment also shall include any material or equipment related to the proposed use. Parking lane width shall not exceed eight feet in width, and if such lane also is designated as a commute lane, such lane may not be occupied unless permission is granted pursuant to sections 724.7 and 724.8 for temporary occupancy of additional street space.

To meet these requirements, the contract shall require the following at our job site:

- A minimum clearance of four feet must be maintained at all times to accommodate pedestrian path of travel requirements.
- Clearance of materials from fire hydrants, fire alarm boxes and value covers shall be as required by the Fire Department.
- Clearance of materials from traffic signal controllers and pull boxes shall be as required by SFPW.
- All sand, dirt or other materials shall be prevented from being blown or moved to other parts of the street, or from interfering with other property use. The gutters shall not be obstructed.
- Lights, barriers, barricades, signs, cones, and other devices for pedestrian and traffic safety, and other requirements shall be provided as set forth in SFPW orders or regulations.

Section 2.4.20 of the San Francisco Public Works Code addresses permits to excavate, requires that the applicant for an excavation for permit for major work, or excavation that will affect the public right-of-way,² that is 30 consecutive calendar days or longer to submit a contractor parking plan, including a proposal to reduce parking demand in the project site vicinity, to SFPW for its review. Such a parking plan shall include:

- The number and total linear feet of on-street parking spaces that would be impacted;
- The number and total linear feet of parking spaces on side streets proposed for staging and other construction purposes that would be impacted;
- The amount and type of equipment placed on streets to be excavated and side streets;
- Solutions to stockpiling construction materials in locations other than the proposed permit area in order to minimize impacted street area;
- The average number of employees anticipated each day at the work site;
- Timeline and phasing of the project, including the duration of each phase, and how it will affect the number and total linear feet of on street parking spaces set aside for the excavation project at each phase;
- A proposal to provide SFPW with updates in writing, by phone, or an in-person visit regarding any changes to the status of the project, on a regular basis as appropriate, but no later than at the mid-point of the permit term or any extension thereof. If the permittee provides updates by

² Public Works Code section 2.4.4 defines “major work” as any reasonably foreseeable excavation that will affect the public right-of-way for more than 15 consecutive calendar days.

phone or in-person visit, the permittee shall provide this same information in writing to SFPW within two business days of the phone or in-person communication;

- Information about the availability of on-site or nearby parking garages or other off-street parking opportunities in the vicinity. As part of this required information, the project sponsor shall submit a list of all available public and private parking garages within a 300-foot radius of the project limits and information on whether those garages include carpooling parking spaces. In addition, the project sponsor shall specify if he/she contacted any off-street parking opportunities and the name and date of such contact;
- A proposal concerning opportunities for reducing parking demand in the vicinity of the project site, such as car-pooling, van transportation, transit, or other off-site parking arrangements;
- A proposal on how the project sponsor will make the on-street parking available to the general public if no work is scheduled and/or no equipment or material storage is required on the street(s) or portion thereof by 4:00 pm if project work is complete for the day. The project sponsor shall include this information in the courtesy notice to property owners required under the San Francisco Public Works Code section 2.4.20(d);
- Any other information SFPW or other affected City departments, such as SFMTA, deems valuable for understanding the impact of the project on the neighborhood and neighborhood parking supply.

Transportation Sustainability Fee

The planning code requires certain new development projects to pay a fee, based on the size of the development, to the City (section 411A). The fee offsets a portion of the impacts of development projects on the transportation system. The City may use the fee only for specific transportation-related programs, such as programs related to transit capital maintenance, local and regional transit service expansion and reliability, complete streets, and program administration.

Transportation Demand Management Program

The planning code requires certain new development projects to incorporate “design features, incentives, and tools” to reduce VMT (section 169). Developers choose measures from a menu of options to develop an overall transportation demand management (TDM) plan. Some options in the menu may overlap with requirements elsewhere in the planning code (e.g., bicycle parking, car-share parking). Each development project’s TDM plan requires routine monitoring and reporting to the planning department to demonstrate compliance.

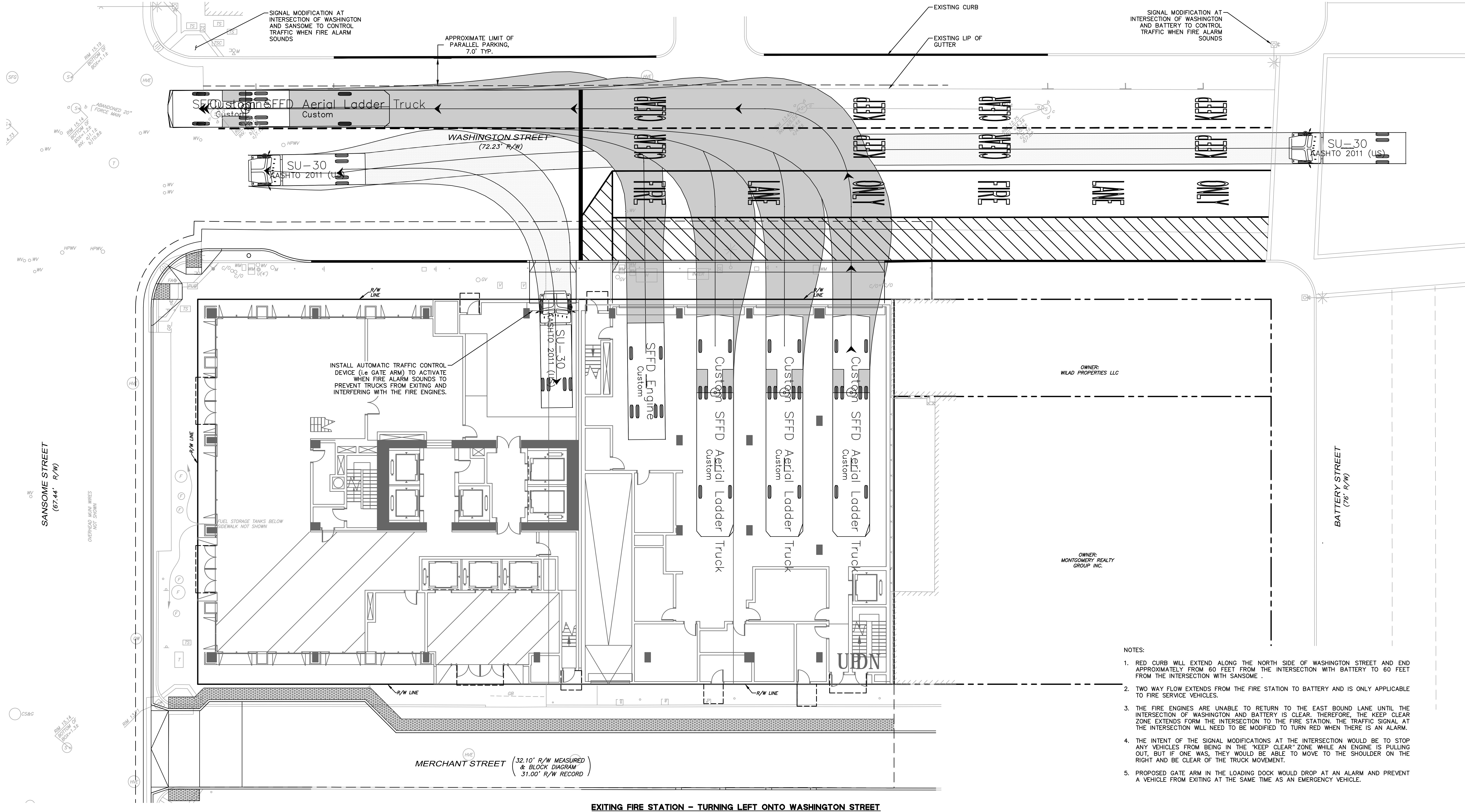
Off-Street Loading

The planning code requires certain new development projects to include off-street freight loading spaces (section 152.1). The planning code requirements for loading spaces depends on the size of the development project. It sets minimum dimensions for off-street freight loading and allows for substituted service vehicle spaces (section 154(b)).

Appendix G:

Truck Turning Template

DATE	DATE	DATE	DATE
10/1/11	10/1/11	10/1/11	10/1/11
DESIGNED BY	RM	DESIGNED BY	RM
CHECKED BY	R	CHECKED BY	M
DATE	DATE	DATE	DATE
10/1/11	10/1/11	10/1/11	10/1/11
DESIGNED BY	RM	DESIGNED BY	RM
CHECKED BY	R	CHECKED BY	R



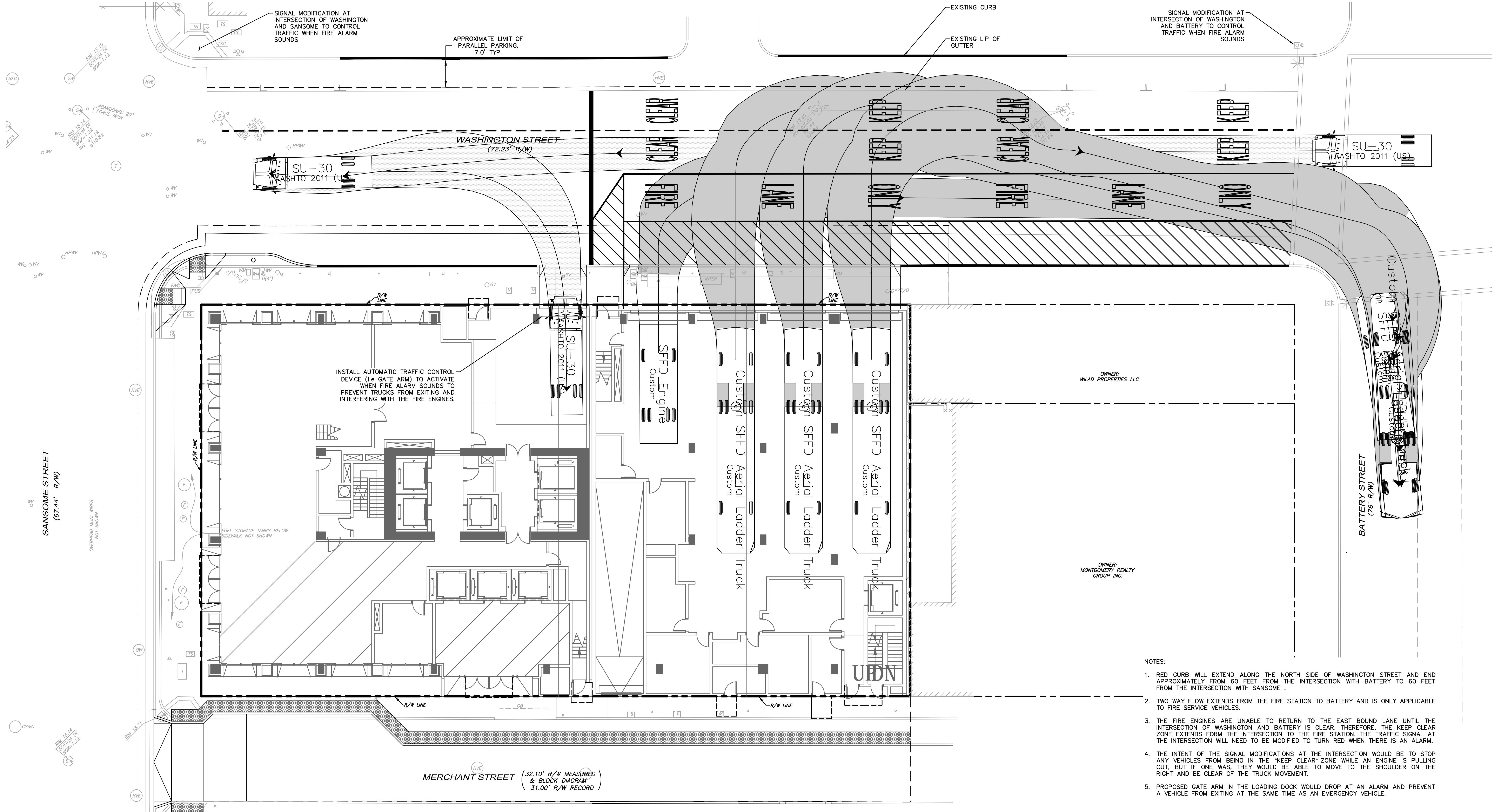
EXITING FIRE STATION - TURNING LEFT ONTO WASHINGTON STREET



00R00R000
00R000

DATE	DATE	DATE	DATE
10/1/11	10/1/11	10/1/11	10/1/11
DESIGNED BY	R	DESIGNED BY	M
CHECKED BY	R	CHECKED BY	M

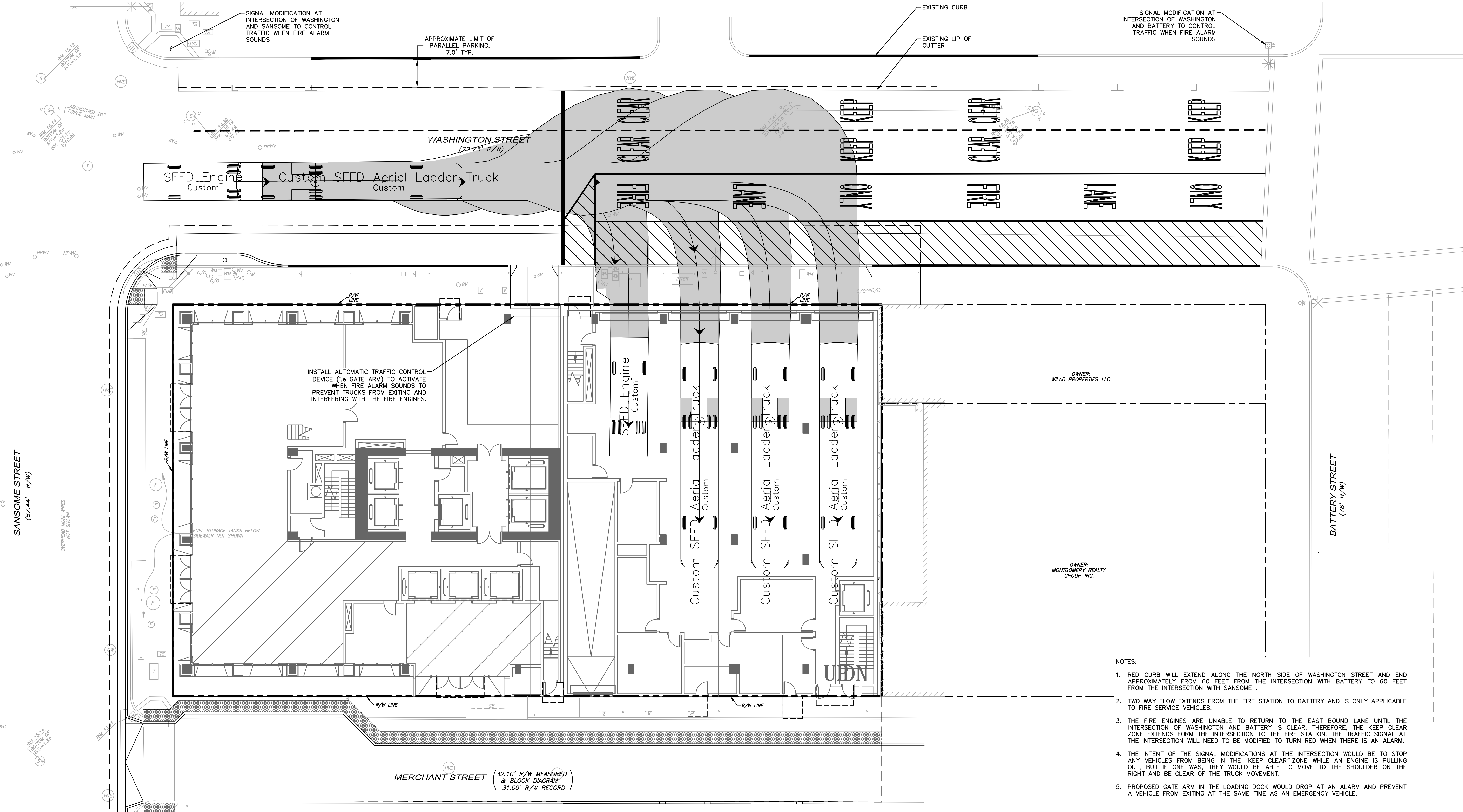
DATE	10/1/2011	BY	MM
REVISION	1	DATE	10/1/2011
DESCRIPTION	REVISION	DATE	10/1/2011
1	REVISION	DATE	10/1/2011
2	REVISION	DATE	10/1/2011
3	REVISION	DATE	10/1/2011
4	REVISION	DATE	10/1/2011
5	REVISION	DATE	10/1/2011
6	REVISION	DATE	10/1/2011
7	REVISION	DATE	10/1/2011
8	REVISION	DATE	10/1/2011
9	REVISION	DATE	10/1/2011
10	REVISION	DATE	10/1/2011
11	REVISION	DATE	10/1/2011
12	REVISION	DATE	10/1/2011
13	REVISION	DATE	10/1/2011
14	REVISION	DATE	10/1/2011
15	REVISION	DATE	10/1/2011
16	REVISION	DATE	10/1/2011
17	REVISION	DATE	10/1/2011
18	REVISION	DATE	10/1/2011
19	REVISION	DATE	10/1/2011
20	REVISION	DATE	10/1/2011
21	REVISION	DATE	10/1/2011
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99	REVISION	DATE	10/1/2011
100	REVISION	DATE	10/1/2011



- NOTES:
1. RED CURB WILL EXTEND ALONG THE NORTH SIDE OF WASHINGTON STREET AND END APPROXIMATELY FROM 60 FEET FROM THE INTERSECTION WITH BATTERY TO 60 FEET FROM THE INTERSECTION WITH SANSOME.
 2. TWO WAY FLOW EXTENDS FROM THE FIRE STATION TO BATTERY AND IS ONLY APPLICABLE TO FIRE SERVICE VEHICLES.
 3. THE FIRE ENGINES ARE UNABLE TO RETURN TO THE EAST BOUND LANE UNTIL THE INTERSECTION OF WASHINGTON AND BATTERY IS CLEAR. THEREFORE, THE KEEP CLEAR ZONE EXTENDS FROM THE INTERSECTION TO THE FIRE STATION. THE TRAFFIC SIGNAL AT THE INTERSECTION WILL NEED TO BE MODIFIED TO TURN RED WHEN THERE IS AN ALARM.
 4. THE INTENT OF THE SIGNAL MODIFICATIONS AT THE INTERSECTION WOULD BE TO STOP ANY VEHICLES FROM BEING IN THE "KEEP CLEAR" ZONE WHILE AN ENGINE IS PULLING OUT, BUT IF ONE WAS, THEY WOULD BE ABLE TO MOVE TO THE SHOULDER ON THE RIGHT AND BE CLEAR OF THE TRUCK MOVEMENT.
 5. PROPOSED GATE ARM IN THE LOADING DOCK WOULD DROP AT AN ALARM AND PREVENT A VEHICLE FROM EXITING AT THE SAME TIME AS AN EMERGENCY VEHICLE.

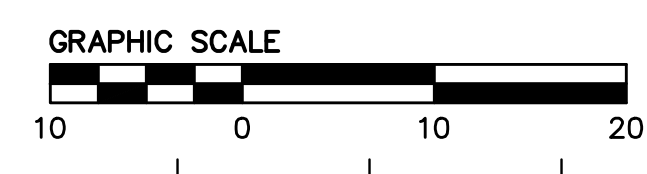
EXITING FIRE STATION - TURNING RIGHT ONTO WASHINGTON STREET

REVISION	DATE	BY	CHKD	APP'D
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2	08/01/22	RM		
3	08/01/22	RM		
4	08/01/22	RM		
5	08/01/22	RM		



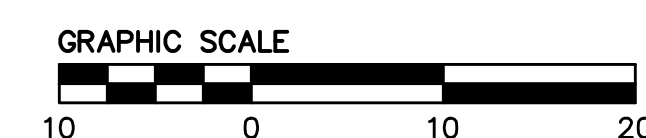
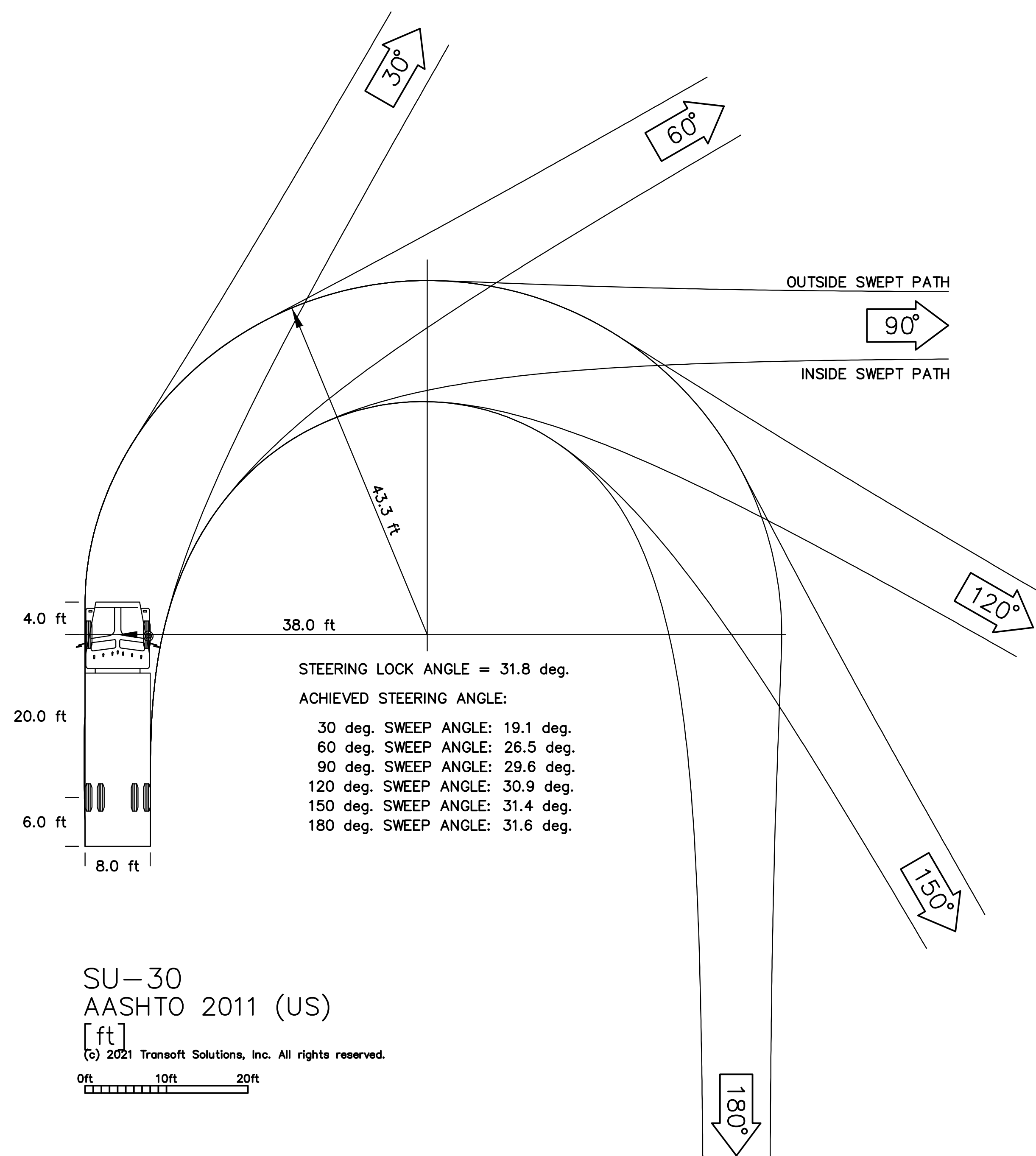
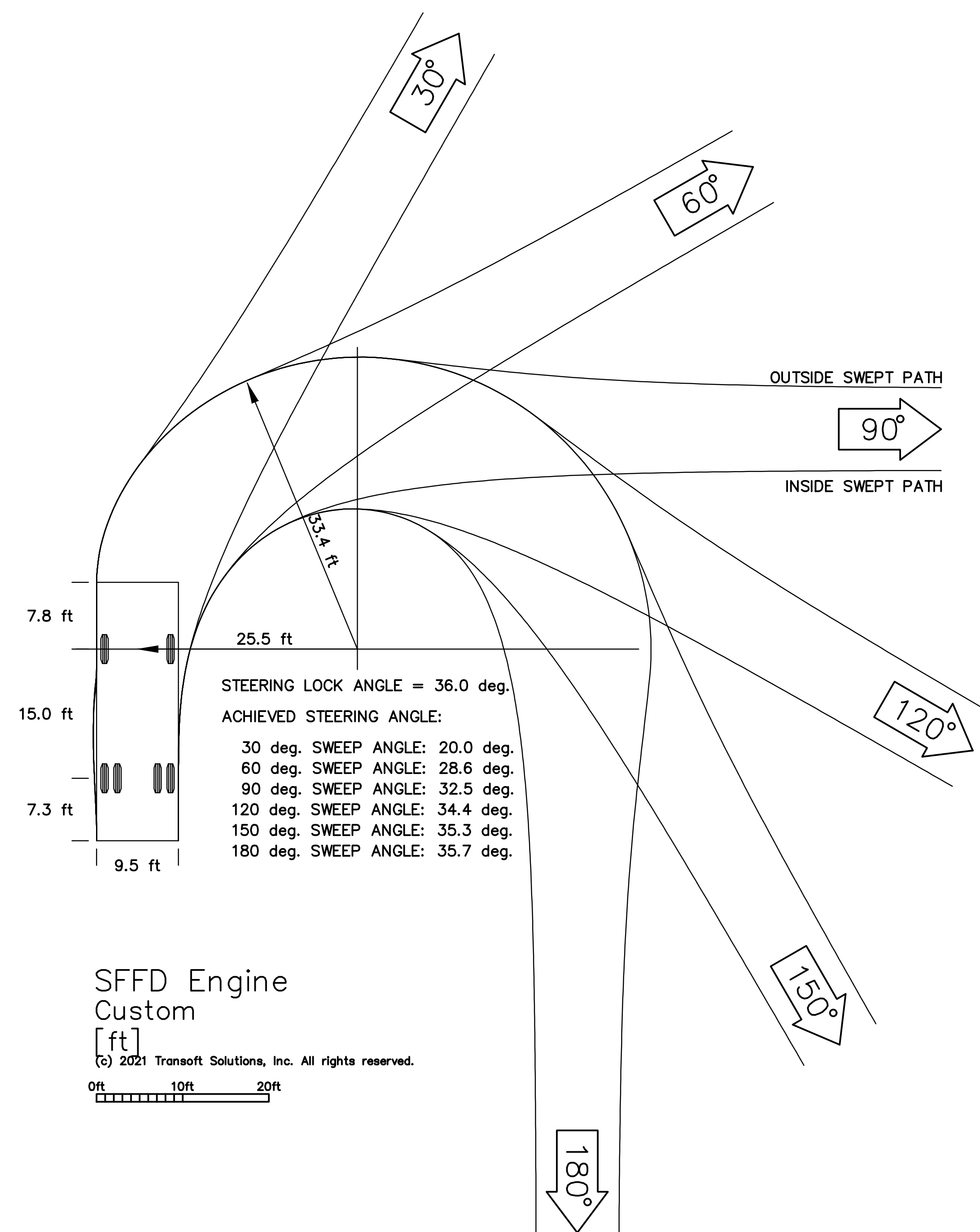
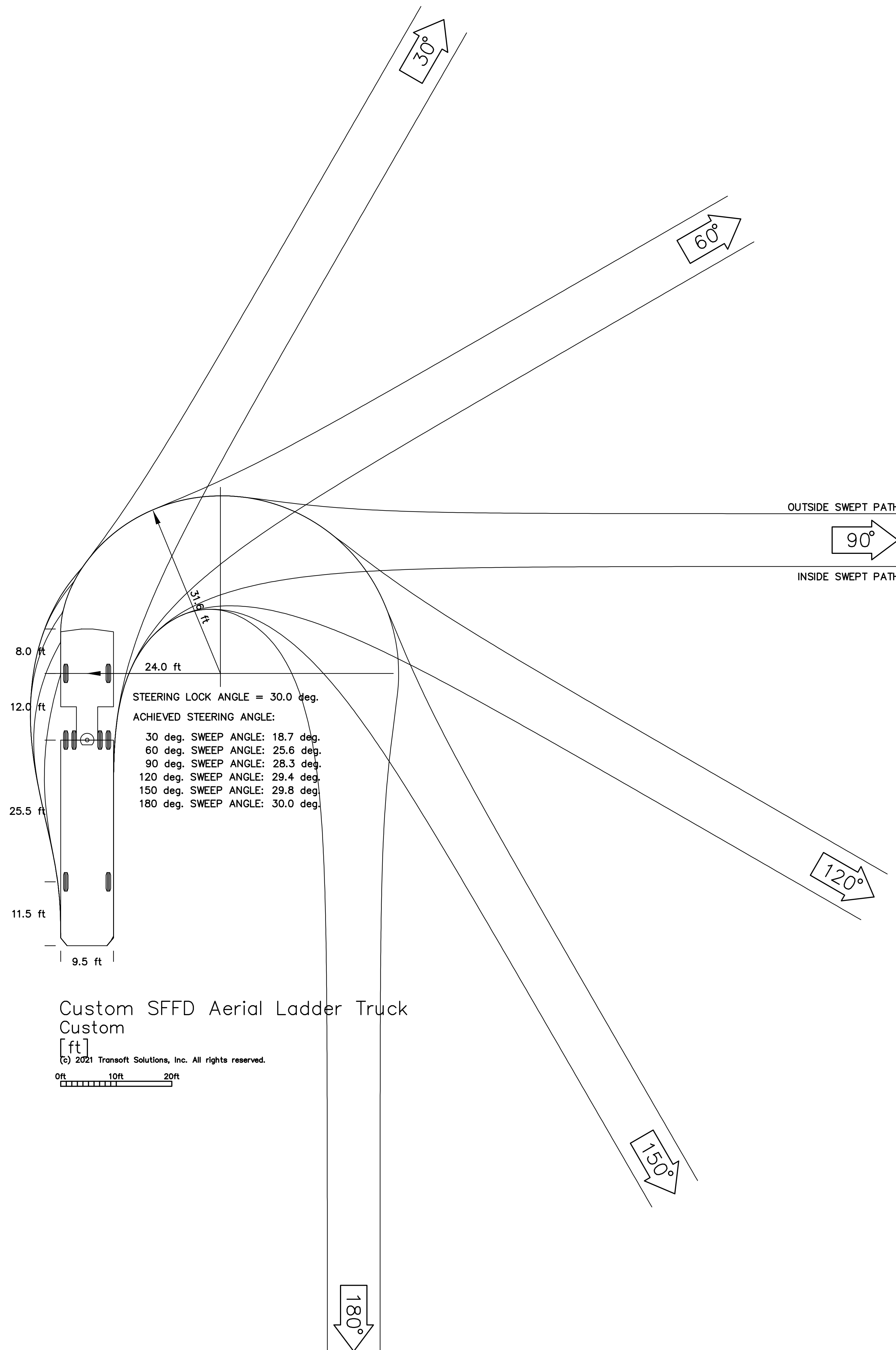
- NOTES:
1. RED CURB WILL EXTEND ALONG THE NORTH SIDE OF WASHINGTON STREET AND END APPROXIMATELY FROM 60 FEET FROM THE INTERSECTION WITH BATTERY TO 60 FEET FROM THE INTERSECTION WITH SANSOME.
 2. TWO WAY FLOW EXTENDS FROM THE FIRE STATION TO BATTERY AND IS ONLY APPLICABLE TO FIRE SERVICE VEHICLES.
 3. THE FIRE ENGINES ARE UNABLE TO RETURN TO THE EAST BOUND LANE UNTIL THE INTERSECTION OF WASHINGTON AND BATTERY IS CLEAR. THEREFORE, THE KEEP CLEAR ZONE EXTENDS FROM THE INTERSECTION TO THE FIRE STATION. THE TRAFFIC SIGNAL AT THE INTERSECTION WILL NEED TO BE MODIFIED TO TURN RED WHEN THERE IS AN ALARM.
 4. THE INTENT OF THE SIGNAL MODIFICATIONS AT THE INTERSECTION WOULD BE TO STOP ANY VEHICLES FROM BEING IN THE "KEEP CLEAR" ZONE WHILE AN ENGINE IS PULLING OUT, BUT IF ONE WAS, THEY WOULD BE ABLE TO MOVE TO THE SHOULDER ON THE RIGHT AND BE CLEAR OF THE TRUCK MOVEMENT.
 5. PROPOSED GATE ARM IN THE LOADING DOCK WOULD DROP AT AN ALARM AND PREVENT A VEHICLE FROM EXITING AT THE SAME TIME AS AN EMERGENCY VEHICLE.

ENTERING FIRE STATION (BACK-IN)



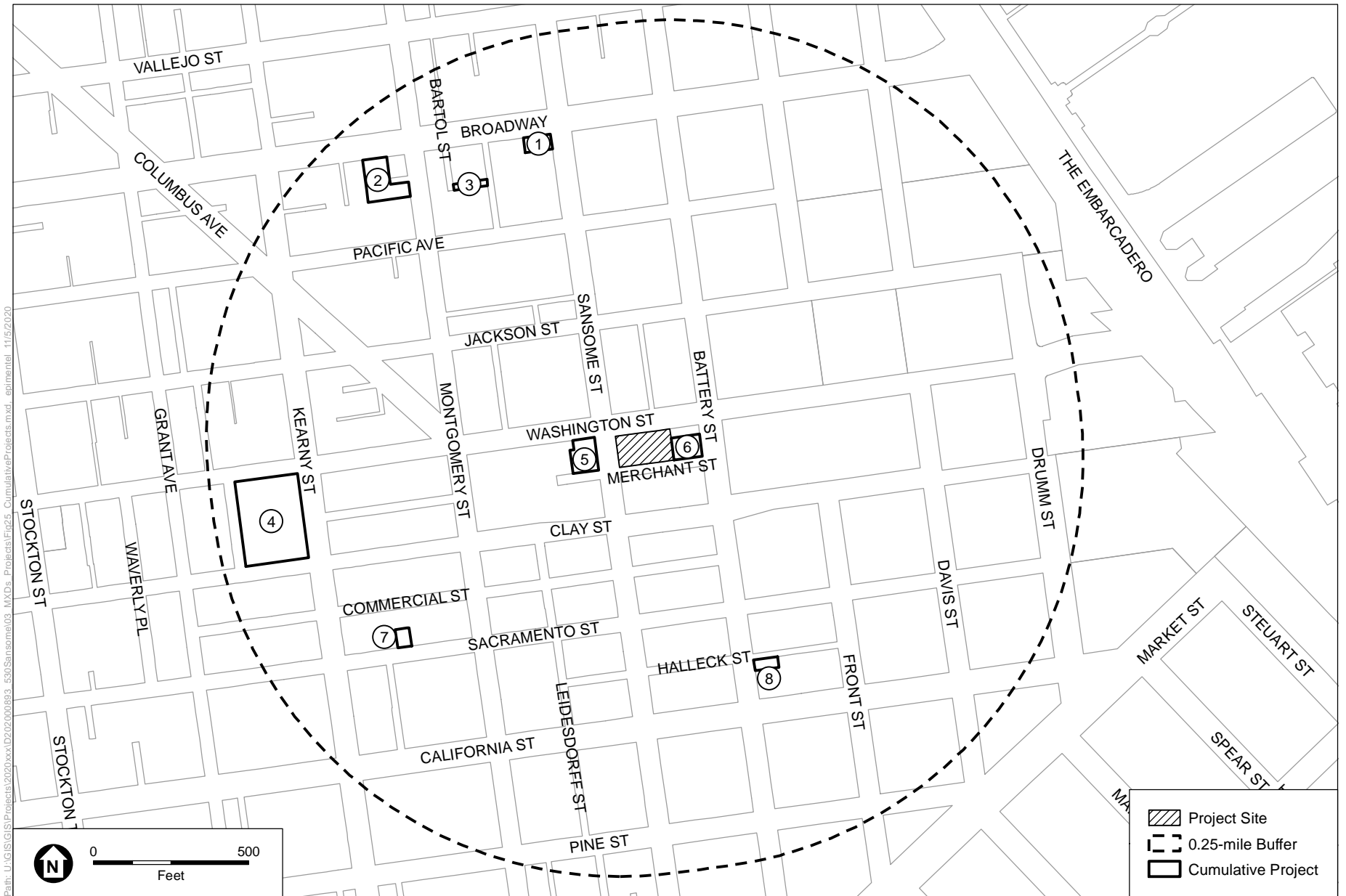
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Appendix H:

Cumulative Projects



SOURCE: San Francisco Planning Department, 2020; ESA, 2020

530 Sansome Street; Case No: 2019-017481ENV

Figure 25
Cumulative Projects

APPENDIX C

Noise and Vibration Technical Memorandum



550 Kearny Street
Suite 800
San Francisco, CA 94108
415.896.5900 [phone](#)
415.896.0332 [fax](#)

esassoc.com

Technical Memorandum

date March 31, 2021

to Alana Callagy, San Francisco Planning Department

from Chris Sanchez, ESA

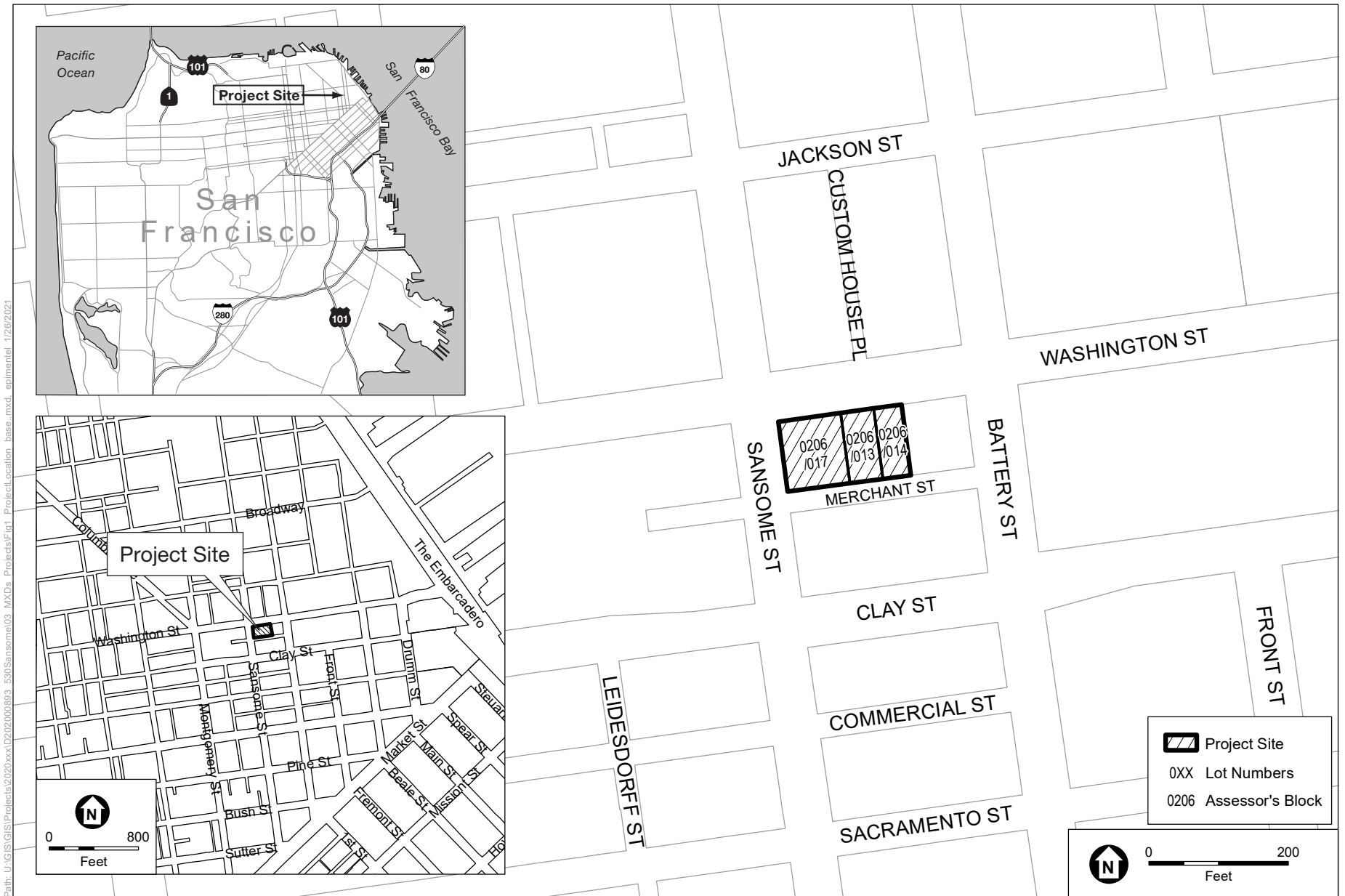
subject Final Noise Technical Memorandum – 530 Sansome Street Project

1. Project Description

The 17,733-square-foot project site consists of three lots (Assessor's Block 0206, Lots 013, 014, and 017) located on the western portion of the block bounded by Sansome Street to the west, Washington Street to the north, Battery Street to the west, and Merchant Street to the south (see **Figure 1, Project Location**). The project site is located in the Financial District neighborhood of San Francisco.

The project site is currently developed with three buildings: a vacant three-story office building with a basement at 425 Washington Street, a vacant two-story commercial building with a basement at 439–445 Washington Street, and a two-story-with-mezzanine San Francisco Fire Station 13 building and a basement at 530 Sansome Street.

The proposed 530 Sansome Street project (proposed project) would involve demolition of the existing buildings and construction of a 19-story building and a four-story replacement fire station, with three below-grade levels under both buildings. The 19-story, approximately 218-foot-tall (236 feet total, including rooftop mechanical equipment) building would provide approximately 6,480 square feet of retail/restaurant space on the first and second floors; approximately 40,490 square feet of office space on the first, second, and sixth through eighth floors; approximately 35,230 square feet of fitness center space on the first through fifth floors; and approximately 146,065 square feet of hotel space that would accommodate 200 guest rooms. The 44-foot-tall (53 feet total, including rooftop mechanical equipment), four-story building on the eastern portion of the project site would include approximately 20,240 square feet of space for the new fire station. The three below-grade levels would provide 48 vehicle parking spaces, one loading space, two vehicle service spaces, 26 class 1 bicycle parking spaces, and utility rooms for the fire station, hotel, and retail/restaurant uses.



SOURCE: San Francisco Planning Department, 2020; ESA, 2021

530 Sansome Street; Case No: 2019-017481ENV

Figure 1
Project Location

The sponsors also propose a residential project variant, under which the massing/height of the buildings and fire station use would remain largely the same as the proposed project, but would construct 256 residential units instead of commercial uses (hotel, office, fitness center, and retail/restaurant). Under the residential variant, 6,384 square feet of common open space would be located on the 21st floor of the building. The four-story replacement fire station building would remain the same for the residential project variant. The three below-grade levels for the residential variant would provide 82 vehicle parking spaces, one loading space, two vehicle service spaces, 144 class 1 bicycle parking spaces, and utility rooms for the fire station.

1.1 Project Construction

Construction for both the proposed project and residential variant is estimated to last 29 months with overlapping phases; however, neither building would be occupied during construction. Demolition would take approximately two months. Excavation and shoring would last approximately five months. Foundation and below-grade construction would last about four months. Building construction and exterior and interior finishing phases would partially overlap and last approximately 17 months. Construction of the basement levels and foundation installation would require excavation extending to approximately 40 feet below ground surface. Overall, excavation of the basement levels would remove approximately 28,000 cubic yards of soil.

Construction workers driving to the project site could park at the garage located at One Maritime Plaza, which is accessible via Washington or Clay streets, or other nearby public garages. Construction equipment and materials would be staged on sidewalks adjacent to the project site, including a portion of the on-street angled parking area on the south side of Washington Street. Pedestrian traffic would be routed to a protected pedestrian lane in the on-street angled parking area on the south side of Washington Street. A full closure of Washington Street would occur for two days to erect and dismantle a tower crane, and easternmost northbound lane on Sansome Street and southernmost westbound lane of Washington Street would be closed for one day during the mat foundation placement. Over the life of the project construction, closures of those same travel lanes on Sansome and Washington streets could be necessary for two single-day periods for utility work. Nighttime closure of Merchant Street could be necessary on two separate days for utility work.

The majority of project construction would occur during daytime hours. Some construction activities that would extend beyond normal hours (i.e., between 8 p.m. and 7 a.m.), such as a 20-hour concrete pour, crane and hoist erection and adjustment activities, utility work, site maintenance activities and material delivery and handling.

During construction, SFFD personnel and firetrucks would be relocated to nearby offsite fire stations, and would continue to serve the Financial District neighborhood and the city in general. Relocation of fire equipment typically takes no more than eight hours to complete.

2. Characteristics of Noise and Vibration

2.1 Noise Principles and Descriptors

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. The sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. Sound pressure level is measured in decibels (dB), with 0 dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Because

sound pressure can vary greatly within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. When assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA).¹ Frequency A-weighting is typically applied to community noise measurements. All noise levels presented in this report are A-weighted unless otherwise stated.

2.2 Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic. What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources (e.g., aircraft flyovers, nearby motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise effects. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

- L_{eq} : The L_{eq} , or equivalent sound level, is used to describe noise over a specified period of time in terms of a single numerical value; the L_{eq} of a time-varying signal and that of a steady signal are the same if they deliver the same acoustic energy over a given time. The L_{eq} may also be referred to as the average sound level.
- L_{max} : The maximum, instantaneous noise level experienced during a given period of time.
- L_{min} : The minimum, instantaneous noise level experienced during a given period of time.
- L_{dn} : Also termed the day-night average noise level (DNL), the L_{dn} is the average A-weighted noise level during a 24-hour day, obtained after an addition of 10 dB to measured noise levels between the hours of 10 p.m. to 7 a.m. to account for greater nighttime noise sensitivity.
- CNEL: CNEL, or Community Noise Equivalent Level, is the average A-weighted noise level during a 24-hour day that is obtained after an addition of 5 dB to measured noise levels between the hours of

¹ All noise levels reported herein reflect A-weighted decibels unless otherwise stated.

7 p.m. to 10 p.m. and after an addition of 10 dB to noise levels between the hours of 10 p.m. to 7 a.m. to account for greater noise sensitivity in the evening and nighttime, respectively.

2.3 Effects of Noise on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people include subjective effects (e.g., dissatisfaction, annoyance), interference effects (e.g., communication, sleep, and learning interference), physiological effects (e.g., startle response), and physical effects (e.g., hearing loss). With regard to increases in A-weighted noise level, the following relationships generally occur:

- Except in controlled laboratory experiments, a change of 1 dB cannot be perceived;
- Outside of the laboratory, a 3 dB change in noise levels is considered to be a barely perceivable difference;
- A change in noise levels of 5 dB is considered to be a readily perceivable difference; and
- A change in noise levels of 10 dB is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion; hence the decibel scale was developed. Since the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dB, the combined sound level would be 53 dB, not 100 dB.

2.4 Fundamentals of Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe physical vibration effects on buildings. Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors to vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick people), and vibration-sensitive equipment.

Another useful vibration descriptor is known as vibration decibels or VdBs. VdBs are generally used when evaluating human response to vibration, as opposed to structural effects (for which PPV is the more commonly used descriptor). Vibration decibels are established relative to a reference quantity, typically 1×10^{-6} inches per second and utilize the root mean square (RMS) of the velocity of the vibration signal to convey the average magnitude felt by the human body.²

The effects of ground-borne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the exception of blasting, vibratory equipment,

² U.S. Department of Transportation, Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment*, September 2018.

and pile-driving during construction. The Federal Transit Administration (FTA) measure of the threshold of architectural damage for modern reinforced structures is 0.5 in/sec PPV.³

A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible levels for many people.⁴

3. Environmental Setting

3.1 Existing Ambient Noise Levels

The project site is located on the east side of Sansome Street between Washington and Merchant streets in San Francisco’s Financial District (see **Figure 2, Noise Monitoring Locations and Existing Noise-Sensitive Receptors within 900 Feet of the Project Site**). The project site is currently developed with an operational fire station, and two vacant commercial buildings. The project site is primarily surrounded by office uses with ground floor retail uses. Noise sources in the project vicinity consist of vehicle traffic on Sansome, Washington, and Merchant streets, and fire station operations.

To characterize the background noise environment in the project vicinity, this analysis relies on two long-term (24 hours) measurements taken in August 2019 and one short-term (15 minutes) measurement taken in December 2020.⁵ The short-term noise measurement was taken on a Wednesday in December 2020 to establish existing daytime noise levels at more distant residential receptors on Hotaling Place, near the intersection of Hotaling Place and Washington Street. Measurement locations are indicated on Figure 2 as “Noise Monitoring Location.” Noise measurement data are included in Attachment A, Supporting Noise Technical Information. A summary of noise measurement results is presented in **Table 1, Summary of Long- and Short-Term Noise Monitoring in the Project Vicinity**. As indicated in Table 1, daytime noise levels at receptors locations in the project area range from 69 to 73 dBA [Leq]. Noise sources in the project area primarily consist of vehicle traffic on Sansome, Washington, and Battery streets. More distant noise sources that marginally contribute to the noise environment during quieter moments consist of the mechanical equipment intakes and exhaust from office buildings, typically at the second-story level.

The two long-term sound level measurements were conducted in the project vicinity on August 27, 2019⁶ adjacent to residential apartments on the northeast corner of Battery and Washington streets and adjacent to the Club Quarters Hotel on the corner of Merchant and Battery streets. These measurements were conducted prior to shelter-in-place orders resulting from Covid-19 and are therefore representative of more typical traffic levels within the Financial District (see Section 3.3 for a full discussion of sensitive receptors in the project vicinity). One short-term measurement was collected at a receptor location west of the project site at the intersection of Washington Street and Hotaling Place. The 2020 sound level survey was conducted using a Larson Davis LxT

³ Ibid.

⁴ Ibid.

⁵ At the direction of planning department staff, the analysis in this memorandum relies on long-term monitoring data collected in August 2019. The 2019 data was collected prior to the COVID-19 pandemic and associated shelter-in-place and working-from-home directives and opportunities.

⁶ City and County of San Francisco, Draft Environmental Impact Report, 447 Battery Street Project, Case 2014.1036E, Appendix B, Initial Study, October 21, 2020.

sound level meter, which was calibrated prior to use and operated according to the manufacturer’s specifications. The measured noise levels and the sources of noise monitored at the measurement locations are shown in Table 1.

TABLE 1
SUMMARY OF LONG- AND SHORT-TERM NOISE MONITORING IN THE PROJECT VICINITY

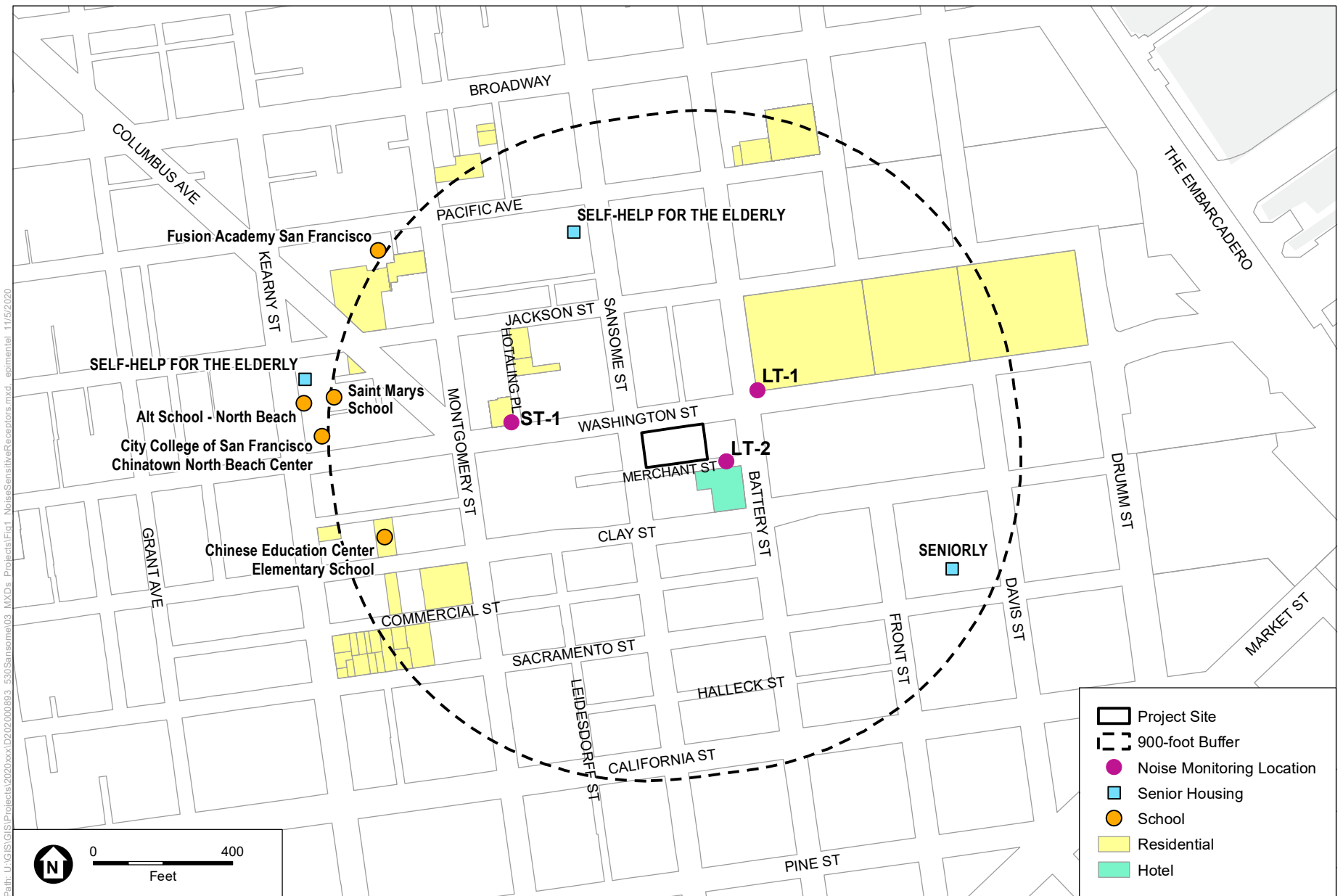
Measurement Location		Date and Time Period	Daytime Leq dBA	24-hour L90 dBA	Ldn	Noise Sources
Long-Term Measurements (24 hours)						
LT-1	Southwest corner of Battery and Washington streets (Gateway Apartments)	August 27, 2019	73	65	75	Vehicle and bus traffic
LT-2	Northwest corner of Merchant and Battery Streets, adjacent to existing hotel building	August 27, 2019	69	63	76	Vehicle and bus traffic
Short-Term Measurement (15 minutes)						
ST-1	Northeast corner of Washington Street and Hotaling Place	December 2, 2020	65	60 ^a	NA	Vehicle traffic ^b

NOTES: N/A = data point not applicable to short term measurements. LT = Long Term. ST = Short Term.

^a The L90 metric for the short-term measurement is not a 24-hour average

^b During monitoring, the noise technician noted use of a standard, consumer grade sander at Hotaling Place. The sander was used intermittently during the monitoring event and contributed marginally to the recorded noise level based on the observations of the noise technician.

SOURCES: ICF, 2019; ESA, 2020.



SOURCE: San Francisco Planning Department, 2020; Google, 2020; ESA, 2020

530 Sansome Street; Case No: 2019-017481ENV

Figure 2
Noise Monitoring Locations and Sensitive
Receptors within 900 feet of the Project Site

3.2 Existing Groundborne Vibration Levels

There are no known sources of existing groundborne noise or vibration near the project site. The nearest source of vibration is the California Cable Car operated by Muni on California Street, approximately 800 feet south of the project site. Given its distance and surface location, rail operations are not considered a substantial source of groundborne noise or vibration in the project site vicinity.⁷ There is no machinery or activity that generate vibration in the project site vicinity.

3.3 Existing Sensitive Receptors

Some land uses are more sensitive to noise levels than others due to the types of activities typically associated with the uses. Residences, hotels, schools, senior care facilities, and hospitals are generally considered more sensitive to noise than commercial and industrial land uses. Existing noise-sensitive receptors in the project vicinity within 900 feet of the primary project site are composed of residences and a hotel, as listed below in **Table 2, Existing Noise-Sensitive Receptors within 900 Feet of the Project Site**. There are no existing hospitals or skilled nursing facilities within 900 feet of the project site. The Club Quarters Hotel at 424 Clay Street is approximately 75 feet southeast of the project site and, while a commercial use, would be considered a sensitive receptor during nighttime hours. Additionally, intervening structures in the project area provide noise attenuation between noise sources and sensitive receptors. Generally, for an at-grade facility in a residential area where the first row of buildings cover at least 40 percent of the total area, the reduction provided by the first row of buildings is reasonably assumed to be 3 dBA, with 1.5 dBA for each additional row.⁸ Given the dense urban development within the Financial District, even more noise reduction would be expected due to the presence of intervening structures.

⁷ U.S. DOT, FTA, *Transit Noise and Vibration Impact Assessment Manual*, September 2018, Section 4.3, Noise Screening Procedure, pp. 33–36 (noise 175 feet with intervening buildings) and 136 (vibration 150 feet for residential), https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf, accessed October, 9 2020.

⁸ Caltrans, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013, p. 2-35.

TABLE 2
EXISTING NOISE-SENSITIVE RECEPTORS WITHIN 900 FEET OF THE PROJECT SITE

Type of Sensitive Receptor	Location	Distance from Project Site Boundaries	Representative Monitoring Location
North of Project Site			
Residential	Gateway Apartments on Jackson Street between Battery and Drumm streets	300–900 feet	LT-1
Residential	Hotaling Place (25, 38–42, 60) have upper-story residential units	360–480 feet	ST-1
Residential	67 Columbus Avenue	830 feet	NP
Residential	112 Columbus Avenue	810 feet	NP
Residential	Multiple: 845 Montgomery Street; 41, 43, 45 and 47–55 Osgood Place; 920 Montgomery Street; 284–288 Pacific Avenue; and 733 Front Street	850–900 feet	NP
South of Project Site			
Hotel (nighttime receptor only)	424 Clay Street	35 feet	LT-2
West of Project Site			
Residential	655 Montgomery Street (upper floors)	575 feet	NP
School	Chinese Education Center at 657 Merchant Street	740 feet	NP
School	St. Mary's School/Stern School at 838 Kearny Street	880 feet	NP
Residential	Multiple: residential units on the block of Commercial Street between Kearny and Montgomery streets and on the north side of the same block on Sacramento Street	800–900 feet	NP
NOTES: NP = None proposed. Noise monitoring is not proposed for these locations due to distance and intervening structures.			
SOURCES: ESA, 2020; Google Earth (Imagery Date 6/2016) for parcel data (address and distance to the site).			

4. Noise and Vibration Effects and Recommended Reduction Measures

This section describes the noise and vibration analysis for the proposed project. It describes the methods used to assess the effects of the proposed project and lists the criteria used by the San Francisco Planning Department to evaluate and determine whether the project would result in effects on the environment.

4.1 Methodology

The CEQA Guidelines do not establish quantitative standards for the purposes of assessing potential noise and vibration related impacts. Appendix G of the CEQA Guidelines suggest that a project's noise impacts be considered with respect to standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The thresholds in this memorandum for assessing the potential effects from the proposed project or residential variant are based on the regulatory guidance for noise within the City and County of San Francisco and criteria developed by state and federal agencies for noise and vibration impacts (see Attachment B, Regulatory Setting).

Construction Noise Levels and Criteria

Construction noise levels were estimated using the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM). A general estimate of the project's construction equipment roster and schedule were provided by the applicant and presented in **Table 3, Proposed Construction Equipment by Construction Phase**.⁹ An approximate estimate of construction noise levels is conducted for the purpose of this analysis based on the general assessment approach recommended by the FTA.¹⁰ The proposed project and residential variant would have the same construction durations, phasing, and construction equipment; therefore, the construction analysis is the same for both project options.

TABLE 3
PROPOSED CONSTRUCTION EQUIPMENT BY CONSTRUCTION PHASE

Equipment	Demolition (3 months)		Site Preparation (4 months)		Grading/ Excavation (5 months)		Drainage/ Utilities/ Subgrade (4 months)		Foundations/ Concrete Pour (4 months)		Building Construction/ Architectural Coatings/Paving (17 months)	
	Max. Daily Amt.	Hrs/ Day	Max. Daily Amt.	Hrs/ Day	Max. Daily Amt.	Hrs/ Day	Max. Daily Amt.	Hrs/ Day	Max. Daily Amt.	Hrs/ Day	Max. Daily Amt.	Hrs/ Day
Air Compressors	0	0	0	0	2	8	0	0	2	8	0	0
Backhoes	2	8	0	0	0	0	1	8	0	0	0	0
Bore/Drill Rigs	0	0	0	0	1	8	0	0	1	8	0	0
Cranes	0	0	0	0	0	0	0	0	2	8	1	8
Excavator	0	0	1	8	1	8	0	0	1	8	0	0
Forklifts	0	0	0	0	0	0	0	0	0	0	1	8
Generator Sets	0	0	0	0	0	0	0	0	0	0	0	0
Pavers											1	8
Paving Equipment											1	8
Pumps									1	8	1	8
Rollers					1	8						
Slid Steer Loaders	1	8										
Sweepers/Scrubbers	1	8	1	8	1	8			1	8		
Vibratory Compactor	0	0	1	8	0	0	1	8	0	0	0	0

SOURCE: EQX Jackson SQ Holdco LLC, 2020

The FTA methodology for general assessment of construction noise entails a process for calculating the hourly dBA, Leq for each stage of construction. This calculation considers (1) the reference noise emission level at 50 feet for equipment to be used for each stage of construction, (2) the usage factor for each piece of equipment, (3) the distance between construction centerline and receptors, and (4) adjusting for any ground effects, as

⁹ Response to the Air Quality Data Request received by ESA via email on November 5, 2020.

¹⁰ FTA does not publish a software noise model. Consequently, FHWA's model was used and impacts assessed using FTA's methodology for assessing impact.

applicable.¹¹ This methodology calls for determining the resultant noise levels only for the two noisiest pieces of equipment expected to be used in each stage of construction, then summing the levels for each stage of construction using decibel addition.¹²

The estimated construction noise levels resulting from the proposed project at the nearby off-site sensitive receptors were then analyzed against three criteria to assess the magnitude of noise. First, predicted noise levels from each piece of construction equipment proposed are compared to the construction noise standards established in both the City's municipal code to determine whether operation of this equipment would be within the allowable noise level standards. San Francisco Police Code section 2907(a) states that it shall be unlawful for any person, including the City and County of San Francisco, to operate any powered construction equipment, regardless of age or date of acquisition, if the operation of such equipment emits noise at a level in excess of 80 dBA when measured at a distance of 100 feet from such equipment. Impact equipment such as pile drivers and jackhammers are exempt from this standard.

Second, this analysis applies the general assessment criteria of the Federal Transit Administration, which establish criteria for residential land uses of 90 dBA during daytime hours and 80 dBA during nighttime hours. For all other land uses the criterion is 100 dBA, during the daytime or nighttime. Third, persistent construction equipment noise resulting in an increase of 10 dBA over existing noise levels would represent a perceived doubling of loudness that is considered a substantial temporary increase in noise levels.

The project would require construction activities that would extend beyond normal hours (i.e., between 8 p.m. and 7 a.m.), which could include concrete pours, crane and hoist erection and adjustment activities, utility work, site maintenance activities and material delivery and handling. Nighttime construction noise is assessed based on its potential to result in sleep disturbance at nearby residential and hotel uses (increase interior noise levels above 45 dBA per section 2909(d)) or result in strongly perceptible levels of vibration as defined in Caltrans or the Federal Transit Administration guidance documents. If these quantitative criteria are exceeded, the evaluation then considers the duration and severity of the exceedance to determine whether the project would result in a substantial temporary increase in noise levels at nearby sensitive receptors. Additionally, section 2908 of the City's noise ordinance prohibits any person, between the hours of 8 p.m. of any day and 7 a.m. of the following day, from erecting, constructing, demolishing, excavating for, altering, or repairing any building or structure if the noise level created is in excess of the ambient noise level by 5 dBA at the nearest property line unless a special permit has been applied for and granted by the Director of Public Works or the Director of Building Inspection.

Groundborne Vibration Levels and Criteria

Groundborne vibration levels resulting from construction activities at the project site were estimated using data published by the FTA in its *Transit Noise and Vibration Impact Assessment* (2018) document. Potential vibration levels resulting from construction of the proposed project or residential variant are identified for off-site locations that are sensitive to vibration (i.e., existing residences) based on their distance from construction activities. While the City has not adopted any thresholds for construction or operational groundborne vibration impacts, this study uses the vibration criteria established in Caltrans' *Transportation and Construction Vibration Guidance Manual*

¹¹ In an urban area such as downtown San Francisco that have acoustically non-absorptive ground conditions, the ground factor is taken to be zero.

¹² U.S. Department of Transportation, Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment*, September 2018, pp. 174–179.

document. The potential vibration levels at off-site sensitive locations resulting from construction of the proposed project are analyzed against the vibration criteria established by Caltrans which are shown in **Table 4, Caltrans Vibration Damage Potential Threshold Criteria**, to determine whether an exceedance of allowable vibration levels would occur.

Given the nature of the proposed project or residential variant, “excessive” groundborne vibration or noises would only be generated during project construction activities. Once construction is complete, the proposed project or the residential variant would not involve the use of heavy machinery that is often associated with large commercial or industrial uses. As such, no sources of “excessive” groundborne vibration or noise levels are anticipated as part of project operations.

TABLE 4
CALTRANS VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

NOTE: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, Transportation and Construction Vibration Guidance Manual (Table 19, p.38), September 2013.

Operational Noise Criteria for Fixed Sources

For the purpose of determining whether the proposed project or residential variant would generate noise levels that would exceed established noise standards, the project’s forecasted fixed-mechanical operational noise levels are evaluated to determine if the applicable construction noise regulations of the City of San Francisco are violated. Noise from fixed mechanical sources associated with the proposed project is assessed relative to the standards of Section 2909(b) of the San Francisco Police Code which establishes a standard of 8 dBA increase over ambient noise levels for fixed sources of noise emanating from commercial properties at the property plane. Noise from fixed mechanical sources associated with the residential variant is assessed relative to the standards of Section 2909(a) of the San Francisco Police Code which establishes a standard of 5 dBA increase.

Additionally, operation of fixed mechanical equipment during nighttime hours is also considered with respect to Section 2909(d) of the San Francisco Police Code which establishes a standard that no fixed noise source may cause the noise level measured inside any sleeping or living room in any dwelling unit located on residential property to exceed 45 dBA between the hours of 10 p.m. to 7 a.m. or 55 dBA between the hours of 7 a.m. to 10 p.m. with windows open except where building ventilation is achieved through mechanical systems that allow windows to remain closed.

With respect to noise from backup diesel generators, potential impacts are qualitatively assessed when two or fewer generators are proposed for any given building. This qualitative assessment considers the frequency of testing for maintenance purposes, and the inclusion of noise attenuation features such as parapets, enclosures, baffles, or silencers.

Operational Roadway Noise Levels

Increases in roadway noise levels are assessed based on trip generation data prepared for the proposed project,¹³ and the potential for a doubling of traffic on local roadways. The CEQA Guidelines do not define the levels at which permanent and temporary increases in ambient noise are considered “substantial.” Therefore, with regard to traffic noise, the proposed project and residential variant’s noise effects were evaluated by comparing traffic volumes as estimated in the travel demand memorandum to existing conditions. Caltrans identifies an increase of traffic noise of 3 dBA as barely perceptible and an increase of 5 dBA as clearly perceptible.¹⁴ A doubling in sound energy (traffic volumes) would result in a 3 dBA change in the noise level, which is barely noticeable to the human ear. Therefore, any increase in traffic that would be less than a doubling in volumes would not be noticeable to existing sensitive receptors in the project vicinity.

4.2 Project Noise Analysis

Construction Noise

Construction of the proposed project would require the use of heavy equipment during all six phases of project construction. Construction activities would also involve the use of smaller power tools, generators, and other lesser sources of noise. During each phase of construction, there would be a different mix of equipment. Thus, construction activity noise levels at and near the project site would fluctuate depending on the particular type, number, and duration of use of the various pieces of construction equipment.

Compliance with Section 2907(a) of the San Francisco Police Code

Table 5, Maximum Noise Levels from Construction Equipment, shows the hourly noise levels (L_{\max}) produced by various types of equipment proposed by the project sponsor at a reference distance of 50 feet between the equipment and noise receptor as well as the 100-foot distance dictated by the city’s noise ordinance. It should be noted that L_{\max} noise levels associated with the construction equipment would only be generated when equipment is operated at full power. Typically, the operating cycle for a piece of construction equipment would involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings. The L_{\max} noise levels shown in Table 5 would, therefore, be expected to only occur occasionally throughout the construction day.

Section 2907 of the city’s noise ordinance prohibits operation of any powered construction equipment (non-impact), regardless of age or date of acquisition, if such operation emits noise at a level in excess of 80 dBA when measured at a distance of 100 feet from such equipment. As shown in Table 5, construction equipment used for building construction would operate within the constraints of the noise ordinance standards.

¹³ Fehr & Peers, *530 Sansome Street Project Travel Demand Memorandum*, 2020

¹⁴ Ibid.

General Assessment Construction Noise Criteria of the FTA

The FTA has developed guidelines that can be considered reasonable criteria for quantitative assessment of noise. For residential land uses a daytime criterion of 90 dBA is identified while for all other land uses the criterion is 100 dBA during the daytime hours. If these criteria are exceeded, there may be adverse community reaction.¹⁵

A conservative estimate of construction noise levels was conducted using the general assessment approach described above and applied for each stage of construction to determine the resultant noise levels for the two noisiest pieces of equipment expected to be used. The two noisiest pieces of construction equipment associated with each construction phase are assumed to operate simultaneously at the closest location to a sensitive receptor.

TABLE 5
MAXIMUM NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level at 50 Feet (dB, L _{max})	Noise Level at 100 Feet (dB, L _{max})
Air Compressors	78	72
Backhoes	78	72
Bore/Drill Rigs	84	78
Vibratory Compactor	83	77
Cranes	81	75
Concrete truck	79	73
Concrete Pump	81	75
Excavator	81	75
Forklifts	83	78
Pavers	77	71
Paving Equipment	77	71
Roller	80	74
Skid steer loaders	79	73
Sweepers	82	76

SOURCE: Federal Highway Administration, *Roadway Construction Noise Model User's Guide*, 2006.

During project construction, the noise levels experienced at the nearest off-site receptor would vary depending on the distance from the construction equipment within the site to the receptor. Input values and calculated noise levels using FTA methodology and the RCNM noise model for each of these construction stages are presented in **Table 6, Exterior Noise at Off-Site Sensitive Uses from Project Construction**. In the table, input values are presented for FTA methodology considerations for the nearest off-site sensitive receptor location to the project site, during construction of each phase of the project, as well as the resultant noise level (the contribution from construction activity added to the existing noise environment).

As shown in Table 6, the estimated daytime construction noise levels generated by the proposed project would range from 61 to 65 dBA L_{eq} at the nearest residential receptor. Daytime construction noise levels would not

¹⁵ U.S. Department of Transportation, Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment*, September 2018. Table 7-2, p. 179.

result in an increase of greater than 10 dBA¹⁶ over existing levels at the residential receptors nearest the project site. Additionally, noise levels would not exceed the FTA's 90 dBA daytime criterion for residential receptors. Construction noise during all phases would not result in an increase of greater than 10 dBA over existing levels at the nearest sensitive receptor or exceed the FTA's 90 dBA criteria for daytime construction noise at a residential receptor.

TABLE 6
EXTERIOR NOISE AT OFF-SITE SENSITIVE USES FROM DAYTIME PROJECT CONSTRUCTION

Construction Phase	Nearest Off-Site Sensitive Receptor	Distance to Receptor (feet) ^a	Existing Monitored Noise Level (dBA L _{eq})	Loudest Two Noise Sources	Estimated Construction Noise Level (dBA L _{eq})	Exceed 90 dBA Exterior Daytime Standard?	Resultant Noise Level (Existing + Construction) (dBA L _{eq})	Increase over Existing (dBA L _{eq})	Exceed Ambient + 10 dBA Standard?
Phase 1: Demolition	Residential: 500 Battery Street	300	73	Backhoe Backhoe	61	No	73	0	No
Phase 2: Site Preparation	Residential: 500 Battery Street	300	73	Compactor Excavator	62	No	73	0	No
Phase 3: Grading/Excavation	Residential: 500 Battery Street	300	73	Drill Rig Excavator	65	No	74	1	No
Phase 4: Drainage/Utilities/Subgrade	Residential: 500 Battery Street	300	73	Backhoe Compactor	63	No	73	0	No
Phase 5: Foundations	Residential: 500 Battery Street	300	73	Drill Rig Excavator	65	No	74	1	No
Phase 6: Building Construction/Architectural Coatings/Paving	Residential: 500 Battery Street	300	73	Crane Forklift	65	No	74	1	No

NOTES:

Bolded values exceed the 10 dBA over ambient criterion during daytime hours.

^a The approximate distances are measured from the nearest edge of the construction activity (excluding restriping of roadways and bike lanes) to the nearest sensitive-receptor property line.

Nighttime Construction Noise Impacts

Section 2908 of the city's noise ordinance prohibits any person between the hours of 8 p.m. of any day and 7 a.m. of the following day from erecting, constructing, demolishing, excavating for, altering, or repairing any building or structure if the noise level created is in excess of the ambient noise level by 5 dBA at the nearest property line, unless a special permit has been applied for and granted.

The project sponsor's construction phasing schedule indicates that most equipment would operate only during daytime hours. However, the project would require construction activities that would extend beyond normal hours

¹⁶ Persistent construction equipment noise resulting in an increase of 10 dBA over existing noise levels would represent a perceived doubling of loudness that is considered a substantial temporary increase in noise levels.

(i.e., between 8 p.m. and 7 a.m.), such as a 20-hour concrete pour, crane and hoist erection and adjustment activities, utility work, site maintenance activities and material delivery and handling.

The analysis focuses on the commercial receptor at 424 Clay Street (The Club Quarters Hotel), located 75 feet southeast of the project site. Although the receptor at 424 Clay Street is a commercial use, it is considered a sensitive receptor during nighttime hours as it is a land use where people would reasonably be expected to sleep. The distance for nighttime concrete pours assumes concrete mixer trucks and concrete pumps would be on Sansome or Washington streets, which are approximately 150 feet from 424 Clay Street. The existing average monitored nighttime L_{90} at monitoring location LT-1 at 424 Clay Street is 62 dBA. Therefore, the applicable nighttime construction standard would be 67 dBA. As shown in **Table 7, Nighttime Noise Levels from Concrete Pours**, nighttime concrete pours would be expected to result in a nighttime noise level of 69 dBA, which would be more than 5 dBA above existing nighttime levels. Therefore, the project would need to comply with the noise ordinance and obtain a permit for nighttime construction.

TABLE 7
NIGHTTIME NOISE LEVELS FROM CONCRETE POURS

Receptor	Existing Nighttime Noise Level (dBA, Leq)	Noise Source	Reference Noise Level (dBA) ^a	Distance to Receptor (feet) ^a	Adjusted L_{eq} Level (dBA)	Exceed 80 dBA Exterior Nighttime Standard?	Existing plus Construction Noise Exterior Noise Level (dBA)	Existing plus Construction Noise Interior Noise Level (dBA)	Exceed 45 dBA Interior Nighttime Standard?
424 Clay Street	62 ^b	Concrete truck and concrete pump	79/81	150	68	No	69	44	No

NOTES:

^a Distance for nighttime concrete pours assumes concrete mixer trucks and concrete pumps would be on Sansome Street or Washington Street.

^b The existing nighttime value is the average of the monitored L_{90} metric between the hours of 10 p.m. and 7 a.m.

Potential nighttime noise impacts are also assessed based on the 80 dBA exterior noise criterion of the FTA and for the potential to result in sleep disturbance at nearby residential and hotel uses (increase interior noise levels above 45 dBA) as established in the City's noise ordinance. For the nearest receptor, which is a hotel, a standard assumption of exterior to interior noise reduction of 25 dBA with windows closed is applied.¹⁷ As shown in Table 7, noise levels from nighttime concrete pours would be up to 67 dBA at the closest receptor at 424 Clay Street which is below the 80 dBA exterior nighttime criterion for the residential receptors.

Also presented in Table 7 is the predicted interior noise levels from the 20-hour nighttime concrete pour at the nearest receptor. Interior noise levels at the hotel residential receptors from nighttime deliveries would be below the City's 45 dBA standard for the closest nighttime receptor at 424 Clay Street.

Construction Truck Hauling Impacts

Construction trucks would likely access the project site from Kearny Street to Clay Street and Sansome Street. Off haul trucks would exit the project site and use Sansome Street to Broadway to The Embarcadero. Maximum daily haul and vendor truck trips are anticipated to be 60 truck trips per day. Spread across the proposed 10-hour

¹⁷ U.S. EPA, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, March 1974, <http://nepis.epa.gov/Exec/QueryPDF.cgi/2000L3LN.PDF?Dockey=2000L3LN.pdf>, accessed January 23, 2019.

work day, maximum hourly truck trips would be six per hour. Using the algorithms of the Traffic Noise Model of the Federal Highway Administration, these six hourly truck trips would contribute 57.2 dBA to the hourly Leq level at 50 feet from the roadway center. As shown in Table 2, daytime hourly Leq monitored in the project vicinity is 69 dBA. Addition of the contribution of project haul and vendor trucks would result in an increase of less than 0.3 dBA over existing noise levels and would not result in a perceptible increase in noise.

Cumulative Construction Noise

There are eight cumulative projects identified within 0.25 mile of the project site and of these, two would be within 500 feet.¹⁸ The cumulative projects are described individually below, followed by a discussion of the cumulative projects combined with the proposed project.

- **447 Battery Street (adjacent to the east of the project site).** This project proposes demolition of the existing three story building and construction of a new 18-story hotel with ground floor retail project. Construction noise from this project was evaluated in the initial study for the 447 Battery Street project¹⁹ and found to result in an increase in noise levels from 72.5 to 74 dBA at the Gateway Apartments (LT-1 in Table 2 of this memorandum). This project is approximately 150 feet from the Gateway Apartments.
- **545 Sansome Street (65 feet west of the project site).** This project proposes to demolish a single-story retail building at 501–505 Washington Street and a concrete capped, below-grade story at 517 Washington Street to construct an office addition to the existing nine-story building. As of March 2021 specific construction equipment to be used is unknown and no noise assessment has been conducted. This project is farther from the Gateway Apartments (LT-1 in Table 2 of this memorandum) than the project site.

Cumulative Construction Noise Contributions

As shown in Table 6 of this memorandum, maximum daytime construction noise from the proposed project or residential variant at the nearest residential receptor (Gateway Apartments) would be 65 dBA. The construction noise of the cumulative projects (447 Battery Street and 545 Sansome Street) combined with the proposed project would result in a noise level of 75 dBA, or 2.5 dBA above the existing daytime noise level of 72.5 dBA at this nearest daytime sensitive receptor. Therefore, even if these cumulative projects were constructed simultaneously with the proposed project or residential variant, the resultant noise level would not result in an increase of greater than 10 dBA over existing levels at the nearest receptor or exceed the FTA's 90 dBA criteria for daytime construction noise at a residential receptor. While the proposed project or residential variant and the cumulative project at 447 Battery have the potential for nighttime concrete pours, these events are unlikely to occur at the same time and would be subject to the permitting requirements from the director of Public Works or the director of the Department of Building Inspection if noise would exceed the ambient noise level by 5 dBA at the nearest property plane.

¹⁸ This distance was selected because typical construction noise levels can affect a sensitive receptor at distances closer than 500 feet assuming 10 dBA of attenuation from intervening high-rise structures (i.e., two pieces of equipment generating 88 dBA would attenuate to 58 dBA over a distance of 500 feet with intervening building attenuation). An exterior noise level of 60 dBA will typically attenuate to an interior noise level of 35 dBA with the windows closed and 45 dBA with the windows open.

¹⁹ City and County of San Francisco, *Draft Environmental Impact Report, 447 Battery Street Project, Case 2014.1036E*, Appendix B, Initial Study and Appendix C, Noise Data, October 21, 2020.

Exposure to Groundborne Vibration – Construction

Construction activities that would occur within the project site would include grading and excavation, which would have the potential to generate low levels of groundborne vibration. As such, any existing structures located within 100 feet of the project site could be exposed to the generation of excessive groundborne vibration or groundborne noise levels related to construction activities. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to structural damage at the highest levels. Site ground vibrations from construction activities rarely reach the levels that can damage structures, but they may be perceived in buildings within 100 feet, depending on the equipment or activity. No pile-driving activities would be required for construction of the proposed project.

The various PPV levels for the types of construction equipment that would operate during the construction of the proposed project are identified in **Table 8, Vibration Levels from Construction Equipment**. This table presents the reference vibration level at a distance of 25 feet as published by FTA as well as the calculated distances at the closest structures. Drilling and compaction operations could occur as close as 5 feet from the adjacent buildings at 423 Washington Street and 447 Battery Street.

The building at 423 Washington Street was constructed in 1983 and would be considered a “modern industrial/commercial building” with regard to the criteria presented in Table 4. The building at 447 Battery Street was constructed in 1907 and falls within the “historic and some older buildings” category with regard to the criteria presented in Table 4. Based on the information presented in Table 8, vibration velocities could reach as high as approximately 0.51 inch-per-second PPV if drilling for piles occurs within 5 feet of the adjacent building and as high as approximately 1.23 inch-per-second PPV if vibratory compaction were to occur within 5 feet of the adjacent building. These vibration levels would exceed the building damage thresholds (0.5 PPV) for the closest non-historic structure (423 Washington Street) as well as exceed the building damage thresholds (0.25 PPV) for the closest historic structure (447 Battery Street). All other historic structures in the immediate vicinity (630 Sansome Street, 555 Battery Street, 545 Sansome Street, and 617–619 Sansome Street) are greater than 60 feet from the proposed construction areas and, as indicated in Table 8, vibration levels would be below the building damage thresholds (0.25 PPV) for the closest historic structure. Therefore, a vibration control measure (Vibration Reduction Measure NO-1, Protection of Adjacent Buildings/Structures and Vibration Monitoring During Construction) is identified for drilling and compaction activities to address potential vibration impacts to the existing structures at 447 Battery Street and 423 Washington Street.

The building at 447 Battery Street is proposed for demolition as part of the 447 Battery Street project, for which a draft environmental impact report was released in October of 2020.²⁰ The analysis in this technical memorandum considers the current condition at 447 Battery Street (i.e., a building constructed in 1907). However, if the building at 447 Battery Street has been demolished and replaced with a “modern industrial/commercial building,” prior to construction of the 530 Sansome Street proposed project or residential variant, the damage thresholds (0.50 PPV) for that class of building would be applicable to the 447 Battery building. Thus, Vibration Reduction Measure NO-1 is identified for structures at 447 Battery Street and 423 Washington Street.

²⁰ San Francisco Planning Department Case Number 2014.1036E.

TABLE 8
VIBRATION LEVELS FROM CONSTRUCTION EQUIPMENT

Equipment	Approximate PPV (in/sec)				
	5 feet (423 Washington Street, 447 Battery Street)	10 feet	25 feet (FTA reference level)	60 feet (555 Battery Street, 545 Sansome Street)	200 feet (617-619 and 630 Sansome Street)
Vibratory Compactor	1.23	0.58	0.21	0.08	0.02
Caisson Drill	0.523	0.243	0.089	0.033	0.009
Loaded Trucks	0.44	0.208	0.076	0.030	0.008

NOTE: Dark-gray-shaded vibration levels exceed the criteria for non-historic structures. Light-gray-shaded vibration levels exceed the criteria for historic structures in addition to the dark gray shaded levels.

SOURCE: FTA, 2018; ESA, 2020

Vibration Impact Reduction Measure NO-1: Protection of Adjacent Buildings/Structures and Vibration Monitoring During Construction

Prior to issuance of any demolition or building permit, the project sponsor shall submit a project-specific Pre-construction Survey and Vibration Management and Monitoring Plan to the Environmental Review Officer (ERO) or the ERO's designee for approval. The plan shall identify all feasible means to avoid damage to potentially affected buildings, which are 423 Washington Street and 447 Battery Street. Should demolition on the building at 447 Battery Street occur, this measure is no longer applicable to that structure; however, to the extent a new structure exists or is under construction at 447 Battery Street, the Pre-construction Survey and Vibration Management and Monitoring Plan shall meet the requirements of this measure for non-historic buildings to avoid damage to such new structure. The project sponsor shall ensure that the following requirements of the Pre-Construction Survey and Vibration Management and Monitoring Plan are included in contract specifications, as necessary.

Pre-construction Survey. Prior to the start of any ground-disturbing activity, the project sponsor shall engage a consultant to undertake a pre-construction survey of the potentially affected historic building at 447 Battery Street and the non-historic building 423 Washington Street. The project sponsor shall engage a structural engineer or other professional with similar qualifications to undertake a pre-construction survey of both buildings, provided that if the historic building at 447 Battery Street has not been demolished, then the project sponsor shall engage a historic architect or qualified historic preservation professional to undertake (in coordination with the structural engineer) the pre-construction survey of 447 Battery Street. If the historic building at 447 Battery Street has not been demolished, the pre-construction survey shall include descriptions and photograph of 447 Battery Street, including all facades, roofs, and details of the character-defining features that could be damaged during construction, and shall document existing damage such as cracks and loose or damaged features (as allowed by the property owner). The report shall also include pre-construction drawings that record the pre-construction condition of the buildings and identify cracks and other features to be monitored during construction. If the historic building at 447 Battery Street has not been demolished, the historic architect or qualified historic preservation professional shall be the lead author of the pre-construction survey for 447 Battery Street. These reports shall be submitted to the ERO and planning department preservation staff for review and approval prior to the start of vibration-generating construction activity.

Vibration Management and Monitoring Plan. The project sponsor shall undertake a monitoring plan to avoid or reduce project-related construction vibration damage to the adjacent buildings and/or

structures at 447 Battery Street and 423 Washington Street to ensure that any such damage is documented and repaired. Prior to issuance of any demolition or building permit, the project sponsor shall submit the Vibration Management and Monitoring Plan that lays out the monitoring program to the ERO for approval. If the historic building at 447 Battery Street has not been demolished, the Vibration Management and Monitoring Plan shall also be submitted to planning department preservation staff for review and approval.

The Vibration Management and Monitoring Plan shall include, at a minimum, the following components, as applicable:

- *Maximum Vibration Level.* Based on the anticipated construction and condition of the affected buildings and/or structures, a qualified acoustical/vibration consultant in coordination with a structural engineer (or professional with similar qualifications) and, in the case the historic building at 447 Battery Street has not been demolished, a historic architect or qualified historic preservation professional, shall establish a maximum vibration level that shall not be exceeded based on existing conditions, soil conditions, anticipated construction practices, and in the event the historic building at 447 Battery Street has not been demolished, character-defining features of that building (common standards are a peak particle velocity [PPV] of 0.25 inch per second for historic and some old buildings, a peak particle velocity [PPV] of 0.3 inch per second for older residential structures, and a peak particle velocity [PPV] of 0.5 inch per second for new residential structures and modern industrial/commercial buildings).
- *Vibration-generating Equipment.* The plan shall identify all vibration-generating equipment to be used during construction (including, but not limited to site preparation, clearing, demolition, excavation, shoring, foundation installation, and building construction).
- *Alternative Construction Equipment and Techniques.* Should construction vibration levels be observed in excess of the established standard, the contractor(s) shall halt construction and put alternative construction techniques into practice, to the extent feasible (e.g., non-vibratory compaction equipment). Following incorporation of the alternative construction techniques, vibration monitoring shall recommence to ensure that vibration levels at each affected building and/or structure on adjacent properties are not exceeded.
- *Vibration Monitoring.* The plan shall identify the method and equipment for vibration monitoring. To ensure that construction vibration levels do not exceed the established standard, the acoustical/vibration consultant shall monitor vibration levels at each affected building and/or structure on adjacent properties (as allowed by property owners) and prohibit vibratory construction activities that generate vibration levels in excess of the standard.
 - Should construction vibration levels be observed in excess of the standards established in the plan, the contractor(s) shall halt construction and put alternative construction techniques identified in the plan into practice, to the extent feasible.
 - The historic architect or qualified historic preservation professional (for effects on the historic building at 447 Battery Street if it has not been demolished) and/or structural engineer shall inspect each affected building and/or structure (as allowed by property owners) in the event the construction activities exceed the established standards.
 - If vibration has damaged nearby buildings and/or structures that are not historic, the structural engineer shall immediately notify the ERO and prepare a damage report documenting the features of the building and/or structure that has been damaged.
 - If vibration has damaged the historic building at 447 Battery Street, the historic preservation consultant shall immediately notify the ERO or the ERO's designee and

- preservation staff and prepare a damage report documenting the features of the building and/or structure that has been damaged.
- If no damage has occurred to the buildings at 447 Battery Street and Washington Street, then the historic preservation professional (if the historic building at 447 Battery Street has not been demolished) and/or structural engineer shall submit a monthly report to the ERO (and preservation staff, if needed) for review. This report shall identify and summarize the vibration level exceedances and describe the actions taken to reduce vibration.
 - Following incorporation of the alternative construction techniques and/or planning department review of the damage report, vibration monitoring shall recommence to ensure that vibration levels at 447 Battery Street and 423 Washington Street are not exceeded.
- *Periodic Inspections.* The plan shall identify the intervals and parties responsible for periodic inspections. The historic architect or qualified historic preservation professional (if the historic building at 447 Battery Street has not been demolished) and/or structural engineer shall conduct regular periodic inspections of each building and/or structure (as allowed by property owners) during vibration-generating construction activity on the project site. The plan will specify how often inspections and reporting shall occur.
 - *Repair Damage.* The plan shall also identify provisions to be followed should damage to any building and/or structure occur due to construction-related vibration. The building(s) and/or structure(s) shall be remediated to their pre-construction condition (as allowed by property owners) at the conclusion of vibration-generating activity on the site. Should damage occur at the historic building at 447 Battery Street, the building and/or structure shall be restored to its pre-construction condition in consultation with the historic architect or qualified historic preservation professions and planning department preservation staff.
 - *Vibration Monitoring Results Report.* After construction is complete the project sponsor shall submit a final report from the historic architect or qualified historic preservation professional (if the historic building at 447 Battery Street has not been demolished) and/or structural engineer to the planning department. The report shall include, at a minimum, collected monitoring records, building and/or structure condition summaries, descriptions of all instances of vibration level exceedance, identification of damage incurred due to vibration, and corrective actions taken to restore damaged buildings and structures. The planning department shall review and approve the Vibration Monitoring Results Report.

Cumulative Construction Vibration

There are eight cumulative projects identified within 0.25 mile of the project site and of these only one would be within 25 feet (447 Battery Street).²¹ Under the cumulative scenario, the 447 Battery Street project would demolish the existing historic building and construct a new hotel building with groundfloor retail. Therefore, the 447 Battery Street project building would fall within the “modern industrial/commercial building” category with regard to the criteria presented in Table 4 of this memorandum. If construction of the 447 Battery Street project and the proposed project or residential variant occurred simultaneously, cumulative vibration levels could exceed the building damage threshold (0.5 PPV) for the closest non-historic structure at 423 Washington Street if pile drilling or compaction of each project were to occur at adjacent boundaries. Under such a scenario, vibration

²¹ This distance was selected because, as shown in Table 8, the operation of standard construction equipment and activities generates vibration levels below the applicable threshold for historic structures.

levels exceeding 1.0 PPV could occur. Therefore, Vibration Impact Reduction Measure NO-1, is identified to address cumulative vibration impacts to the existing structure at 423 Washington Street and the new structure at 447 Battery Street should it be completed (or under construction) prior to construction of the 530 Sansome Street proposed project or residential variant.

Operational Noise Generation

Heating, Ventilating, and Air Conditioning Equipment Noise

The proposed project or the residential variant would introduce new stationary noise sources, including heating, ventilation, and air-conditioning (HVAC) equipment, exhaust fans, a chiller, cooling towers, and two emergency generators (one for the proposed project or residential variant and a larger replacement generator for the fire station). All equipment would be located in a mechanical penthouse on the rooftop of the hotel or residential tower and the replacement fire station. All equipment in the mechanical penthouse for both the tower and fire station would be shielded by the shell of the penthouse, which would attenuate noise and avoid disturbances for the nearest sensitive receptor at 424 Clay Street.

Weekly testing (generally less than one hour) of emergency backup generators typically does not result in a substantial temporary increase in ambient noise levels provided the project being analyzed is proposing no more than two generators.

Operation of all other stationary equipment of the proposed project would be subject to section 2909(b) of the noise ordinance, which limits noise produced at commercial and industrial properties to no more than 8 dBA above the local ambient condition at any point outside the property plane.

Operation of stationary equipment of the replacement fire station would be subject to section 2909(c) of the noise ordinance, which limits noise produced at public land uses to no more than 10 dBA above the local ambient condition at any point outside the property plane.

Operation of stationary equipment of the residential variant would be subject to section 2909(a) of the noise ordinance, which limits noise produced at residential properties to no more than 5 dBA above the local ambient condition at any point outside the property plane.

In addition, stationary operational noise under either the proposed project or residential variant would be limited by section 2909(d) of the noise ordinance, which provides that noise from stationary equipment at residential interiors cannot exceed 55 dBA during daytime hours (7 a.m. to 10 p.m.) and 45 dBA during nighttime hours (10 p.m. to 7 a.m.).

Although the exact noise levels from stationary equipment cannot be quantified at this time, some of the louder equipment, such as HVAC equipment and exhaust fans, can produce sound levels in the range of 70 to 75 dBA at 50 feet, depending on the size of the unit.²² All equipment would either be located in the mechanical penthouse at the top of the buildings or in the basement and therefore would be shielded.

²² Hoover and Keith, Noise Control for Buildings and Manufacturing Plants, Equipment and Products, 1981.

Replacement Fire Station

The replacement fire station building would be largely the same under the proposed project and residential variant. The replacement fire station would have the same design elements and operational characteristics as the existing fire station. There would be no increase in employees or service area and no increase in the annual average number of response calls is anticipated to result from the replacement of the fire station.

Additionally, the replacement fire station would also have a mechanical penthouse for its independent equipment above the fourth floor on the east end of the building. As a public land use, the restrictions of police code section 2909(c) would apply which would be an ambient plus an additional 10 dBA standard, which for the proposed project would be 73 dBA (63 dBA + 10 dBA). Similar to the HVAC equipment for the proposed project tower, the mechanical penthouse would conservatively be expected to attenuate noise by at least 5 dBA. However, given the placement of the HVAC equipment above the fourth floor, there would be no vertical distance attenuation (unlike the proposed project tower). The resultant noise level would be 70 dBA at the property line which would be below the applicable ambient plus 10 dBA standard (73 dBA) specific to the project area for this public land use.

With respect to section 2909(d), the stationary equipment operating at 70 dBA at the ground level property plane, as discussed above, would result in interior noise level at the closest nighttime receptor (the hotel at 424 Clay Street) of 45 dBA, assuming 25 dBA of exterior to interior attenuation from the building shell.²³ This interior noise level would be below the nighttime noise standard of 45 dBA. Therefore, stationary equipment noise of the replacement fire station would not exceed the section 2909(c) or 2909(d) standards.

The mechanical penthouse for the fire station would conservatively be expected to attenuate noise by at least 5 dBA and there would be no vertical distance attenuation. The location of the mechanical penthouse would attenuate HVAC equipment noise to 70 dBA at the property line, which would be below the applicable ambient plus 10 dBA standard (73 dBA).

The existing fire station generates noise from operation, which includes sirens associated with emergency response calls and occasional truck maintenance operations. The proposed project or residential variant would replace the existing station and not increase the level of operations; therefore, the proposed project or residential variant would not result in an increase in operational noise associated with the fire station.

Proposed Project

As shown in Table 2, the ambient (24-hour L90) noise level taken at LT-2 (Merchant Street nearest the project site) was 63 dBA. Therefore, the applicable standard under 2909(b) would be 71 dBA (63 dBA + 8 dBA). Based on the higher end of HVAC equipment sound levels of 75 dBA, operation of the proposed project's HVAC equipment would not produce noise greater than 71 dBA at any point outside the property plane at ground level on Merchant Street. The proposed project's HVAC equipment would be located in the mechanical penthouse at the top of the building and the noise would attenuate due to vertical separation. The hotel to the southeast at 424 Clay Street (11 stories), and the commercial building to the east at 423 Washington Street (seven stories) and 447 Battery Street (three stories) are mid- or low-rise buildings; therefore, there would be a substantial vertical distance between the proposed project's mechanical penthouse (above the 19th story) and the top floors of the

²³ U.S. EPA, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, March 1974, <http://nepis.epa.gov/Exec/QueryPDF.cgi/2000L3LN.PDF?Dockey=2000L3LN.pdf>, accessed November 25, 2020.

adjacent buildings. These eight stories of vertical attenuation (approximately 100 feet) would be sufficient to reduce noise by 6 dBA, while a nominal estimate for shielding of the penthouse enclosure would be 5 dBA. Together, the shielding provided by the penthouse enclosures and vertical separation would be sufficient to provide an attenuation of 11 dBA which would reduce the ground level noise at the property plane to 64 dBA. This would be below the applicable 2909(b) standard of 71 dBA.

With respect to section 2909(d), the stationary equipment operating at 64 dBA at the ground level property plane would result in interior noise level at the closest nighttime receptor (the hotel at 424 Clay Street) of 39 dBA, assuming 25 dBA of exterior to interior attenuation from the building shell.²⁴ This interior noise level would be below the nighttime noise standard of 45 dBA. Therefore, stationary equipment noise of the proposed project tower would not exceed the section 2909(b) or 2909(d) standards.

Residential Variant

Under the residential variant, HVAC equipment would be subject to section 2909(a) of the noise ordinance, which limits noise produced at residential properties to no more than 5 dBA above the local ambient condition at any point outside the property plane. As shown in Table 2, the ambient (24-hour L90) noise level taken at LT-2 (Merchant Street nearest the project site) was 63 dBA. Therefore, the applicable standard under 2909(a) would be 68 dBA (63 dBA + 5 dBA).

Similar to that described above for the proposed project's tower, under the residential variant, all mechanical equipment would be shielded; as such, the typical noise level for HVAC equipment, 75 dBA, would be attenuated by the equipment shielding and enclosures. Further attenuation would also occur due to the vertical distance between the mechanical penthouse and the nearest upper floors on existing adjacent buildings. Together, the shielding provided by the penthouse enclosures and vertical separation would be sufficient to provide an attenuation of 11 dBA which would reduce the ground level noise at the property plane to 64 dBA. This would be below applicable 68 dBA standard of 2909(a).

Traffic Noise

The increase in traffic resulting from implementation of the proposed project or residential variant would increase the ambient noise levels at sensitive uses located in proximity to the project area. A doubling (100 percent increase) in traffic volumes would result in a 3 dBA change in the noise level, which is barely noticeable to the human ear. Therefore, any increase in traffic that would be less than a doubling in volumes would not be noticeable to existing sensitive receptors in the project vicinity.

Peak hour vehicle trips estimated in the travel demand memorandum indicates that the proposed project and residential variant would generate up to 86 and 28 additional peak hour vehicle trips to the local roadway network, respectively. Peak hour traffic volume counts compiled by SFMTA indicate that existing peak hour volumes on Sansome Street and Washington Street are 323 and 425, respectively. Conservatively adding all of the proposed project's peak hour traffic to Sansome Street would increase traffic volumes by 27 percent, while adding all project traffic to Washington Street would increase traffic volumes by 20 percent. The addition of the residential variant's peak hour traffic would increase traffic volumes on Sansome and Washington streets by 9 percent and 7 percent, respectively. These increases are well below the doubling of traffic volumes needed to

²⁴ U.S. EPA, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, March 1974, <http://nepis.epa.gov/Exec/QueryPDF.cgi/2000L3LN.PDF?Dockey=2000L3LN.pdf>, accessed November 25, 2020.

produce a barely noticeable change in traffic noise (i.e., a doubling of traffic volumes, or a 100 percent increase). Therefore, traffic noise associated with the project would not exceed the identified criteria.

ENCLOSURES:

Attachment A: Supporting Noise Technical Information

Attachment B: Regulatory Setting

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Attachment A

Supporting Noise Technical Information

A.1. Noise Monitoring Data

Table E6-2. Long-Term Noise Level Measurements Near the Project Site

Site	Site Description	Time Period	Measured: L_{dn} L_{eq} (24-hour) Daytime L_{eq} (13-hour L_{eq}) ¹	Primary Noise Sources
LT-1	Southeast corner of project site at corner of Merchant and Battery Streets, adjacent to existing hotel building.	08/27/19– 08/28/19	76.1 69.0 68.6	Traffic on Battery Street, fire department vehicles, pedestrian voices, other urban noises.
LT-2	Near 550 Battery Street, in front of the Gateway Apartments residential tower.	08/27/19– 08/28/19	75.0 71.0 72.5	Traffic on Battery Street, fire department vehicles, pedestrian voices, other urban noises.
LT-3	In front of 505 Sansome Street, across from San Francisco Fire Department fire station.	08/27/19– 08/28/19	80.9 75.0 75.6	Traffic on Sansome Street, fire department vehicles, pedestrian voices, other urban noises.

Note: See Appendix C for data.

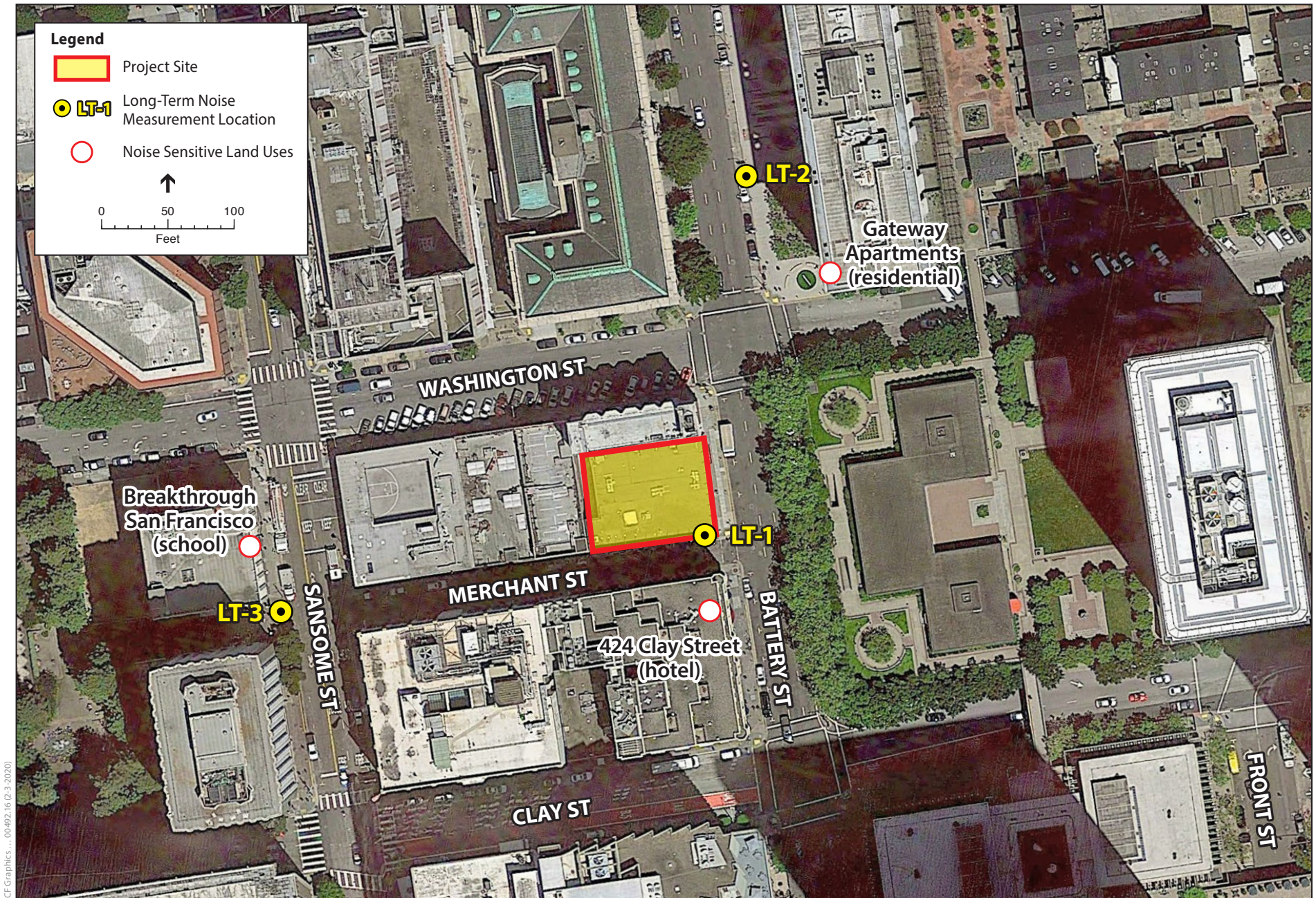
LT = long-term (24-hour) ambient noise measurement.

¹ A 13-hour L_{eq} was calculated using long-term measurement data to compare construction noise levels. The San Francisco Municipal Code permits construction to occur between 7 a.m. and 8 p.m. (i.e., 13 hours); therefore, the L_{eq} noise level was calculated using hourly noise level measurement data for the hours between 7 a.m. and 8 p.m. for a direct comparison.

Existing noise levels in the project area are high and characteristic of an urban/city environment, with all long-term measurements having a day-night sound level (L_{dn}) of 75 dBA or greater. San Francisco Fire Department Station 13 is on the same block as the project site, at 530 Sansome Street, and directly across the street from long-term noise measurement location 3. The fire station contributes frequent siren and truck noise to the ambient noise environment.

The nearest sensitive receptor to the project site is a hotel at 424 Clay Street, which has a façade that faces the project site. The nearest windows in the hotel are approximately 20 feet from the project site, across Merchant Street. In addition, an apartment building (Gateway Apartments) is approximately 150 feet northeast of the project site. Farther away from the project site (approximately 250 feet) is a school (Breakthrough Collaborative), located at 545 Sansome Street; however, there is no direct line of sight between this land use and the project site. These three noise-sensitive land uses are shown in **Figure E6-1**, p. E6-3.

The project site is in a dense urban area. Although other noise-sensitive receptors may also be affected by the project's noise impacts, the closest sensitive receptors would experience impacts that would be more severe than those experienced by receptors located at greater distances from the project site.

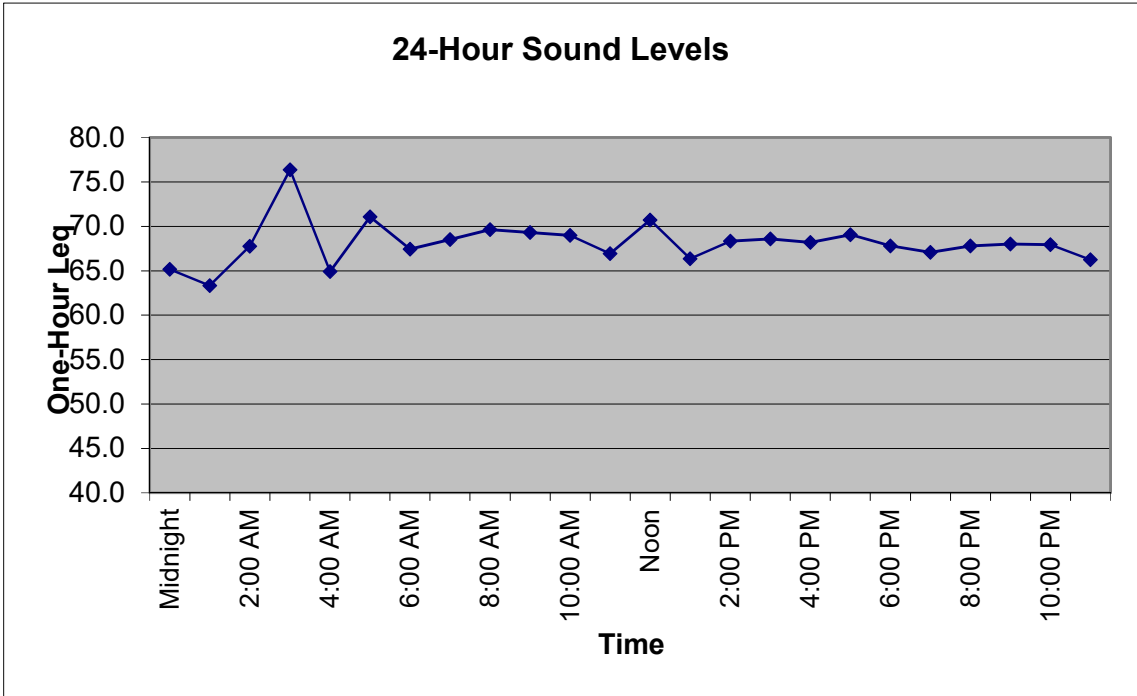


Ldn/CNEL Calculation Spreadsheet

Project: 447 Battery Street		Date: 8/28/2019	Analyst: C. Matsui					
Location: LT-1								
				Worst Hour	Ldn minus	CNEL minus		
Time		Leq(24)	Ldn	CNEL	Leq	Worst Hour Leq	Ldn	Day
Midnight	65.2	69.0	76.1	76.2	76.4	-0.3	0.2	Evening
1:00 AM	63.3		7.6	7.7				Night
2:00 AM	67.7							
3:00 AM	76.4							
4:00 AM	64.9							
5:00 AM	71.1							
6:00 AM	67.4							
7:00 AM	68.5							
8:00 AM	69.6							
9:00 AM	69.3							
10:00 AM	69.0							
11:00 AM	66.9							
Noon	70.7							
1:00 PM	66.4							
2:00 PM	68.3							
3:00 PM	68.6							
4:00 PM	68.2							
5:00 PM	69.0							
6:00 PM	67.8							
7:00 PM	67.1							
8:00 PM	67.8							
9:00 PM	68.0							
10:00 PM	67.9							
11:00 PM	66.3							

24-Hour Sound Levels

Time	One-Hour Leq
Midnight	65.2
1:00 AM	63.3
2:00 AM	67.7
3:00 AM	76.4
4:00 AM	64.9
5:00 AM	71.1
6:00 AM	67.4
7:00 AM	68.5
8:00 AM	69.6
9:00 AM	69.3
10:00 AM	69.0
11:00 AM	66.9
Noon	70.7
1:00 PM	66.4
2:00 PM	68.3
3:00 PM	68.6
4:00 PM	68.2
5:00 PM	69.0
6:00 PM	67.8
7:00 PM	67.1
8:00 PM	67.8
9:00 PM	68.0
10:00 PM	67.9
11:00 PM	66.3

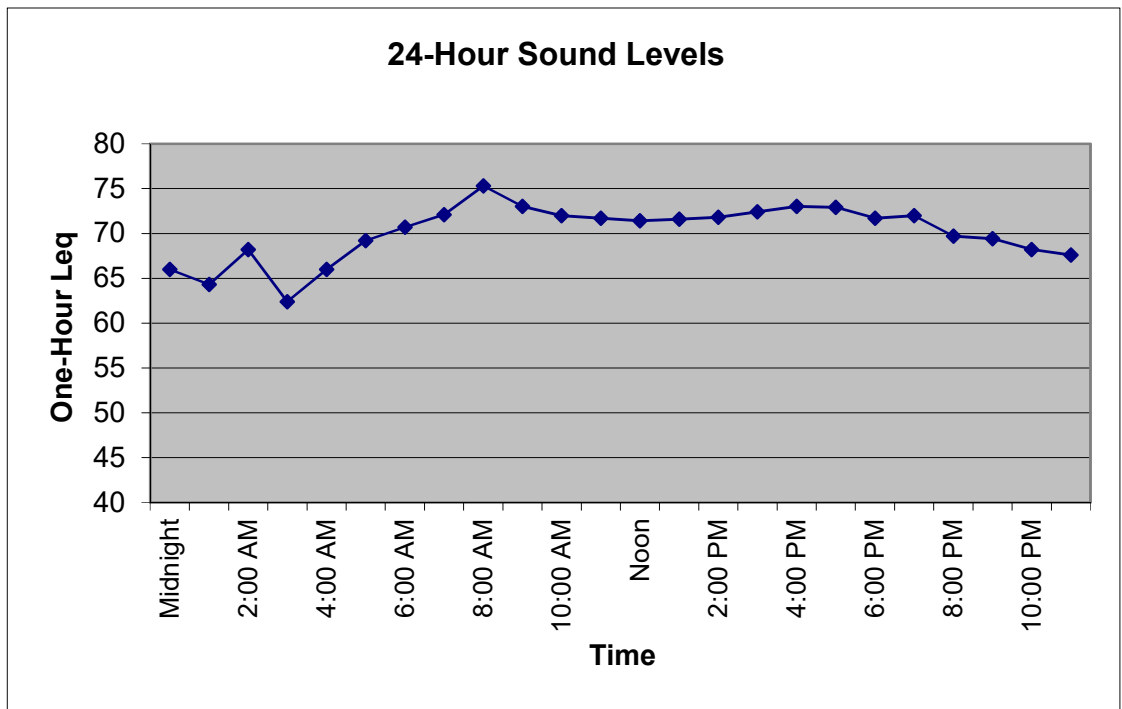


Ldn/CNEL Calculation Spreadsheet

Project:	447 Battery Street	Date:	8/28/2019	Analyst:	C. Matsui		
Location:	LT-2						
				Worst Hour	Ldn minus	CNEL minus	
Time	Leq(24)	Ldn	CNEL	Leq	Worst Hour Leq	Ldn	Day
Midnight	66	71.0	75.0	75.3	-0.3	0.4	Evening
1:00 AM	64.3	2.9	3.3				Night
2:00 AM	68.2						
3:00 AM	62.4						
4:00 AM	66						
5:00 AM	69.2						
6:00 AM	70.7						
7:00 AM	72.1						
8:00 AM	75.3						
9:00 AM	73						
10:00 AM	72						
11:00 AM	71.7						
Noon	71.4						
1:00 PM	71.6						
2:00 PM	71.8						
3:00 PM	72.4						
4:00 PM	73						
5:00 PM	72.9						
6:00 PM	71.7						
7:00 PM	72						
8:00 PM	69.7						
9:00 PM	69.4						
10:00 PM	68.2						
11:00 PM	67.6						

24-Hour Sound Levels

Time	One-Hour Leq
Midnight	66
1:00 AM	64.3
2:00 AM	68.2
3:00 AM	62.4
4:00 AM	66
5:00 AM	69.2
6:00 AM	70.7
7:00 AM	72.1
8:00 AM	75.3
9:00 AM	73
10:00 AM	72
11:00 AM	71.7
Noon	71.4
1:00 PM	71.6
2:00 PM	71.8
3:00 PM	72.4
4:00 PM	73
5:00 PM	72.9
6:00 PM	71.7
7:00 PM	72
8:00 PM	69.7
9:00 PM	69.4
10:00 PM	68.2
11:00 PM	67.6

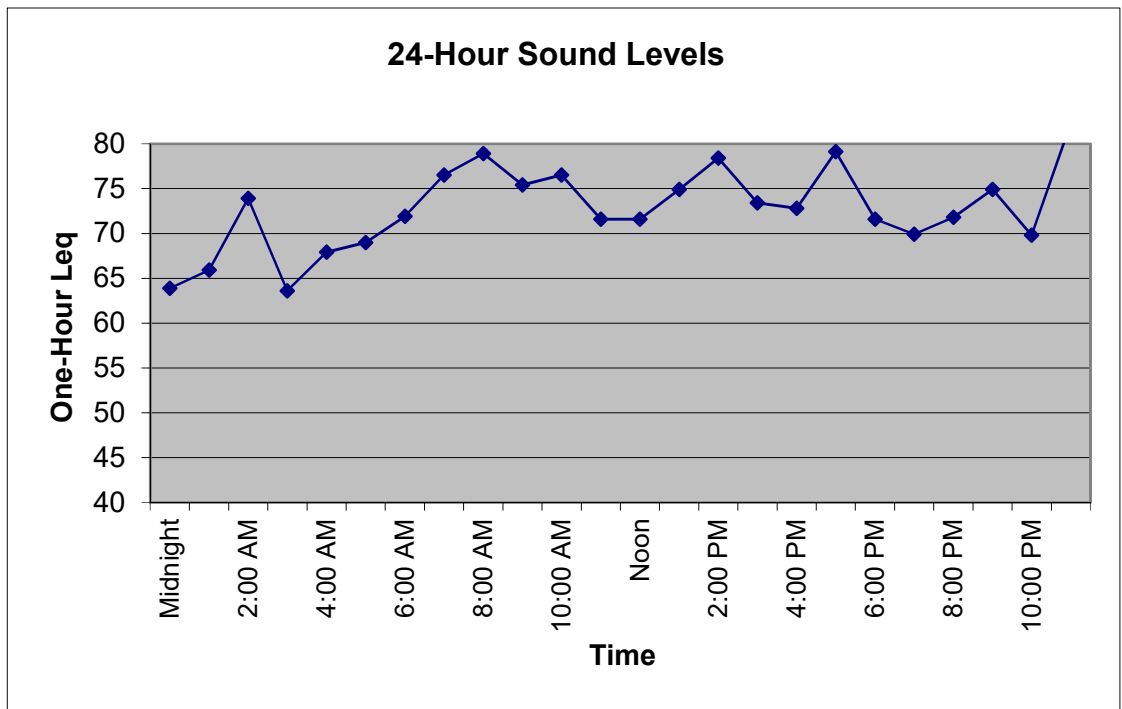


Ldn/CNEL Calculation Spreadsheet

Project:	447 Battery Street	Date:	8/28/2019	Analyst:	C. Matsui			
Location:	LT-3							
				Worst Hour	Ldn minus	CNEL minus		
Time	Leq(24)	Ldn	CNEL	Leq	Worst Hour Leq	Ldn	Day	
Midnight	63.9	75.0	80.9	81.1	82.3	-1.4	0.2	Evening
1:00 AM	65.9	4.4	4.6					Night
2:00 AM	73.9							
3:00 AM	63.6							
4:00 AM	67.9							
5:00 AM	69							
6:00 AM	71.9							
7:00 AM	76.5							
8:00 AM	78.9							
9:00 AM	75.4							
10:00 AM	76.5							
11:00 AM	71.6							
Noon	71.6							
1:00 PM	74.9							
2:00 PM	78.4							
3:00 PM	73.4							
4:00 PM	72.8							
5:00 PM	79.1							
6:00 PM	71.6							
7:00 PM	69.9							
8:00 PM	71.8							
9:00 PM	74.9							
10:00 PM	69.8							
11:00 PM	82.3							

24-Hour Sound Levels

Time	One-Hour Leq
Midnight	63.9
1:00 AM	65.9
2:00 AM	73.9
3:00 AM	63.6
4:00 AM	67.9
5:00 AM	69
6:00 AM	71.9
7:00 AM	76.5
8:00 AM	78.9
9:00 AM	75.4
10:00 AM	76.5
11:00 AM	71.6
Noon	71.6
1:00 PM	74.9
2:00 PM	78.4
3:00 PM	73.4
4:00 PM	72.8
5:00 PM	79.1
6:00 PM	71.6
7:00 PM	69.9
8:00 PM	71.8
9:00 PM	74.9
10:00 PM	69.8
11:00 PM	82.3



Summary				
File Name on Meter	LxT_Data.071			
File Name on PC	SLM_0004337_LxT_Data_071.00.ldbin			
Serial Number	0004337			
Model	SoundTrack LxT®			
Firmware Version	2.402			
User	C. Sanchez			
Location	ST-1 Wasington Street at Hotaling Place			
Job Description	530 Sansome			
Note				
Measurement				
Description				
Start	2020-11-27	15:34:52		
Stop	2020-11-27	15:54:53		
Duration	00:20:01.1			
Run Time	00:20:01.1			
Pause	00:00:00.0			
Pre Calibration	11/27/2020	14:30:46 PM		
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	Z Weighting			
Detector	Slow			
Preamp	PRMLxT2B			
Microphone Correction	Off			
Integration Method	Linear			
Overload	143.0 dB			
	A		C	Z
Under Range Peak	99.3		96.3	101.3 dB
Under Range Limit	37.7		37.2	44.0 dB
Noise Floor	28.6		28.1	34.9 dB
Results				
LAeq	64.6			
LAE	95.4			
EA	387.641 µPa²h			
EA8	9.295 mPa²h			
EA40	46.474 mPa²h			
LZpeak (max)	2020-11-27	15:54:31	105.7 dB	
LASmax	2020-11-27	15:54:31	84.3 dB	
LASmin	2020-11-27	15:48:39	58.7 dB	
SEA	-99.9 dB			
LAS > 85.0 dB (Exceedance Counts / Duration)	0		0.0 s	
LAS > 115.0 dB (Exceedance Counts / Duration)	0		0.0 s	
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0		0.0 s	
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0		0.0 s	
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0		0.0 s	
LCeq	72.8 dB			
LAeq	64.6 dB			
LCeq - LAeq	8.2 dB			
LAlaq	68.2 dB			
LAeq	64.6 dB			
LAlaq - LAeq	3.6 dB			

A.2. Construction Noise Calculations

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/23/2020
Case Description: 530 Sansome Demolition

**** Receptor #1 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Gateway	Residential	69.0	69.0	60.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Backhoe	No	40		77.6	300.0	0.0
Backhoe	No	40		77.6	300.0	0.0

Results

Noise Limit Exceedance (dBA)					Noise Limits (dBA)				

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/23/2020
Case Description: 530 Sansome Site Preparation

**** Receptor #1 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Gateway	Residential	69.0	69.0	60.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Compactor (ground)	No	20		83.2	300.0	0.0
Flat Bed Truck	No	40		74.3	300.0	0.0

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

Night	Day	Calculated (dBA)		Day Night	Evening		Night
		Day	Evening		Day	Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Compactor (ground)	N/A	N/A	67.7	60.7	N/A	N/A	N/A
Flat Bed Truck	N/A	N/A	58.7	54.7	N/A	N/A	N/A
Total	N/A	N/A	67.7	61.7	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Hotaling Place	Residential	69.0	69.0	60.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Compactor (ground)	No	20		83.2	360.0	0.0
Flat Bed Truck	No	40		74.3	360.0	0.0

Results

Noise Limit Exceedance (dBA)							Noise Limits (dBA)		
		Calculated (dBA)			Day		Evening		
Night	Day		Evening		Night				
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Compactor (ground)	N/A	N/A	66.1	59.1	N/A	N/A	N/A	N/A	N/A
Flat Bed Truck	N/A	N/A	57.1	53.1	N/A	N/A	N/A	N/A	N/A
Total	N/A	N/A	66.1	60.1	N/A	N/A	N/A	N/A	N/A

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Backhoe	No	40		77.6	360.0	0.0
Backhoe	No	40		77.6	360.0	0.0

Results

Noise Limit Exceedance (dBA)							Noise Limits (dBA)		
Night		Day	Calculated (dBA)		Day Night	Evening			
			Evening						
Equipment	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	N/A	N/A	60.4	56.4	N/A	N/A	N/A	N/A	N/A
Backhoe	N/A	N/A	60.4	56.4	N/A	N/A	N/A	N/A	N/A
Total			60.4	59.4	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/23/2020
Case Description: 530 Sansome Grading

**** Receptor #1 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Gateway	Residential	69.0	69.0	60.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Auger Drill Rig	No	20		84.4	300.0	0.0
Excavator	No	40		80.7	300.0	0.0

Results

Noise Limit Exceedance (dBA)							Noise Limits (dBA)		

Night	Day		Calculated (dBA)		Day	Night	Evening		
			Evening						

Equipment		Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Leq	Lmax		Lmax	Leq	Lmax	Leq			

Auger Drill Rig			68.8	61.8	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Excavator			65.1	61.2	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Total			68.8	64.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			

**** Receptor #2 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Hotaling Place	Residential	69.0	69.0	60.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Auger Drill Rig	No	20		84.4	360.0	0.0
Excavator	No	40		80.7	360.0	0.0

Results

Noise Limit Exceedance (dBA)							Noise Limits (dBA)		
Night		Day	Calculated (dBA)		Day Night	Evening			
			Evening						
Equipment	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Auger Drill Rig	N/A	N/A	N/A	62.0	55.0	N/A	N/A	N/A	N/A
Excavator	N/A	N/A	N/A	63.6	59.6	N/A	N/A	N/A	N/A
Total			N/A	63.6	60.9	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/23/2020
Case Description: 530 Sansome Foundations

**** Receptor #1 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Gateway	Residential	69.0	69.0	60.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Excavator	No	40		80.7	300.0	0.0
Auger Drill Rig	No	20		84.4	300.0	0.0

Results

Noise Limit Exceedance (dBA)					Noise Limits (dBA)				

Night	Calculated (dBA)				Day	Night	Evening		
	Day		Evening				-----		

Equipment			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq			

Excavator			65.1	61.2	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Auger Drill Rig			68.8	61.8	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Total			68.8	64.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			

**** Receptor #2 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Hotaling Place	Residential	69.0	69.0	60.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Excavator	No	40		80.7	360.0	0.0
Auger Drill Rig	No	20		84.4	360.0	0.0

Results

Noise Limit Exceedance (dBA)							Noise Limits (dBA)		
Night		Day	Calculated (dBA)		Day Night	Evening			
			Evening						
Equipment	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	N/A	N/A	N/A	63.6	59.6	N/A	N/A	N/A	N/A
Auger Drill Rig	N/A	N/A	N/A	67.2	60.2	N/A	N/A	N/A	N/A
Total			N/A	67.2	62.9	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 11/23/2020
Case Description: 530 Sansome Drainage Subgrade

**** Receptor #1 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Gateway	Residential	69.0	69.0	60.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Backhoe	No	40		77.6	300.0	0.0
Compactor (ground)	No	20		83.2	300.0	0.0

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

Night	Calculated (dBA)				Day		Evening		
	Day		Evening		Night				
Equipment			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq			
Backhoe			62.0	58.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Compactor (ground)			67.7	60.7	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
	Total		67.7	62.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			

**** Receptor #2 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Hotaling Place	Residential	69.0	69.0	60.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Backhoe	No	40		77.6	360.0	0.0
Compactor (ground)	No	20		83.2	360.0	0.0

Results

Noise Limit Exceedance (dBA)							Noise Limits (dBA)		
		Calculated (dBA)			Day		Evening		
Night	Day		Evening		Night				
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Backhoe N/A	N/A	N/A	62.0 N/A	55.0 N/A	N/A	N/A	N/A	N/A	N/A
Compactor N/A	(ground) N/A	N/A	63.6 N/A	59.6 N/A	N/A	N/A	N/A	N/A	N/A
Total			63.6	60.9	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/23/2020
Case Description: 530 Sansome Building Construction

**** Receptor #1 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Gateway	Residential	69.0	69.0	60.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Crane	No	16		80.6	300.0	0.0
Gradall	No	40		83.4	300.0	0.0

Results

Noise Limit Exceedance (dBA)						Noise Limits (dBA)			

Night	Calculated (dBA)				Day		Evening		
	Day		Evening		Night				

Equipment			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq			

Crane			65.0	57.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Gradall			67.8	63.9	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
	Total		67.8	64.7	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			

**** Receptor #2 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Hotaling Place	Residential	69.0	69.0	60.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Crane	No	16		80.6	360.0	0.0
Gradall	No	40		83.4	360.0	0.0

Results

Noise Limit Exceedance (dBA)							Noise Limits (dBA)		
		Calculated (dBA)			Day		Evening		
Night	Day		Evening		Night				
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Crane	N/A	N/A	63.4	55.4	N/A	N/A	N/A	N/A	N/A
Gradall	N/A	N/A	66.3	62.3	N/A	N/A	N/A	N/A	N/A
Total	N/A	N/A	66.3	63.1	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 11/23/2020
Case Description: 530 Sansome Night Concrete Pour

**** Receptor #1 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Gateway	Residential	69.0	69.0	60.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Concrete Pump Truck	No	20		81.4	300.0	0.0
Concrete Mixer Truck	No	40		78.8	300.0	0.0

Results

Noise Limit Exceedance (dBA)					Noise Limits (dBA)				

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Pump Truck	No	20		81.4	360.0	0.0
Concrete Mixer Truck	No	40		78.8	360.0	0.0

Results

Noise Limit Exceedance (dBA)							Noise Limits (dBA)		

Night	Day		Calculated (dBA)		Day		Evening		
			Evening		Night		-----		

Equipment			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq			

Concrete Pump Truck			64.3	57.3	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Concrete Mixer Truck			61.7	57.7	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Total			64.3	60.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			

**** Receptor #3 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Club Quarters Hotel	Commercial	69.0	69.0	60.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Pump Truck	No	20		81.4	150.0	0.0
Concrete Mixer Truck	No	40		78.8	150.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Night		Day	Calculated (dBA)		Day		Evening		
			Evening		Night				
-----		-----	-----	-----	-----	-----	-----	-----	-----
Equipment			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq			
-----		-----	-----	-----	-----	-----	-----	-----	-----
Concrete Pump Truck			71.9	64.9	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Concrete Mixer Truck			69.3	65.3	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Total			71.9	68.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			

Attachment B

Regulatory Setting

Regulatory Setting

Federal Noise Standards

There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the proposed project. With regard to noise exposure and workers, the Office of Safety and Health Administration (OSHA) regulations safeguard the hearing of workers exposed to occupational noise. Federal regulations also establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR), Part 205, Subpart B. The federal truck pass-by noise standard is 80 dB at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

California Noise Standards

The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the state pass-by standard is consistent with the federal limit of 80 dB. The state pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dB at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

The State of California updated its building code requirements with respect to sound transmission, effective July 2015. California Building Code Section 1207 (California Code of Regulations Title 24) establishes material requirements in terms of sound transmission class (STC)¹ of 50 for all common interior walls and floor/ceiling assemblies between adjacent dwelling units or between dwelling units and adjacent public areas. It also sets an interior performance standard of 45 dBA from exterior noise sources. This interior standard was part of Section 1207 prior to 2015. As a multi-family residential structure, the subject building was constructed to the interior standards pursuant to the California Building Code at the time of its construction.

State Vibration Standards

There are no state vibration standards applicable to the proposed project. Moreover, according to the California Department of Transportation's (Caltrans) *Transportation and Construction Vibration Guidance Manual* (2013), there are no official Caltrans standards for vibration. However, the 2013 Guidance Manual provides guidelines for assessing vibration damage potential to various types of buildings, ranging from 0.08–0.12 in/sec PPV for extremely fragile historic buildings, ruins, and ancient monuments, to 0.50–2.0 in/sec PPV for modern industrial/commercial buildings.

¹ The STC is used as a measure of a materials ability to reduce sound. The STC is equal to the number of decibels a sound is reduced as it passes through a material.

San Francisco General Plan

Land Use Compatibility Guidelines for Community Noise

The Environmental Protection Element of the San Francisco General Plan contains Land Use Compatibility Guidelines for Community Noise.² These guidelines, which are similar to but differ somewhat from state guidelines promulgated by the Governor's Office of Planning and Research, indicate maximum acceptable exterior noise levels for various newly developed land uses. The City's guidelines, which are presented in **Figure B-1, San Francisco Land Use Compatibility Chart for Community Noise**, indicate exterior noise levels that might be inappropriate for sensitive land uses and would therefore require additional noise insulation considerations beyond standard practices. Though Figure 8 presents a range of noise levels that are considered compatible or incompatible with various land uses, the maximum "satisfactory" noise level is 60 dBA (L_{dn}) for residential and hotel uses; 65 dBA (L_{dn}) for school classrooms, libraries, churches, and hospitals; 70 dBA (L_{dn}) for playgrounds, parks, office buildings, retail commercial uses, and noise-sensitive manufacturing/communications uses; and 77 dBA for other commercial uses such as wholesale, some retail, industrial/manufacturing, transportation, communications, and utilities. If these uses are proposed to be located in areas with noise levels that exceed these guidelines, a detailed analysis of noise reduction requirements will normally be necessary prior to final review and approval.

Noise-Related Policies

The following policies of the San Francisco General Plan Environmental Protection Element that relate to noise issues are relevant to the proposed project:

Policy 10.1: Promote site planning, building orientation and design and interior layout that will lessen noise intrusion. Because sound levels drop as distance from the source increases, building setbacks can play an important role in reducing noise for the building occupants...Buildings sited with their narrower dimensions facing the noise source and sited to shield or be shielded by other buildings also help reduce noise intrusion. Although walls with no windows or small windows cut down on noise from exterior sources, in most cases it would not be feasible or desirable to eliminate wall openings. However, interior layout can achieve similar results by locating rooms whose use require more quiet, such as bedrooms, away from the street noise.

Policy 10.2: Promote the incorporation of noise insulation materials in new construction. State-imposed noise insulation standards apply to all new residential structures except detached single-family dwellings. Protection against exterior noise and noise within a building is also important in many nonresidential structures. Builders should be encouraged to take into account prevailing noise levels and to include noise insulation materials as needed to provide adequate insulation.

Policy 11.1: Discourage new uses in areas in which the noise level exceeds the noise compatibility guidelines for that use. New development should be examined to determine whether background and/or thoroughfare noise level of the site is consistent with the guidelines for the proposed use. If the noise levels for the development site ... exceed the sound level guidelines established for that use, as shown in the accompanying land use compatibility chart, then either needed noise insulation features

² City and County of San Francisco, San Francisco General Plan <https://generalplan.sfplanning.org/>, accessed December 1, 2020.

should be incorporated in the design or else the construction or development should not be undertaken.

Policy 11.1: Discourage new uses in areas in which the noise level exceeds the noise compatibility guidelines for that use. New development should be examined to determine whether background and/or thoroughfare noise level of the site is consistent with the guidelines for the proposed use. If the noise levels for the development site [...] exceed the sound level guidelines established for that use, as shown in the accompanying land use compatibility chart, then either needed noise insulation features should be incorporated in the design or else the construction or development should not be undertaken.

Policy 11.3: Locate new noise-generating development so that the noise impact is reduced. Developments which will bring appreciable traffic into or through noise-sensitive areas should be discouraged, if there are appropriate alternative locations where the noise impact would be less. For those activities—such as a hospital—that need a quiet environment, yet themselves generate considerable traffic, the proper location presents a dilemma. In those cases, the new development should locate where this traffic will not present a problem and, if necessary, incorporate the proper noise insulation

San Francisco Noise Ordinance

In San Francisco, regulation of noise is stipulated in the Noise Ordinance, i.e. San Francisco Police Code Article 29, Regulation of Noise, which states that the City's policy is to prohibit unnecessary, excessive, and offensive noises from all sources subject to police power. Article 29 Sections 2907 and 2908 regulate construction equipment and construction work at night, while Section 2909 provides for limits on stationary-source noise from machinery and equipment. Sections 2907 and 2908 are enforced by the Department of Building Inspection, and Section 2909 is enforced by the Department of Public Health. Summaries of these and other relevant sections are presented below.

Sections Regulating Construction Noise





San Francisco Police Code Sections 2907(a) and (b) state that it shall be unlawful for any person, including the City and County of San Francisco, to operate any powered construction equipment, regardless of age or date of acquisition, if the operation of such equipment emits noise at a level in excess of 80 dBA when measured at a distance of 100 feet from such equipment, or an equivalent sound level at some other convenient distance. Exemptions from this requirement include:

- Impact tools and equipment with intake and exhaust mufflers recommended by the manufacturers and approved by the Director of Public Works as best accomplishing maximum noise attenuation; and

Figure B-1 San Francisco Land Use Compatibility Chart for Community Noise

Land Use Category	Sound Levels and Land Use Consequences (Ldn Values in dBA)						
	55	60	65	70	75	80	85
Residential – All Dwellings, Group Quarters							
Transient Lodging – Motels, Hotels							
School Classrooms, Libraries, Churches, Hospitals, Nursing Homes, etc.							
Auditoriums, Concert Halls, Amphitheaters, Music Shells							
Sports Arenas, Outdoor Spectator Sports							
Playgrounds, Parks							
Golf Courses, Riding Stables, Water-Based Recreation Areas, Cemeteries							
Office Buildings – Personal, Business, and Professional Services							
Commercial – Wholesale and Some Retail, Industrial/Manufacturing, Transportation, Communication, and Utilities							
Manufacturing – Noise-Sensitive							
Communications – Noise-Sensitive							

SOURCE: San Francisco Planning Department, *San Francisco General Plan*, Environmental Protection Element, adopted on June 27, 1996, [https://generalplan.sfplanning.org/l6 Environmental Protection.htm](https://generalplan.sfplanning.org/l6%20Environmental%20Protection.htm), accessed December 1, 2020.

	Satisfactory, with no special noise insulation requirements. Noise levels in this range are considered "Acceptable."
	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Noise levels in this range are considered "Conditionally Acceptable."
	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Noise levels in this range are considered "Conditionally Unacceptable."
	New construction or development should generally not be undertaken. Noise levels in this range are considered "Unacceptable."

- Pavement breakers and jackhammers equipped with acoustically attenuating shields or shrouds recommended by the manufacturers and approved by the Director of Public Works as best accomplishing maximum noise attenuation.

San Francisco Police Code Section 2908 prohibits any person between the hours of 8 p.m. of any day and 7 a.m. of the following day from erecting, constructing, demolishing, excavating for, altering, or repairing any building or structure if the noise level created is in excess of the ambient noise level by 5 dBA at the nearest property line, unless a special permit has been applied for and granted by the Director of Public Works.

Sections Regulating Operational Noise

San Francisco Police Code Section 2909 establishes a not-to-exceed noise standard for fixed sources of noise, such as building mechanical equipment and industrial or commercial processing machinery. Unlike the state building code (Title 24) standard, which is applicable to interior living space only, the standards in Section 2909(a), (b), and (c) are applicable outdoors, at the property line of the affected use, and vary based on the residential or commercial nature of the noise generator's use. For example, the noise limits for operation of commercial and industrial properties provide that no person shall produce or allow to be produced a noise level more than 8 dBA above the local ambient level at the property plane. For noise sources emanating from residential properties, the noise limits are 5 dBA above the ambient level at any point outside of the property plane of a residential use. The noise limits for public property provide that no person shall produce a noise level more than 10 dBA above the local ambient level at a distance of 25 feet or more on public property.

As is common for noise standards, the permitted noise level for fixed residential interior noise limits identified in Section 2909(d) is lower at night than during the day. For example, maximum noise levels at any sleeping or living room in any dwelling unit located on residential property must not exceed 45 dBA between 10 p.m. and 7 a.m., and 55 dBA between 7 a.m. and 10 p.m. None of the noise limits set forth in this section apply to activity for which the City and County of San Francisco has issued a permit that contains noise limit provisions that are different from those set forth in the San Francisco Police Code. Additionally, the Directors of Public Health, Public Works, or Building Inspection, or the Entertainment Commission, or the Chief of Police may grant variances to noise regulations, over which they have jurisdiction pursuant to Section 2916.

San Francisco Building and Administrative Codes

The City approved amendments to its building code on May 21, 2015. Section 1207.6 now addresses exterior sound transmission control for residential structures, although it was previously addressed in the California Building Code Section 1207 at the time the subject building was constructed. The code requires that residential structures located in noise critical areas—such as in proximity to highways, county roads, city streets, railroads, rapid transit lines, airports, nighttime entertainment venues, or industrial areas—shall be designed to prevent the intrusion of exterior noises beyond levels prescribed by the municipal code. Proper design to accomplish this goal shall include, but not be limited to, orientation of the residential structure, setbacks, shielding, and sound insulation of the building.

The section establishes an interior noise level performance standard for noise attributable to exterior sources of 45 dBA CNEL in any habitable room. Further, an acoustical analysis is required for residential structures to be located where the Ldn or CNEL exceeds 60 dBA, demonstrating that the proposed design will limit exterior noise to the prescribed allowable interior level. As a multi-family residential structure, the subject building was constructed to these standards pursuant to the California Building Code.

APPENDIX D

Air Quality Technical Memorandum

530 SANSOME STREET PROJECT

Air Quality Technical Memorandum - Final

Prepared for
San Francisco Planning Department
49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103

March 2021



530 SANSOME STREET PROJECT

Air Quality Technical Memorandum - Final

Prepared for
San Francisco Planning Department
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March 2021

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CHAPTER 1

Introduction

Introduction

Environmental Science Associate (ESA) has prepared this Air Quality Technical Memorandum (AQTM) for purposes of environmental analysis under the California Environmental Quality Act (CEQA) of the 530 Sansome Street Project (proposed project).

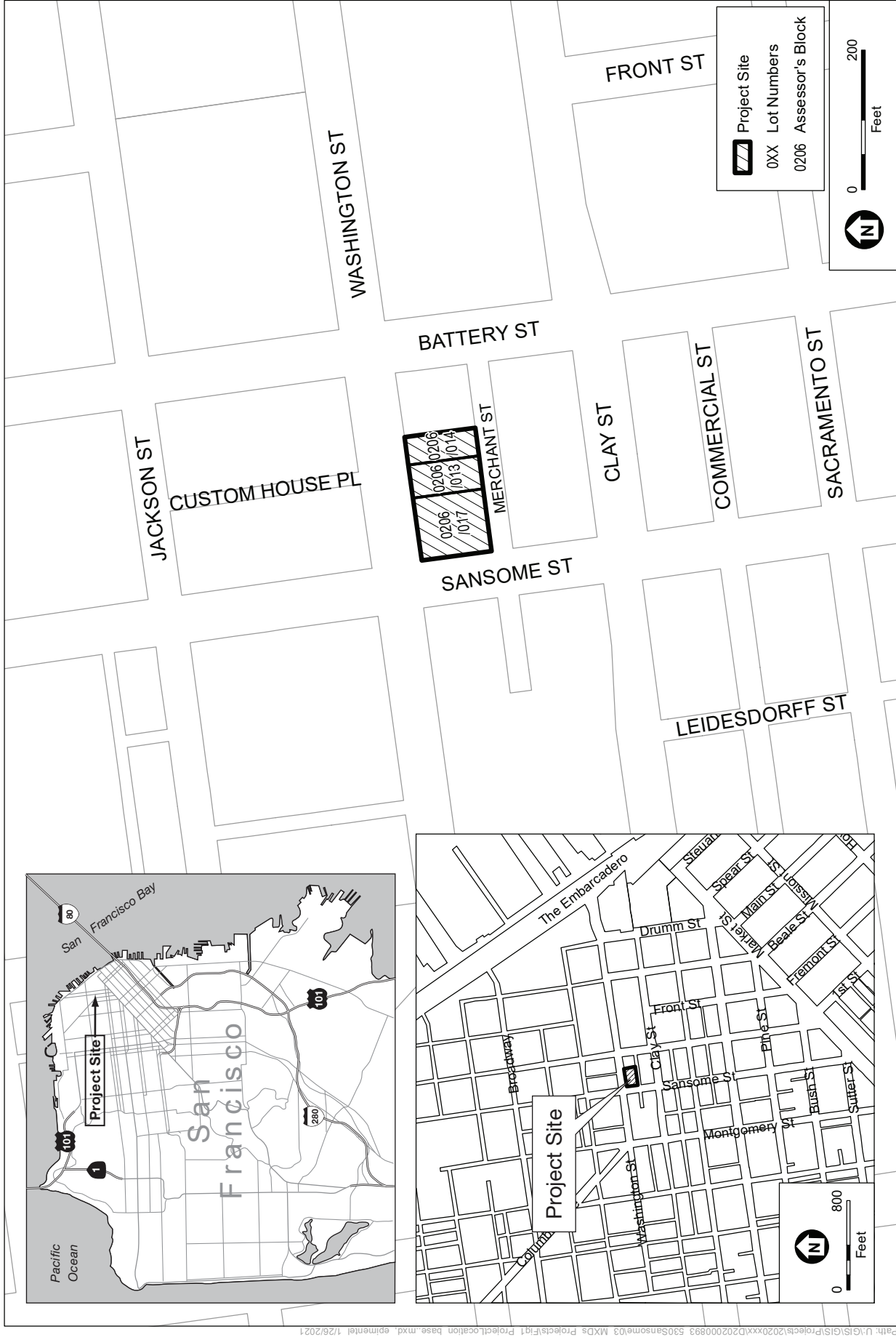
This AQTM evaluates criteria air pollutant emissions¹ resulting from construction and operation of the proposed project in accordance with San Francisco Planning Department Environmental Planning (EP) Division's CEQA requirements.

Project Description

The project sponsors propose to redevelop the 17,733-square-foot project site (Assessor's Block 0206, Lots 013, 014, and 017, see **Figure 1**) located at the southeast intersection of Sansome and Washington streets, on the block bound by Sansome Street to the west, Washington Street to the north, Battery Street to the east, and Merchant Street to the south, with a mixed-use building. The project would demolish the existing fire station (Fire Station 13) and two adjacent commercial buildings at the project site and construct a replacement fire station and an approximately 218-foot-tall mixed-use building at the project site. The project site, within the Financial District neighborhood, is developed with three buildings: a three-story office building with a basement at 425 Washington Street, a two-story commercial building with a basement at 439–445 Washington Street, and Fire Station 13, a two-story building with mezzanine and a basement at 530 Sansome Street.

The proposed project would demolish the existing buildings and construct a 19-story building and a four-story replacement fire station, with three below-grade levels under both buildings. The 19-story, approximately 218-foot-tall (236 feet total, including rooftop mechanical equipment) building would provide a new 200-guest-room hotel, approximately 40,490 square feet of office space, and approximately 35,230 square feet of fitness center space. The building would also include approximately 6,470 square feet of retail/restaurant space at the first and second level. The three below-grade levels would provide parking space and utility and

¹ The AQTM does not address greenhouse gas emissions and toxic air contaminants ("TACs"), as they will be evaluated separately in the proposed project's environmental document.



SOURCE: San Francisco Planning Department, 2020; ESA, 2021

530 Sansome Street; Case No: 2019-017481ENV

Figure 1
Project Location

back-of-house rooms for the fire station, hotel, and retail uses. New publicly accessible open space would be provided in the form of streetscape improvements to Merchant Street. The proposed project would convert the western portion of Merchant Street into a shared street/living alley² and would provide approximately 4,810 square feet of privately owned public open space (POPOS).

The sponsors also propose a residential variant to the project, under which the massing/height of the building and replacement fire station use would remain the same as the proposed project, but would construct 256 residential units instead of commercial uses (hotel, office, gym, and retail). Under the residential variant, 6,384 square feet of common open space would be located on level 21 of the building.

Project Construction

The project sponsors estimate that project construction would last 29 months with overlapping phases. Demolition would take approximately two months. Excavation and shoring would last approximately five months. Foundation and below-grade construction would last about four months. The base building and exterior and interior finishing phases would partially overlap and last approximately 17 months. Construction of the planned basement levels and foundation installation would require excavation extending about 40 feet below ground surface. Overall, excavation of the basement levels would remove approximately 28,000 cubic yards of soil.

Construction workers driving to the project site would park at a garage located on Washington and Battery streets. Construction equipment and materials would be staged at sidewalks surrounding the project site, including a portion of the on-street parking lane on Washington and Merchant streets.

During construction, San Francisco Fire Department personnel and apparatus would be relocated to offsite fire stations that are as close as possible to the project site (Station 28 at 1814 Stockton Street, Station 38 at 2150 California Street and Station 4 at 449 Mission Rock) and would continue to serve the Financial District neighborhood and the City in general. Relocation of fire equipment typically takes no more than eight hours to complete.

² A shared street/living alley is a narrow, low-volume traffic street designed to prioritize pedestrians, bicyclists, and provides space for social uses. Vehicles may access but with reduced speeds. The 447 Battery Street project (Case No. 2014.1036E) would be responsible for the eastern portion of Merchant Street.

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CHAPTER 2

Modeling Methods and Assumptions

Construction Modeling

Construction emissions were estimated primarily using the California Emissions Estimator Model (CalEEMod) version 2016.3.2. Additional calculations were prepared outside of CalEEMod to calculate on-road mobile emissions using 2017 Emission FACtor (EMFAC2017), as CalEEMod uses an older version of EMFAC, EMFAC2014. The primary assumptions used to model construction emissions are presented below. **Table 1** presents the project characteristics of the proposed project and the residential variant.

TABLE 1
PROJECT CHARACTERISTICS (GSF)

Proposed Use	Proposed Project	Residential Variant ^a
Hotel	146,065 (200 guest rooms)	N/A
Residential	N/A	257,400 (256 DU)
Office	40,490	N/A
Retail/Restaurant	6,470	N/A
Fitness Center	35,230	N/A
Fire Station	20,240	20,240
Parking	17,950 (48 spaces)	24,900 (82 spaces)

ABBREVIATIONS:
GSF = gross square feet
DU = dwelling unit

^a The 21-story residential variant would have the same building envelope/height as the proposed project.

SOURCE: Skidmore, Owings & Merrill LLP, February 2021

1. Off-road construction equipment

- a. Anticipated Schedule: the proposed project's construction schedule and phasing was based on project-specific data provided by the project sponsor. The proposed project and residential variant would have the same schedules and phasing. Construction phasing consisted of nine phases as shown in **Table 2**.
- b. Equipment:
 - i. Off-road equipment, quantities, and usage for each phase were based on project-specific data provided by the project sponsor. Off-road equipment horsepower and engine tier were provided by CalEEMod default data. Equipment usage for the proposed project and residential variant would be the same, as shown in **Table 3**. Construction equipment by phase and hours per day are shown in **Table 4**.

TABLE 2
CONSTRUCTION SCHEDULE

Phase	Start Date	End Date	Workdays
Demolition	12/1/2021	1/25/2022	40
Site Preparation	12/1/2021	3/22/2022	80
Soil Hauling	12/1/2021	4/29/2022	150
Grading	3/1/2022	7/18/2022	100
Concrete Pour	8/1/2022	8/1/2022	1
Drainage Utilities Subgrade	8/1/2022	11/18/2022	80
Foundations and Concrete Pour	8/1/2022	11/18/2022	80
Building Construction	12/1/2022	3/20/2024	340
Architectural Coating	9/1/2023	11/9/2023	50
Paving	3/1/2024	3/28/2024	20

NOTE: This schedule was generated by CalEEMod based on the start date and number of workdays per phase. In reality, there will be gap days in the schedule, resulting in an end date that is slightly later than what CalEEMod generates. CalEEMod cannot incorporate gaps into the construction schedule. Construction is scheduled to be completed in April 2024.

SOURCE: EQX Jackson SQ Holdco LLC, 2020

TABLE 3
CONSTRUCTION EQUIPMENT FLEET

Equipment Type	Number of Equipment	Engine Horsepower	Uncontrolled Engine Tier	Controlled Engine Tier
Air Compressors	4	78	CalEEMod default	n/a (electric)
Backhoes	3	97	CalEEMod default	Tier 4 Final
Bore/Drill Rigs	2	221	CalEEMod default	Tier 4 Final
Cement and Mortar Mixers	1	9	CalEEMod default	Tier 4 Final
Cranes	4	231	CalEEMod default	Tier 4 Final
Excavators	3	158	CalEEMod default	Tier 4 Final
Forklifts	1	89	CalEEMod default	Tier 4 Final
Pavers	1	130	CalEEMod default	Tier 4 Final
Paving Equipment	1	132	CalEEMod default	Tier 4 Final
Plate Compactors	2	8	CalEEMod default	Tier 4 Final
Pumps	2	84	CalEEMod default	Tier 4 Final
Rollers	1	80	CalEEMod default	Tier 4 Final
Skid Steer Loaders	1	65	CalEEMod default	Tier 4 Final
Sweepers/Scubbers	4	64	CalEEMod default	Tier 4 Final
Vibratory Compactor	2	8	CalEEMod default	Tier 4 Final

ABBREVIATIONS:
n/a = not applicable

SOURCE: EQX Jackson SQ Holdco LLC, 2020

TABLE 4
CONSTRUCTION EQUIPMENT FLEET BY PHASE

Phase	Phase/Equipment Type	Number of Equipment	Hours per Day
Demolition	Skid Steer Loaders	1	8
	Sweepers/Scrubbers	1	8
	Backhoes	2	8
Site Preparation	Excavators	1	8
	Plate Compactors	1	8
	Sweepers/Scrubbers	1	8
Grading	Air Compressors	2	4
	Bore/Drill Rigs	1	8
	Excavators	1	8
	Rollers	1	8
	Sweepers/Scrubbers	1	8
Concrete Pour	Cement and Mortar Mixers	1	20
Drainage Utilities Subgrade	Vibratory Compactors	1	8
	Backhoes	1	8
Foundations and Concrete Pour	Air Compressors	2	4
	Bore/Drill Rigs	1	8
	Cranes	2	8
	Excavators	1	8
	Pumps	1	8
	Sweepers/Scrubbers	1	8
Architectural Coating	Cranes	1	8
Building Construction	Cranes	1	8
	Forklifts	1	8
	Pumps	1	8
Paving	Pavers	1	8
	Paving Equipment	1	8

SOURCE: EQX Jackson SQ Holdco LLC, 2020

2. On-road construction equipment

- a. Vendor and haul truck travel:
 - i. Daily vendor trips delivering materials and supplies to the project site would occur during several phases of site preparation and building construction. The number of vendor trips is generated by CalEEMod, based on project construction characteristics. Vendor trip lengths were based on the CalEEMod default of 7.3 miles. Emissions were based on default vendor truck fleet mix values from CalEEMod, which assumes 50 percent HHDT and 50 percent MHDT. Emissions were calculated outside of CalEEMod using the California Air Resources Board's (CARB) 2017 Emission FACtor (EMFAC2017) model, as CalEEMod uses an older version, EMFAC2014.

- ii. As a result of grading activities, the proposed project would export 28,000 cubic yards (CY) of soil requiring approximately 1,750 haul trucks. The CalEEMod default haul truck distance of 20 miles was assumed for soil export. Haul truck travel emissions were calculated using EMFAC2017.
 - b. Haul truck idling:
 - i. It was assumed that idling activities would total 15 minutes per trip, representing three separate 5-minute idling occurrences: check-in to the site or queuing at the site boundary upon arrival, on-site idling during loading/unloading, and check-out of the site or queuing at the site boundary upon departure.
 - ii. Idling emission rates for the HHDT and MHDT category were generated using EMFAC2017.
 - c. Worker vehicle trips:
 - i. Daily worker vehicle trips traveling to the project site would occur during all phases of construction. The number of workers was provided by the project sponsor.
 - ii. Worker vehicle trip lengths were based on the CalEEMod default of 10.8 miles, and emissions were calculated using EMFAC2017.
- 3. Asphalt paving**
- a. Fugitive ROG emissions from asphalt paving were calculated in CalEEMod assuming approximately 0.02 acre of the site would be paved with asphalt, for the conform strip at the location of new sidewalks.
- 4. Architectural coatings**
- a. The analysis calculated emissions of reactive organic gases (ROG) from applications of architectural coatings (i.e., paint) assuming that these coatings would meet BAAQMD standards for volatile organic compounds (VOC) content limits (Regulation 8, Rule 3), which are 100-150 grams VOC per liter.
- 5. Control measures**
- a. Off-road construction equipment: all off-road construction equipment was modeled with Tier 4 Final engine emission standards, except for air compressors, which would be electric in the controlled scenario.

Operational Modeling

Similar to construction emissions, operational emissions were estimated primarily using the CalEEMod version 2016.3.2 emissions model for area and stationary sources and EMFAC2017 for mobile sources. The primary assumptions used to model operational emissions are presented below.

1. Mobile sources:

- a. Mobile source emissions were based on vehicle trip rates for each land use provided in the project's traffic study.³ The vehicle trip rates and lengths are provided in **Table 5** below.

³ Fehr & Peers, *Travel Demand Memorandum*, November 2020, Tables 6, 7, 8, 9, and 12.

- b. The traffic study vehicle trip rates are primarily light-duty vehicles, but would also include a small percentage of trucks for delivery vehicles at the curb. The fleet mix for passenger vehicles was obtained from EMFAC2017, for San Francisco County. The passenger vehicle fleet mix from EMFAC2017 includes light-duty autos (LDA), light-duty trucks (LDT), motorcycles (MCY), medium-duty vehicles (MDV), and motor homes (MH). Delivery vehicles were assumed to be 50 percent MHDT and 50 percent HHDT, consistent with the CalEEMod default construction vendor fleet mix.
- c. To calculate emissions from road dust, the default silt loading factor within CalEEMod (0.1 grams per square meter) was updated to a value of 0.04 grams per square meter, based on CARB Miscellaneous Process Methodology 7.9 — Entrained Road Travel, Paved Road Dust.⁴

TABLE 5
DAILY VEHICLE TRIPS AND TRIP LENGTHS

Trip Type	Daily Vehicle Trips (one-way)	Average Trip Length (miles) ^a
Proposed Project		
Auto	564	Work-related 9.5 All other 7.3
Taxi/TNC	352	Work-related 9.5 All other 7.3
<i>Total</i>	<i>916</i>	—
Residential Variant		
Auto	259	Work-related 10.8 Shopping or commercial to customer 4.8 Commercial non-work and other 5.7
Taxi/TNC	63	Work-related 10.8 Shopping or commercial to customer 4.8 Commercial non-work and other 5.7
<i>Total</i>	<i>332</i>	—

ABBREVIATIONS:

TNC = Transportation Network Companies

NOTES:

- ^a The average vehicle trip lengths are CalEEMod defaults. Hotel uses provide an amenity to employees and visitors in Downtown San Francisco and would generate substantially less VMT compared to the rest of the region due to the density of complementary land uses and high transit accessibility to the project site.

SOURCE: Fehr & Peers, *Travel Demand Memorandum*, November, 2020, Tables 6, 7, and 12.

2. Area sources:

- a. Area source emissions from landscaping equipment, consumer products, paint and other architectural coatings, and natural gas combustion in heaters, boilers, and restaurant stoves were generated using CalEEMod. Emissions were based on the square footage of the proposed development.

⁴ Bay Area Air Quality Management District, *Miscellaneous Process Methodology 7.9 Entrained Road Travel, Paved Road Dust*, November 2016. Available at https://www.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf. Accessed January 2019.

- b. The CalEEMod default consumer product emission factor was used to estimate daily ROG emissions from the use of consumer product by future occupants of the proposed development. This factor is 2.14×10^{-5} pounds of ROG per square foot per day.
- c. For the residential variant, it was assumed that there would be a total of six fireplaces in select residential units, two fireplaces in the lobby, and four fireplaces on the top floor amenity space, all natural-gas fired.⁵
- d. Default CalEEMod energy usage rates, which are based on 2016 Title 24 energy standards.

3. Emergency generators:

- a. Diesel-powered emergency generator emissions were estimated using CalEEMod. Emissions were estimated assuming a 400-horsepower generator for the proposed project or residential variant and a 464-horsepower generator for the fire station, operating for a maximum annual non-emergency operation schedule of 50 hours, consistent with emergency standby engine testing limits established in BAAQMD Regulation 9-8-330.3. The fire department tests their generators once a week for approximately 30 minutes (26 annual hours);⁶ however, emissions were conservatively estimated based on the maximum annual non-emergency operation schedule of 50 hours.
- b. The proposed project and residential variant would each have one emergency generator. The fire station would replace its existing 200-horsepower generator with a newer generator up to current emissions standards.⁷ The new generator would have an average of 464-horsepower (346 kilowatts). The new generators were included in the analysis.

4. Freight/delivery vehicle travel and idling:

- a. Emissions associated with daily freight delivery and service vehicle trips to the loading docks were estimated outside of CalEEMod using emission factors from EMFAC2017 by vehicle type. These loading dock trips would occur in addition to the vehicle trips discussed in the *Mobile Sources* section above (item 1), which only include delivery trips at the curb. Emissions from transport refrigeration units (TRUs) were also included for the proposed project, for hotel and restaurant delivery trips, calculated using the CARB OFFROAD-ORION emissions database.
- b. The number of daily delivery/service vehicle trips was provided in the project project's traffic study.⁸ **Table 6** present the freight loading trip rates for the proposed project and residential variant.
- c. The default CalEEMod construction vendor fleet mix for delivery trucks was used to estimate emissions from operational freight/delivery trips (50 percent MHDT and 50 percent HHDT).
- d. It was assumed that all delivery trucks were diesel-powered.

⁵ The building permit was submitted on December 20, 2019. The project therefore will not be subject to Ordinance 237-20, which bans natural gas for building permits submitted after June 1, 2021.

⁶ DeWitt, Dawn, Assistant Deputy Chief, Support Services, San Francisco Fire Department, e-mail correspondence with Susan Yogi, Senior Managing Associate, Environmental Science Associates, March 3, 2021.

⁷ DeWitt, Dawn, Assistant Deputy Chief, Support Services, San Francisco Fire Department, e-mail correspondence with Susan Yogi, Senior Managing Associate, Environmental Science Associates, October 22, 2020.

⁸ Fehr & Peers, *Travel Demand Memorandum*, November 2020.

- e. Travel emissions were estimated assuming 7.3 miles per one-way vehicle trip, which is the CalEEMod default trip length for “commercial-non-work” trip types.
- f. Idling emissions were estimated assuming 15 minutes of idling per roundtrip, representing three separate 5-minute idling occurrences: arrival to the site, on-site idling during loading/unloading, and readying for departure after delivery.

TABLE 6
FREIGHT LOADING TRIP RATES AND TRIP LENGTHS

Trip Type	Daily Delivery Truck Trips (roundtrips)	Average Trip Length ^a
Proposed Project		
Hotel	13	7.3
Gym	8	7.3
Restaurant	2	7.3
Office	8	7.3
<i>Total</i>	31	—
Residential Variant		
Residential	8	7.3

NOTES:

^a The average vehicle trip lengths are the CalEEMod default values for the City of San Francisco for Commercial-Work trip types (C-W).

SOURCE: Fehr & Peers, *Travel Demand Memorandum*, November, 2020, Tables 8 and 9.

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CHAPTER 3

Results

The following tables present the results of the construction and operations analysis for the proposed project and residential variant.

Construction Emissions

The following tables present average daily uncontrolled and controlled construction emissions by source (e.g., off-road equipment). Controlled construction emissions means that all off-road construction equipment was modeled with Tier 4 Final engine emission standards except for air compressors, which would be electric. The tables presented below include:

- **Table 7:** detailed average daily uncontrolled and controlled construction emissions for the proposed project and residential variant by year and source.
- **Table 8:** summary average daily uncontrolled and controlled construction emissions for the proposed project and residential variant by year.

The number of construction days in each year are as follows: 30 days in 2021, 260 days in 2022, 260 days in 2023, and 58 days in 2024.

TABLE 7
AVERAGE DAILY CONSTRUCTION EMISSIONS BY SOURCE FOR THE PROPOSED PROJECT
AND RESIDENTIAL VARIANT

Year/Source ^a	Average Daily Emissions (pounds/day)							
	Uncontrolled				Controlled ^b			
	ROG	NO _x	PM ₁₀ Exhaust	PM _{2.5} Exhaust	ROG	NO _x	PM ₁₀ Exhaust	PM _{2.5} Exhaust
2021								
Off-Road Equipment	0.90	8.67	0.52	0.48	0.24	3.53	0.02	0.02
Paving	—	—	—	—	—	—	—	—
Architectural Coating	—	—	—	—	—	—	—	—
Hauling – Travel	0.15	4.93	0.11	0.07	0.15	4.93	0.11	0.07
Hauling – Idling	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vendor Trucks	0.17	4.56	0.13	0.08	0.17	4.56	0.13	0.08
Worker Trips	0.33	0.24	0.14	0.06	0.33	0.24	0.14	0.06
<i>2021 Subtotal^c</i>	<i>1.55</i>	<i>18.41</i>	<i>0.90</i>	<i>0.69</i>	<i>0.89</i>	<i>13.27</i>	<i>0.41</i>	<i>0.23</i>
2022								
Off-Road Equipment	1.36	12.83	0.63	0.59	0.32	2.59	0.04	0.04
Paving	—	—	—	—	—	—	—	—
Architectural Coating	—	—	—	—	—	—	—	—
Hauling – Travel	0.04	1.56	0.03	0.02	0.04	1.56	0.03	0.02
Hauling – Idling	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vendor Trucks	0.14	4.53	0.12	0.07	0.14	4.53	0.12	0.07
Worker Trips	0.32	0.23	0.15	0.06	0.32	0.23	0.15	0.06
<i>2022 Subtotal^c</i>	<i>1.86</i>	<i>19.15</i>	<i>0.93</i>	<i>0.74</i>	<i>0.82</i>	<i>8.90</i>	<i>0.34</i>	<i>0.18</i>
2023								
Off-Road Equipment	0.78	7.53	0.35	0.34	0.16	0.67	0.02	0.02
Paving	—	—	—	—	—	—	—	—
Architectural Coating – Proposed Project	10.01	—	—	—	10.01	—	—	—
Architectural Coating – Residential Variant	14.68	—	—	—	14.68	—	—	—
Hauling – Travel	—	—	—	—	—	—	—	—
Hauling – Idling	—	—	—	—	—	—	—	—
Vendor Trucks	0.08	3.45	0.10	0.04	0.08	3.45	0.10	0.04
Worker Trips	0.25	0.17	0.12	0.05	0.25	0.17	0.12	0.05
<i>2023 Subtotal – Proposed Project^c</i>	<i>11.13</i>	<i>11.15</i>	<i>0.57</i>	<i>0.43</i>	<i>10.49</i>	<i>4.30</i>	<i>0.24</i>	<i>0.12</i>
<i>2023 Subtotal – Residential Variant^c</i>	<i>15.79</i>	<i>11.15</i>	<i>0.57</i>	<i>0.43</i>	<i>15.16</i>	<i>4.30</i>	<i>0.24</i>	<i>0.12</i>

TABLE 7 (CONTINUED)
AVERAGE DAILY CONSTRUCTION EMISSIONS BY SOURCE FOR THE PROPOSED PROJECT
AND RESIDENTIAL VARIANT

Year/Source ^a	Average Daily Emissions (pounds/day)							
	Uncontrolled				Controlled ^b			
	ROG	NO _x	PM ₁₀ Exhaust	PM _{2.5} Exhaust	ROG	NO _x	PM ₁₀ Exhaust	PM _{2.5} Exhaust
2024								
Off-Road Equipment	0.41	3.87	0.18	0.17	0.09	0.40	0.01	0.01
Paving	<0.01	—	—	—	<0.01	—	—	—
Architectural Coating	—	—	—	—	—	—	—	—
Hauling – Travel	—	—	—	—	—	—	—	—
Hauling – Idling	—	—	—	—	—	—	—	—
Vendor Trucks	0.08	3.39	0.10	0.04	0.08	3.39	0.10	0.04
Worker Trips	0.24	0.16	0.12	0.05	0.24	0.16	0.12	0.05
<i>2024 Subtotal^c</i>	<i>0.73</i>	<i>7.42</i>	<i>0.39</i>	<i>0.26</i>	<i>0.41</i>	<i>3.95</i>	<i>0.23</i>	<i>0.11</i>

ABBREVIATIONS:

ROG = reactive organic gases
 NO_x = oxides of nitrogen
 PM₁₀ = particulate matter less than or equal to 10 microns in diameter
 PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter
 CalEEMod = CALifornia Emissions Estimator MODEL
 VOC = volatile organic compounds

NOTES:

^a Categories defined as follows:

Off-Road Equipment = operating emissions from heavy-duty equipment, such as bulldozers, cranes, and excavators. Refer to Tables 2 and 3 for equipment activity assumptions. Emissions were modeled using CalEEMod.

Paving = Fugitive ROG emissions from asphalt paving. Emissions were modeled using CalEEMod.

Architectural Coatings = Fugitive ROG emissions from the application of architectural coatings. Emissions were modeled using CalEEMod.

Hauling – travel = Travel emissions from heavy-duty on-road haul trucks. Emissions were modeled using CalEEMod. Haul and vendor truck idling emissions were also calculated using EMFAC2017 and found to be negligible.

Vendor Trucks = Operating emissions from heavy-duty on-road vendor trucks. The analysis also calculated idling emissions, assuming that each haul truck would idle 15 minutes while unloading soil or material on the project site. Emissions were modeled using EMFAC2017; idling emissions were found to be negligible.

Worker Trips = Operating emission from employee vehicles. Emissions were modeled using CalEEMod.

^b Controls include: (1) all off-road construction equipment was modeled with Tier 4 Final engine emission standards except for air compressors which were assumed to be electric.

^c The number of construction days in each year are as follows: 30 days in 2021, 260 days in 2022, 260 days in 2023, and 58 days in 2024. In addition, in 2023 the architectural coating emissions are different for the proposed project and residential variant due to the differences in square footage of painted surfaces between them.

SOURCE: ESA, 2020.

TABLE 8
AVERAGE DAILY CONSTRUCTION EMISSIONS BY YEAR FOR THE PROPOSED PROJECT
AND RESIDENTIAL VARIANT

Year ^b	Average Daily Emissions (pounds/day)							
	Uncontrolled				Controlled ^a			
	ROG	NO _x	PM ₁₀ Exhaust	PM _{2.5} Exhaust	ROG	NO _x	PM ₁₀ Exhaust	PM _{2.5} Exhaust
2021	1.55	18.41	0.90	0.69	0.89	13.27	0.41	0.23
2022	1.86	19.15	0.93	0.74	0.82	8.90	0.34	0.18
2023 Proposed Project	11.13	11.15	0.57	0.43	10.49	4.30	0.24	0.12
2023 Residential Variant	15.79	11.15	0.57	0.43	15.16	4.30	0.24	0.12
2024	0.73	7.42	0.39	0.26	0.41	3.95	0.23	0.11

ABBREVIATIONS:

ROG = reactive organic gases

NO_x = oxides of nitrogen

PM₁₀ = particulate matter less than or equal to 10 microns in diameter

PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter

VOC = volatile organic compounds

NOTES:

^a Controls include: (1) all off-road construction equipment was modeled with Tier 4 Final engine emission standards except for air compressors which were assumed to be electric.

^b The number of construction days in each year are as follows: 30 days in 2021, 260 days in 2022, 260 days in 2023, and 58 days in 2024. In addition, in 2023 the architectural coating emissions are different for the proposed project and residential variant due to the differences in square footage of painted surfaces between them.

SOURCE: ESA, 2020.

Operational Emissions

The following tables present average daily and total annual uncontrolled operational emissions by source (e.g., area). The tables presented below include:

- **Table 9:** average daily uncontrolled operational emissions for the proposed project and residential variant by source at project build out.
- **Table 10:** total annual uncontrolled operational emissions for the proposed project and residential variant by source at project build out.

TABLE 9
AVERAGE DAILY UNCONTROLLED OPERATIONAL EMISSIONS BY SOURCE FOR THE PROPOSED PROJECT AND RESIDENTIAL VARIANT

Phase/Year/Source ^a	Average Daily Emissions (pounds/day) ^b							
	Proposed Project				Residential Variant			
	ROG	NO _x	PM ₁₀	PM _{2.5}	ROG	NO _x	PM ₁₀	PM _{2.5}
Operation – 2024								
Area	6.05	<0.01	<0.01	<0.01	7.39	0.16	0.22	0.22
Energy	0.24	2.18	0.17	0.17	0.07	0.56	0.05	0.05
Mobile	1.89	0.80	2.05	0.65	0.70	0.34	0.99	0.32
Emergency Generators	0.19	0.54	0.03	0.03	0.19	0.54	0.03	0.03
Delivery Vehicles ^c	1.40	33.12	1.24	0.24	0.49	11.37	0.31	0.07
Total	9.77	36.64	3.48	1.09	8.84	12.97	1.60	0.68

ABBREVIATIONS:

ROG = reactive organic gases
 NO_x = oxides of nitrogen
 PM₁₀ = particulate matter less than or equal to 10 microns in diameter
 PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter
 CalEEMod = CALifornia Emissions Estimator Model

NOTES:

^a Categories defined as follows:

Area = Emissions from landscaping equipment, consumer products, and architectural coatings. Refer to Table 1 for the land use type and sizes assumed in the modeling. Emissions were modeled using CalEEMod.
Energy = Emissions from natural gas combustion for space heating and cooking. Refer to Table 1 for the land use type and sizes assumed in the modeling. Emissions were modeled using CalEEMod.
Mobile = Operating emissions from daily office, residential, and retail/restaurant auto trips. Refer to Table 5 for the daily vehicle trips and trip lengths by land use type. Emission from auto trips were estimated using CalEEMod.

Emergency Generators = Operating emissions from diesel-powered emergency generators.

Delivery Vehicles = Operating emissions from daily office, retail, and restaurant delivery vehicles trips. Refer to Table 6 for the daily vehicle trips and trip lengths by land use type. Emissions were estimated using emission factors from EMFAC2017.

^b PM₁₀ and PM_{2.5} dust includes road dust, brake wear, and tire wear.

^c Includes TRUs on hotel and restaurant delivery vehicles, for the proposed project only.

SOURCE: ESA, 2020

TABLE 10
TOTAL ANNUAL UNCONTROLLED OPERATIONAL EMISSIONS BY SOURCE FOR THE PROPOSED PROJECT AND RESIDENTIAL VARIANT

Phase/Year/Source ^a	Total Annual Emissions (tons/year)							
	Proposed Project				Residential Variant			
	ROG	NO _x	PM ₁₀	PM _{2.5}	ROG	NO _x	PM ₁₀	PM _{2.5}
Operation – 2024								
Area	1.10	<0.01	<0.01	0.0001	1.35	0.03	0.04	0.04
Energy	0.04	0.40	0.03	0.03	0.01	0.10	0.01	0.01
Mobile	0.34	0.15	0.37	0.12	0.13	0.06	0.18	0.06
Emergency Generators	0.04	0.10	0.01	0.01	0.04	0.10	0.01	0.01
Delivery Vehicles ^c	0.26	6.04	0.48	0.12	0.09	2.08	0.06	0.01
Total	1.78	6.69	0.63	0.20	1.61	2.37	0.29	0.12

ABBREVIATIONS:

ROG = reactive organic gases
 NO_x = oxides of nitrogen
 PM₁₀ = particulate matter less than or equal to 10 microns in diameter
 PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter
 CalEEMod = CALifornia Emissions Estimator Model

NOTES:

- ^a Categories defined as follows:
 Area = Emissions from landscaping equipment, consumer products, and architectural coatings. Refer to Table 1 for the land use type and sizes assumed in the modeling. Emissions were modeled using CalEEMod.
 Energy = Emissions from natural gas combustion for space heating and cooking. Refer to Table 1 for the land use type and sizes assumed in the modeling. Emissions were modeled using CalEEMod.
 Mobile = Operating emissions from daily office, residential, and retail/restaurant auto trips. Refer to Table 5 for the daily vehicle trips and trip lengths by land use type. Emission from auto trips were estimated using EMFAC2017.
 Emergency Generators = Operating emissions from diesel-powered emergency generators.
 Delivery Vehicles = Operating emissions from daily office, retail, and restaurant delivery vehicles trips. Refer to Table 6 for the daily vehicle trips and trip lengths by land use type. Emissions were estimated using emission factors from EMFAC2017.
^b PM₁₀ and PM_{2.5} dust includes road dust, brake wear, and tire wear.
^c Includes TRUs on hotel and restaurant delivery vehicles, for the proposed project only.

SOURCE: ESA, 2020

APPENDIX A

Emissions Calculations

- A1: CalEEMod Output: Proposed Project Construction Emissions and Operational Area, Energy, and Stationary Source Emissions**
- A2: CalEEMod Output: Residential Variant Construction Emissions and Operational Area, Energy, and Stationary Source Emissions**
- A3: EMFAC2017 Output and Calculations: Proposed Project and Residential Variant Construction On-Road Emissions**
- A4: EMFAC2017 Calculations: Proposed Project Operational On-Road Emissions**
- A5: EMFAC2017 Calculations: Residential Variant Operational On-Road Emissions Year**
- A6: EMFAC2017 Output Files**
- A7: Road Dust Calculations: Proposed Project and Residential Variant**
- A8: TRU Emissions Calculations Using OFFROAD-ORION**

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A1 CalEEMod Output: Proposed Project Construction Emissions and Operational Area, Energy, and Stationary Source Emissions

530 Sansome - Proposed Project - San Francisco County, Annual

530 Sansome - Proposed Project

San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	39.80	1000sqft	0.28	40,490.00	0
User Defined Industrial	1.00	User Defined Unit	0.10	20,240.00	0
Enclosed Parking with Elevator	49.00	Space	0.01	19,600.00	0
Other Asphalt Surfaces	0.02	Acre	0.02	871.20	0
Health Club	36.40	1000sqft	0.00	35,230.00	0
Hotel	200.00	Room	0.00	146,065.00	0
Quality Restaurant	10.10	1000sqft	0.00	6,470.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	4.6	Precipitation Freq (Days)	64
Climate Zone	5			Operational Year	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	225.2	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PGE emission factor calculated from 2016 - 2018 average.

Land Use - per Project Sponsor data. "User Defined Industrial" represents the fire station.

Construction Phase - per Project Sponsor data.

Off-road Equipment - per Project Sponsor data.

Off-road Equipment - placeholder equipment for soil hauling phase

Trips and VMT - per Project Sponsor data. Soil hauling trucks based on 16 cubic yard capacity (CalEEMod default). Vendor trips based on total of 14,000 truck round trips

Demolition -

Grading - per Project Sponsor data

Vehicle Trips - Based on TIS for the project.

Road Dust - Silt Loading factor of 0.04 g/m2 based on: California Air Resources Board (CARB), Miscellaneous Process Methodology 7.9 — Entrained Road Travel-Related Road Dust, Revised and updated March 2018. <https://www2.arb.ca.gov/sil-exposure/filled/filled17-0-2018.pdf>

Energy Use -

Construction Off-road Equipment Mitigation - per Project Sponsor data.

Energy Mitigation -

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	124,248.00	124,425.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	372,743.00	373,275.00
tblAreaCoating	Area_Nonresidential_Exterior	124248	124425
tblAreaCoating	Area_Nonresidential_Interior	372743	373275
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	5.00	50.00
tblConstructionPhase	NumDays	100.00	1.00
tblConstructionPhase	NumDays	100.00	80.00
tblConstructionPhase	NumDays	100.00	80.00
tblConstructionPhase	NumDays	100.00	340.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	NumDays	2.00	150.00
tblConstructionPhase	NumDays	2.00	100.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	80.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblGrading	AcresOfGrading	6.25	0.00

tblGrading	AcresOfGrading	5.00	0.50
tblLandUse	LandUseSquareFeet	39,800.00	40,490.00
tblLandUse	LandUseSquareFeet	0.00	20,240.00
tblLandUse	LandUseSquareFeet	36,400.00	35,230.00
tblLandUse	LandUseSquareFeet	290,400.00	146,065.00
tblLandUse	LandUseSquareFeet	10,100.00	6,470.00
tblLandUse	LotAcreage	0.91	0.28
tblLandUse	LotAcreage	0.00	0.10
tblLandUse	LotAcreage	0.44	0.01
tblLandUse	LotAcreage	0.84	0.00
tblLandUse	LotAcreage	6.67	0.00
tblLandUse	LotAcreage	0.23	0.00
tblOffRoadEquipment	HorsePower	187.00	1.00
tblOffRoadEquipment	HorsePower	187.00	1.00
tblOffRoadEquipment	LoadFactor	0.41	0.10
tblOffRoadEquipment	LoadFactor	0.41	0.10
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	225.2
tblRoadDust	RoadSiltLoading	0.1	0.04
tblSolidWaste	SolidWasteGenerationRate	9.22	6.21
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	464.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00

tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,750.00
tblTripsAndVMT	VendorTripNumber	0.00	44.00
tblTripsAndVMT	VendorTripNumber	44.00	640.00
tblTripsAndVMT	WorkerTripNumber	3.00	109.00
tblVehicleTrips	ST_TR	2.46	0.72
tblVehicleTrips	ST_TR	20.87	3.55
tblVehicleTrips	ST_TR	8.19	1.93
tblVehicleTrips	ST_TR	94.36	20.67
tblVehicleTrips	SU_TR	1.05	0.31
tblVehicleTrips	SU_TR	26.73	4.55
tblVehicleTrips	SU_TR	5.95	1.41
tblVehicleTrips	SU_TR	72.16	15.80
tblVehicleTrips	WD_TR	11.03	3.24
tblVehicleTrips	WD_TR	32.93	5.60
tblVehicleTrips	WD_TR	8.17	1.93
tblVehicleTrips	WD_TR	89.95	19.70
tblWater	IndoorWaterUseRate	3,065,690.50	2,064,029.24
tblWater	OutdoorWaterUseRate	195,682.37	131,746.55

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
--	-----	-----	----	-----	---------------	--------------	------------	----------------	---------------	-------------	----------	-----------	-----------	-----	-----	------

Year	tons/yr										MT/yr					
2021	0.0229	0.2910	0.2426	7.5000e-004	0.0485	8.3500e-003	0.0568	0.0111	7.7100e-003	0.0188	0.0000	73.1390	73.1390	0.0128	0.0000	73.4589
2022	0.2403	2.5666	2.3153	7.1500e-003	0.2124	0.0807	0.2931	0.0563	0.0758	0.1321	0.0000	669.3488	669.3488	0.1183	0.0000	672.3050
2023	1.4629	1.6106	1.3734	4.4900e-003	0.1537	0.0515	0.2052	0.0418	0.0488	0.0906	0.0000	418.6128	418.6128	0.0562	0.0000	420.0181
2024	0.0353	0.3508	0.3433	1.0400e-003	0.0337	0.0110	0.0447	9.1600e-003	0.0104	0.0196	0.0000	96.6075	96.6075	0.0140	0.0000	96.9584
Maximum	1.4629	2.5666	2.3153	7.1500e-003	0.2124	0.0807	0.2931	0.0563	0.0758	0.1321	0.0000	669.3488	669.3488	0.1183	0.0000	672.3050

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0130	0.2139	0.2508	7.5000e-004	0.0485	8.7000e-004	0.0494	0.0111	8.4000e-004	0.0119	0.0000	73.1390	73.1390	0.0128	0.0000	73.4589
2022	0.1130	1.3315	2.4588	7.1500e-003	0.2124	8.0300e-003	0.2205	0.0563	7.8500e-003	0.0641	0.0000	638.7094	638.7094	0.1163	0.0000	641.6158
2023	1.3745	0.6319	1.5372	4.4900e-003	0.1537	4.5300e-003	0.1582	0.0418	4.4300e-003	0.0462	0.0000	418.6126	418.6126	0.0562	0.0000	420.0178
2024	0.0162	0.1406	0.3897	1.0400e-003	0.0337	1.0900e-003	0.0348	9.1600e-003	1.0700e-003	0.0102	0.0000	96.6074	96.6074	0.0140	0.0000	96.9584
Maximum	1.3745	1.3315	2.4588	7.1500e-003	0.2124	8.0300e-003	0.2205	0.0563	7.8500e-003	0.0641	0.0000	638.7094	638.7094	0.1163	0.0000	641.6158

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	13.90	51.90	-8.46	0.00	0.00	90.42	22.84	0.00	90.06	49.25	0.00	2.44	2.44	0.99	0.00	2.43

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	12-1-2021	2-28-2022	0.7399	0.5728
2	3-1-2022	5-31-2022	0.6479	0.3694

3	6-1-2022	8-31-2022	0.5902	0.2333
4	9-1-2022	11-30-2022	0.9569	0.4088
5	12-1-2022	2-28-2023	0.4308	0.1822
6	3-1-2023	5-31-2023	0.4199	0.1741
7	6-1-2023	8-31-2023	0.4188	0.1730
8	9-1-2023	11-30-2023	1.8248	1.4869
9	12-1-2023	2-29-2024	0.4016	0.1716
10	3-1-2024	5-31-2024	0.1226	0.0434
		Highest	1.8248	1.4869

2.2 Overall Operational
Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1023	3.0000e-005	3.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.0100e-003	6.0100e-003	2.0000e-005	0.0000	6.4000e-003
Energy	0.0435	0.3958	0.3325	2.3700e-003		0.0301	0.0301		0.0301	0.0301	0.0000	662.4622	662.4622	0.0381	0.0141	667.6071
Mobile	0.1657	0.6219	1.6916	6.0700e-003	0.2915	6.5400e-003	0.2980	0.0849	6.1100e-003	0.0910	0.0000	559.4101	559.4101	0.0239	0.0000	560.0065
Stationary	0.0354	0.0991	0.0904	1.7000e-004		5.2100e-003	5.2100e-003		5.2100e-003	5.2100e-003	0.0000	16.4504	16.4504	2.3100e-003	0.0000	16.5081
Waste						0.0000	0.0000		0.0000	0.0000	73.1173	0.0000	73.1173	4.3211	0.0000	181.1451
Water						0.0000	0.0000		0.0000	0.0000	5.1915	11.3153	16.5068	0.5347	0.0129	33.7156
Total	1.3469	1.1167	2.1176	8.6100e-003	0.2915	0.0418	0.3333	0.0849	0.0414	0.1263	78.3089	1,249.6441	1,327.9530	4.9201	0.0270	1,458.9889

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1023	3.0000e-005	3.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.0100e-003	6.0100e-003	2.0000e-005	0.0000	6.4000e-003
Energy	0.0435	0.3958	0.3325	2.3700e-003		0.0301	0.0301		0.0301	0.0301	0.0000	662.4622	662.4622	0.0381	0.0141	667.6071
Mobile	0.1657	0.6219	1.6916	6.0700e-003	0.2915	6.5400e-003	0.2980	0.0849	6.1100e-003	0.0910	0.0000	559.4101	559.4101	0.0239	0.0000	560.0065
Stationary	0.0354	0.0991	0.0904	1.7000e-004		5.2100e-003	5.2100e-003		5.2100e-003	5.2100e-003	0.0000	16.4504	16.4504	2.3100e-003	0.0000	16.5081
Waste						0.0000	0.0000		0.0000	0.0000	73.1173	0.0000	73.1173	4.3211	0.0000	181.1451
Water						0.0000	0.0000		0.0000	0.0000	5.1915	11.3153	16.5068	0.5347	0.0129	33.7156
Total	1.3469	1.1167	2.1176	8.6100e-003	0.2915	0.0418	0.3333	0.0849	0.0414	0.1263	78.3089	1,249.6441	1,327.9530	4.9201	0.0270	1,458.9889

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/1/2021	1/25/2022	5	40	
2	Site Preparation	Site Preparation	12/1/2021	3/22/2022	5	80	
3	Soil Hauling	Grading	12/1/2021	4/29/2022	7	150	
4	Grading	Grading	3/1/2022	7/18/2022	5	100	
5	Concrete Pour	Building Construction	8/1/2022	8/1/2022	5	1	
6	Drainage Utilities Subgrade	Building Construction	8/1/2022	11/18/2022	5	80	

7	Foundations and Concrete Pour	Building Construction	8/1/2022	11/18/2022	5	80
8	Building Construction	Building Construction	12/1/2022	3/20/2024	5	340
9	Architectural Coating	Architectural Coating	9/1/2023	11/9/2023	5	50
10	Paving	Paving	3/1/2024	3/28/2024	5	20

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.03

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 373,275; Non-Residential Outdoor: 124,425; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Sweepers/Scrubbers	1	8.00	64	0.46
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	1	1.00	1	0.10
Site Preparation	Plate Compactors	1	8.00	8	0.43
Site Preparation	Sweepers/Scrubbers	1	8.00	64	0.46
Soil Hauling	Aerial Lifts	1		63	0.31
Grading	Air Compressors	2	4.00	78	0.48
Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	1.00	1	0.10
Grading	Rollers	1	8.00	80	0.38
Grading	Sweepers/Scrubbers	1	8.00	64	0.46
Concrete Pour	Cement and Mortar Mixers	1	20.00	9	0.56
Drainage Utilities Subgrade	Plate Compactors	1	8.00	8	0.43
Drainage Utilities Subgrade	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Foundations and Concrete Pour	Air Compressors	2	4.00	78	0.48
Foundations and Concrete Pour	Bore/Drill Rigs	1	8.00	221	0.50
Foundations and Concrete Pour	Cranes	2	8.00	231	0.29
Foundations and Concrete Pour	Excavators	1	8.00	158	0.38
Foundations and Concrete Pour	Pumps	1	8.00	84	0.74
Foundations and Concrete Pour	Sweepers/Scrubbers	1	8.00	64	0.46
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Pumps	1	8.00	84	0.74
Architectural Coating	Cranes	1	8.00	231	0.29
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	224.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Soil Hauling	1	109.00	44.00	1,750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Concrete Pour	1	109.00	640.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Drainage Utilities Subgrade	2	109.00	44.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundations and Concrete Pour	8	109.00	44.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	3	109.00	44.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	22.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0151	0.0000	0.0151	2.2900e-003	0.0000	2.2900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8000e-003	0.0788	0.0904	1.2000e-004		4.7800e-003	4.7800e-003		4.4000e-003	4.4000e-003	0.0000	10.9352	10.9352	3.5400e-003	0.0000	11.0236
Total	7.8000e-003	0.0788	0.0904	1.2000e-004	0.0151	4.7800e-003	0.0199	2.2900e-003	4.4000e-003	6.6900e-003	0.0000	10.9352	10.9352	3.5400e-003	0.0000	11.0236

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.9000e-004	0.0208	6.8000e-003	5.0000e-005	1.6800e-003	6.0000e-005	1.7400e-003	4.4000e-004	6.0000e-005	5.0000e-004	0.0000	5.6510	5.6510	1.0400e-003	0.0000	5.6769
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.1000e-004	2.3900e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8328	0.8328	2.0000e-005	0.0000	0.8332
Total	8.2000e-004	0.0210	9.1900e-003	6.0000e-005	2.5900e-003	7.0000e-005	2.6600e-003	6.8000e-004	7.0000e-005	7.5000e-004	0.0000	6.4838	6.4838	1.0600e-003	0.0000	6.5101

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0151	0.0000	0.0151	2.2900e-003	0.0000	2.2900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1800e-003	0.0335	0.0940	1.2000e-004		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	10.9352	10.9352	3.5400e-003	0.0000	11.0236
Total	2.1800e-003	0.0335	0.0940	1.2000e-004	0.0151	2.0000e-004	0.0153	2.2900e-003	2.0000e-004	2.4900e-003	0.0000	10.9352	10.9352	3.5400e-003	0.0000	11.0236

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.9000e-004	0.0208	6.8000e-003	5.0000e-005	1.6800e-003	6.0000e-005	1.7400e-003	4.4000e-004	6.0000e-005	5.0000e-004	0.0000	5.6510	5.6510	1.0400e-003	0.0000	5.6769
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.1000e-004	2.3900e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8328	0.8328	2.0000e-005	0.0000	0.8332
Total	8.2000e-004	0.0210	9.1900e-003	6.0000e-005	2.5900e-003	7.0000e-005	2.6600e-003	6.8000e-004	7.0000e-005	7.5000e-004	0.0000	6.4838	6.4838	1.0600e-003	0.0000	6.5101

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Fugitive Dust					0.0112	0.0000	0.0112	1.6900e-003	0.0000	1.6900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0400e-003	0.0517	0.0661	9.0000e-005		2.8500e-003	2.8500e-003		2.6200e-003	2.6200e-003	0.0000	8.0893	8.0893	2.6200e-003	0.0000	8.1547
Total	5.0400e-003	0.0517	0.0661	9.0000e-005	0.0112	2.8500e-003	0.0140	1.6900e-003	2.6200e-003	4.3100e-003	0.0000	8.0893	8.0893	2.6200e-003	0.0000	8.1547

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4000e-004	0.0141	5.1700e-003	4.0000e-005	1.6100e-003	4.0000e-005	1.6500e-003	4.2000e-004	4.0000e-005	4.6000e-004	0.0000	4.0997	4.0997	7.7000e-004	0.0000	4.1190
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.4000e-004	1.6500e-003	1.0000e-005	6.7000e-004	1.0000e-005	6.8000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5927	0.5927	1.0000e-005	0.0000	0.5930
Total	5.7000e-004	0.0143	6.8200e-003	5.0000e-005	2.2800e-003	5.0000e-005	2.3300e-003	6.0000e-004	4.0000e-005	6.4000e-004	0.0000	4.6924	4.6924	7.8000e-004	0.0000	4.7120

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0112	0.0000	0.0112	1.6900e-003	0.0000	1.6900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6100e-003	0.0248	0.0695	9.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	8.0893	8.0893	2.6200e-003	0.0000	8.1547

Total	1.6100e-003	0.0248	0.0695	9.0000e-005	0.0112	1.5000e-004	0.0113	1.6900e-003	1.5000e-004	1.8400e-003	0.0000	8.0893	8.0893	2.6200e-003	0.0000	8.1547
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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4000e-004	0.0141	5.1700e-003	4.0000e-005	1.6100e-003	4.0000e-005	1.6500e-003	4.2000e-004	4.0000e-005	4.6000e-004	0.0000	4.0997	4.0997	7.7000e-004	0.0000	4.1190
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.4000e-004	1.6500e-003	1.0000e-005	6.7000e-004	1.0000e-005	6.8000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5927	0.5927	1.0000e-005	0.0000	0.5930
Total	5.7000e-004	0.0143	6.8200e-003	5.0000e-005	2.2800e-003	5.0000e-005	2.3300e-003	6.0000e-004	4.0000e-005	6.4000e-004	0.0000	4.6924	4.6924	7.8000e-004	0.0000	4.7120

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7300e-003	0.0513	0.0625	9.0000e-005		3.0500e-003	3.0500e-003		2.8200e-003	2.8200e-003	0.0000	8.1463	8.1463	2.5600e-003	0.0000	8.2102
Total	5.7300e-003	0.0513	0.0625	9.0000e-005	2.7000e-004	3.0500e-003	3.3200e-003	3.0000e-005	2.8200e-003	2.8500e-003	0.0000	8.1463	8.1463	2.5600e-003	0.0000	8.2102

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.1000e-004	2.3900e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8328	0.8328	2.0000e-005	0.0000	0.8332
Total	3.3000e-004	2.1000e-004	2.3900e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8328	0.8328	2.0000e-005	0.0000	0.8332

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4500e-003	0.0195	0.0672	9.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	8.1463	8.1463	2.5600e-003	0.0000	8.2102
Total	1.4500e-003	0.0195	0.0672	9.0000e-005	2.7000e-004	1.5000e-004	4.2000e-004	3.0000e-005	1.5000e-004	1.8000e-004	0.0000	8.1463	8.1463	2.5600e-003	0.0000	8.2102

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Worker	7.7000e-004	4.7000e-004	5.5200e-003	2.0000e-005	2.2500e-003	2.0000e-005	2.2700e-003	6.0000e-004	2.0000e-005	6.1000e-004	0.0000	1.9873	1.9873	4.0000e-005	0.0000	1.9882
Total	7.7000e-004	4.7000e-004	5.5200e-003	2.0000e-005	2.2500e-003	2.0000e-005	2.2700e-003	6.0000e-004	2.0000e-005	6.1000e-004	0.0000	1.9873	1.9873	4.0000e-005	0.0000	1.9882

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5900e-003	0.0484	0.1664	2.3000e-004		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	20.1840	20.1840	6.3300e-003	0.0000	20.3424
Total	3.5900e-003	0.0484	0.1664	2.3000e-004	2.7000e-004	3.6000e-004	6.3000e-004	3.0000e-005	3.6000e-004	3.9000e-004	0.0000	20.1840	20.1840	6.3300e-003	0.0000	20.3424

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	4.7000e-004	5.5200e-003	2.0000e-005	2.2500e-003	2.0000e-005	2.2700e-003	6.0000e-004	2.0000e-005	6.1000e-004	0.0000	1.9873	1.9873	4.0000e-005	0.0000	1.9882
Total	7.7000e-004	4.7000e-004	5.5200e-003	2.0000e-005	2.2500e-003	2.0000e-005	2.2700e-003	6.0000e-004	2.0000e-005	6.1000e-004	0.0000	1.9873	1.9873	4.0000e-005	0.0000	1.9882

3.4 Soil Hauling - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3700e-003	0.0584	0.0191	1.5000e-004	0.0118	1.7000e-004	0.0120	2.9900e-003	1.6000e-004	3.1500e-003	0.0000	15.8677	15.8677	2.9100e-003	0.0000	15.9405
Vendor	2.0800e-003	0.0782	0.0239	1.8000e-004	4.4600e-003	1.8000e-004	4.6300e-003	1.2900e-003	1.7000e-004	1.4600e-003	0.0000	18.6383	18.6383	2.4700e-003	0.0000	18.7002
Worker	4.8100e-003	3.0700e-003	0.0351	1.4000e-004	0.0134	1.0000e-004	0.0135	3.5500e-003	9.0000e-005	3.6400e-003	0.0000	12.2349	12.2349	2.5000e-004	0.0000	12.2412
Total	8.2600e-003	0.1396	0.0781	4.7000e-004	0.0296	4.5000e-004	0.0301	7.8300e-003	4.2000e-004	8.2500e-003	0.0000	46.7409	46.7409	5.6300e-003	0.0000	46.8818

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0100e-003	0.2062	0.0754	5.5000e-004	0.0139	5.6000e-004	0.0145	3.7600e-003	5.4000e-004	4.3000e-003	0.0000	59.7876	59.7876	0.0112	0.0000	60.0683
Vendor	7.4800e-003	0.2842	0.0899	6.9000e-004	0.0171	6.0000e-004	0.0177	4.9500e-003	5.7000e-004	5.5100e-003	0.0000	70.6024	70.6024	9.3600e-003	0.0000	70.8365
Worker	0.0174	0.0107	0.1257	5.0000e-004	0.0513	3.8000e-004	0.0516	0.0136	3.5000e-004	0.0140	0.0000	45.2224	45.2224	8.7000e-004	0.0000	45.2442
Total	0.0299	0.5010	0.2909	1.7400e-003	0.0823	1.5400e-003	0.0838	0.0223	1.4600e-003	0.0238	0.0000	175.6124	175.6124	0.0215	0.0000	176.1490

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0100e-003	0.2062	0.0754	5.5000e-004	0.0139	5.6000e-004	0.0145	3.7600e-003	5.4000e-004	4.3000e-003	0.0000	59.7876	59.7876	0.0112	0.0000	60.0683
Vendor	7.4800e-003	0.2842	0.0899	6.9000e-004	0.0171	6.0000e-004	0.0177	4.9500e-003	5.7000e-004	5.5100e-003	0.0000	70.6024	70.6024	9.3600e-003	0.0000	70.8365
Worker	0.0174	0.0107	0.1257	5.0000e-004	0.0513	3.8000e-004	0.0516	0.0136	3.5000e-004	0.0140	0.0000	45.2224	45.2224	8.7000e-004	0.0000	45.2442
Total	0.0299	0.5010	0.2909	1.7400e-003	0.0823	1.5400e-003	0.0838	0.0223	1.4600e-003	0.0238	0.0000	175.6124	175.6124	0.0215	0.0000	176.1490

3.5 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0529	0.4725	0.5746	1.1900e-003		0.0244	0.0244		0.0229	0.0229	0.0000	103.8328	103.8328	0.0292	0.0000	104.5624
Total	0.0529	0.4725	0.5746	1.1900e-003	0.0000	0.0244	0.0244	0.0000	0.0229	0.0229	0.0000	103.8328	103.8328	0.0292	0.0000	104.5624

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Worker	2.4200e-003	1.4800e-003	0.0174	7.0000e-005	7.1100e-003	5.0000e-005	7.1600e-003	1.8900e-003	5.0000e-005	1.9400e-003	0.0000	6.2756	6.2756	1.2000e-004	0.0000	6.2786
Total	2.4200e-003	1.4800e-003	0.0174	7.0000e-005	7.1100e-003	5.0000e-005	7.1600e-003	1.8900e-003	5.0000e-005	1.9400e-003	0.0000	6.2756	6.2756	1.2000e-004	0.0000	6.2786

3.6 Concrete Pour - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.0000e-005	4.6000e-004	3.9000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0573	0.0573	1.0000e-005	0.0000	0.0574
Total	7.0000e-005	4.6000e-004	3.9000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0573	0.0573	1.0000e-005	0.0000	0.0574

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1000e-004	0.0347	0.0110	8.0000e-005	2.0900e-003	7.0000e-005	2.1600e-003	6.0000e-004	7.0000e-005	6.7000e-004	0.0000	8.6298	8.6298	1.1400e-003	0.0000	8.6584
Worker	1.5000e-004	9.0000e-005	1.0600e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.1000e-004	0.0000	1.2000e-004	0.0000	0.3800	0.3800	1.0000e-005	0.0000	0.3802
Total	1.0600e-003	0.0348	0.0121	8.0000e-005	2.5200e-003	7.0000e-005	2.5900e-003	7.1000e-004	7.0000e-005	7.9000e-004	0.0000	9.0098	9.0098	1.1500e-003	0.0000	9.0386

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0573	0.0573	1.0000e-005	0.0000	0.0574
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0573	0.0573	1.0000e-005	0.0000	0.0574

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1000e-004	0.0347	0.0110	8.0000e-005	2.0900e-003	7.0000e-005	2.1600e-003	6.0000e-004	7.0000e-005	6.7000e-004	0.0000	8.6298	8.6298	1.1400e-003	0.0000	8.6584
Worker	1.5000e-004	9.0000e-005	1.0600e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.1000e-004	0.0000	1.2000e-004	0.0000	0.3800	0.3800	1.0000e-005	0.0000	0.3802
Total	1.0600e-003	0.0348	0.0121	8.0000e-005	2.5200e-003	7.0000e-005	2.5900e-003	7.1000e-004	7.0000e-005	7.9000e-004	0.0000	9.0098	9.0098	1.1500e-003	0.0000	9.0386

3.7 Drainage Utilities Subgrade - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Off-Road	8.1900e-003	0.0771	0.0979	1.4000e-004		4.0000e-003	4.0000e-003		3.7100e-003	3.7100e-003	0.0000	12.1823	12.1823	3.6700e-003	0.0000	12.2740
Total	8.1900e-003	0.0771	0.0979	1.4000e-004		4.0000e-003	4.0000e-003		3.7100e-003	3.7100e-003	0.0000	12.1823	12.1823	3.6700e-003	0.0000	12.2740

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0300e-003	0.1910	0.0604	4.6000e-004	0.0115	4.0000e-004	0.0119	3.3200e-003	3.8000e-004	3.7100e-003	0.0000	47.4638	47.4638	6.3000e-003	0.0000	47.6212
Worker	0.0117	7.1600e-003	0.0845	3.4000e-004	0.0345	2.6000e-004	0.0347	9.1700e-003	2.4000e-004	9.4000e-003	0.0000	30.4016	30.4016	5.9000e-004	0.0000	30.4163
Total	0.0167	0.1982	0.1449	8.0000e-004	0.0460	6.6000e-004	0.0466	0.0125	6.2000e-004	0.0131	0.0000	77.8654	77.8654	6.8900e-003	0.0000	78.0374

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5200e-003	6.5800e-003	0.0937	1.4000e-004		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	12.1823	12.1823	3.6700e-003	0.0000	12.2740
Total	1.5200e-003	6.5800e-003	0.0937	1.4000e-004		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	12.1823	12.1823	3.6700e-003	0.0000	12.2740

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0300e-003	0.1910	0.0604	4.6000e-004	0.0115	4.0000e-004	0.0119	3.3200e-003	3.8000e-004	3.7100e-003	0.0000	47.4638	47.4638	6.3000e-003	0.0000	47.6212
Worker	0.0117	7.1600e-003	0.0845	3.4000e-004	0.0345	2.6000e-004	0.0347	9.1700e-003	2.4000e-004	9.4000e-003	0.0000	30.4016	30.4016	5.9000e-004	0.0000	30.4163
Total	0.0167	0.1982	0.1449	8.0000e-004	0.0460	6.6000e-004	0.0466	0.0125	6.2000e-004	0.0131	0.0000	77.8654	77.8654	6.8900e-003	0.0000	78.0374

3.8 Foundations and Concrete Pour - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0796	0.7625	0.6859	1.5700e-003		0.0357	0.0357		0.0337	0.0337	0.0000	137.0107	137.0107	0.0346	0.0000	137.8766
Total	0.0796	0.7625	0.6859	1.5700e-003		0.0357	0.0357		0.0337	0.0337	0.0000	137.0107	137.0107	0.0346	0.0000	137.8766

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0300e-003	0.1910	0.0604	4.6000e-004	0.0115	4.0000e-004	0.0119	3.3200e-003	3.8000e-004	3.7100e-003	0.0000	47.4638	47.4638	6.3000e-003	0.0000	47.6212
Worker	0.0117	7.1600e-003	0.0845	3.4000e-004	0.0345	2.6000e-004	0.0347	9.1700e-003	2.4000e-004	9.4000e-003	0.0000	30.4016	30.4016	5.9000e-004	0.0000	30.4163
Total	0.0167	0.1982	0.1449	8.0000e-004	0.0460	6.6000e-004	0.0466	0.0125	6.2000e-004	0.0131	0.0000	77.8654	77.8654	6.8900e-003	0.0000	78.0374

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0180	0.1242	0.7753	1.5700e-003		2.2400e-003	2.2400e-003		2.2400e-003	2.2400e-003	0.0000	123.3932	123.3932	0.0338	0.0000	124.2370
Total	0.0180	0.1242	0.7753	1.5700e-003		2.2400e-003	2.2400e-003		2.2400e-003	2.2400e-003	0.0000	123.3932	123.3932	0.0338	0.0000	124.2370

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0300e-003	0.1910	0.0604	4.6000e-004	0.0115	4.0000e-004	0.0119	3.3200e-003	3.8000e-004	3.7100e-003	0.0000	47.4638	47.4638	6.3000e-003	0.0000	47.6212
Worker	0.0117	7.1600e-003	0.0845	3.4000e-004	0.0345	2.6000e-004	0.0347	9.1700e-003	2.4000e-004	9.4000e-003	0.0000	30.4016	30.4016	5.9000e-004	0.0000	30.4163
Total	0.0167	0.1982	0.1449	8.0000e-004	0.0460	6.6000e-004	0.0466	0.0125	6.2000e-004	0.0131	0.0000	77.8654	77.8654	6.8900e-003	0.0000	78.0374

3.9 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.2200e-003	0.0903	0.0746	1.5000e-004		4.3900e-003	4.3900e-003		4.1800e-003	4.1800e-003	0.0000	13.2711	13.2711	2.6000e-003	0.0000	13.3360
Total	9.2200e-003	0.0903	0.0746	1.5000e-004		4.3900e-003	4.3900e-003		4.1800e-003	4.1800e-003	0.0000	13.2711	13.2711	2.6000e-003	0.0000	13.3360

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3800e-003	0.0525	0.0166	1.3000e-004	3.1600e-003	1.1000e-004	3.2700e-003	9.1000e-004	1.1000e-004	1.0200e-003	0.0000	13.0525	13.0525	1.7300e-003	0.0000	13.0958

Worker	3.2200e-003	1.9700e-003	0.0232	9.0000e-005	9.4700e-003	7.0000e-005	9.5400e-003	2.5200e-003	6.0000e-005	2.5900e-003	0.0000	8.3605	8.3605	1.6000e-004	0.0000	8.3645
Total	4.6000e-003	0.0545	0.0399	2.2000e-004	0.0126	1.8000e-004	0.0128	3.4300e-003	1.7000e-004	3.6100e-003	0.0000	21.4130	21.4130	1.8900e-003	0.0000	21.4603

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.7100e-003	7.4100e-003	0.0860	1.5000e-004		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	13.2711	13.2711	2.6000e-003	0.0000	13.3360
Total	1.7100e-003	7.4100e-003	0.0860	1.5000e-004		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	13.2711	13.2711	2.6000e-003	0.0000	13.3360

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3800e-003	0.0525	0.0166	1.3000e-004	3.1600e-003	1.1000e-004	3.2700e-003	9.1000e-004	1.1000e-004	1.0200e-003	0.0000	13.0525	13.0525	1.7300e-003	0.0000	13.0958
Worker	3.2200e-003	1.9700e-003	0.0232	9.0000e-005	9.4700e-003	7.0000e-005	9.5400e-003	2.5200e-003	6.0000e-005	2.5900e-003	0.0000	8.3605	8.3605	1.6000e-004	0.0000	8.3645
Total	4.6000e-003	0.0545	0.0399	2.2000e-004	0.0126	1.8000e-004	0.0128	3.4300e-003	1.7000e-004	3.6100e-003	0.0000	21.4130	21.4130	1.8900e-003	0.0000	21.4603

3.9 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1016	0.9787	0.8716	1.8000e-003		0.0460	0.0460		0.0437	0.0437	0.0000	156.8386	156.8386	0.0303	0.0000	157.5967
Total	0.1016	0.9787	0.8716	1.8000e-003		0.0460	0.0460		0.0437	0.0437	0.0000	156.8386	156.8386	0.0303	0.0000	157.5967

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0132	0.5147	0.1896	1.4500e-003	0.0374	7.4000e-004	0.0381	0.0108	7.1000e-004	0.0115	0.0000	150.4244	150.4244	0.0200	0.0000	150.9242
Worker	0.0360	0.0211	0.2564	1.0500e-003	0.1120	8.2000e-004	0.1128	0.0298	7.6000e-004	0.0306	0.0000	94.9891	94.9891	1.7300e-003	0.0000	95.0322
Total	0.0492	0.5358	0.4460	2.5000e-003	0.1494	1.5600e-003	0.1509	0.0406	1.4700e-003	0.0421	0.0000	245.4135	245.4135	0.0217	0.0000	245.9565

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Off-Road	0.0202	0.0876	1.0162	1.8000e-003		2.7000e-003	2.7000e-003		2.7000e-003	2.7000e-003	0.0000	156.8385	156.8385	0.0303	0.0000	157.5965
Total	0.0202	0.0876	1.0162	1.8000e-003		2.7000e-003	2.7000e-003		2.7000e-003	2.7000e-003	0.0000	156.8385	156.8385	0.0303	0.0000	157.5965

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0132	0.5147	0.1896	1.4500e-003	0.0374	7.4000e-004	0.0381	0.0108	7.1000e-004	0.0115	0.0000	150.4244	150.4244	0.0200	0.0000	150.9242
Worker	0.0360	0.0211	0.2564	1.0500e-003	0.1120	8.2000e-004	0.1128	0.0298	7.6000e-004	0.0306	0.0000	94.9891	94.9891	1.7300e-003	0.0000	95.0322
Total	0.0492	0.5358	0.4460	2.5000e-003	0.1494	1.5600e-003	0.1509	0.0406	1.4700e-003	0.0421	0.0000	245.4135	245.4135	0.0217	0.0000	245.9565

3.9 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0212	0.2020	0.1924	4.0000e-004		9.1100e-003	9.1100e-003		8.6500e-003	8.6500e-003	0.0000	34.9868	34.9868	6.7400e-003	0.0000	35.1552
Total	0.0212	0.2020	0.1924	4.0000e-004		9.1100e-003	9.1100e-003		8.6500e-003	8.6500e-003	0.0000	34.9868	34.9868	6.7400e-003	0.0000	35.1552

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8100e-003	0.1120	0.0419	3.2000e-004	8.3400e-003	1.6000e-004	8.5000e-003	2.4100e-003	1.5000e-004	2.5600e-003	0.0000	33.2449	33.2449	4.4500e-003	0.0000	33.3563
Worker	7.6400e-003	4.2800e-003	0.0536	2.2000e-004	0.0250	1.8000e-004	0.0252	6.6400e-003	1.7000e-004	6.8100e-003	0.0000	20.3463	20.3463	3.5000e-004	0.0000	20.3550
Total	0.0105	0.1163	0.0955	5.4000e-004	0.0333	3.4000e-004	0.0337	9.0500e-003	3.2000e-004	9.3700e-003	0.0000	53.5912	53.5912	4.8000e-003	0.0000	53.7113

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.5100e-003	0.0195	0.2267	4.0000e-004		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004	0.0000	34.9867	34.9867	6.7400e-003	0.0000	35.1551
Total	4.5100e-003	0.0195	0.2267	4.0000e-004		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004	0.0000	34.9867	34.9867	6.7400e-003	0.0000	35.1551

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8100e-003	0.1120	0.0419	3.2000e-004	8.3400e-003	1.6000e-004	8.5000e-003	2.4100e-003	1.5000e-004	2.5600e-003	0.0000	33.2449	33.2449	4.4500e-003	0.0000	33.3563
Worker	7.6400e-003	4.2800e-003	0.0536	2.2000e-004	0.0250	1.8000e-004	0.0252	6.6400e-003	1.7000e-004	6.8100e-003	0.0000	20.3463	20.3463	3.5000e-004	0.0000	20.3550
Total	0.0105	0.1163	0.0955	5.4000e-004	0.0333	3.4000e-004	0.0337	9.0500e-003	3.2000e-004	9.3700e-003	0.0000	53.5912	53.5912	4.8000e-003	0.0000	53.7113

3.10 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.3019					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.7900e-003	0.0954	0.0459	1.4000e-004		3.9800e-003	3.9800e-003		3.6600e-003	3.6600e-003	0.0000	12.6738	12.6738	4.1000e-003	0.0000	12.7763
Total	1.3107	0.0954	0.0459	1.4000e-004		3.9800e-003	3.9800e-003		3.6600e-003	3.6600e-003	0.0000	12.6738	12.6738	4.1000e-003	0.0000	12.7763

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Worker	1.4000e-003	8.2000e-004	9.9500e-003	4.0000e-005	4.3500e-003	3.0000e-005	4.3800e-003	1.1600e-003	3.0000e-005	1.1900e-003	0.0000	3.6869	3.6869	7.0000e-005	0.0000	3.6886
Total	1.4000e-003	8.2000e-004	9.9500e-003	4.0000e-005	4.3500e-003	3.0000e-005	4.3800e-003	1.1600e-003	3.0000e-005	1.1900e-003	0.0000	3.6869	3.6869	7.0000e-005	0.0000	3.6886

3.11 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.4800e-003	0.0324	0.0546	9.0000e-005		1.5400e-003	1.5400e-003		1.4100e-003	1.4100e-003	0.0000	7.7077	7.7077	2.4900e-003	0.0000	7.7700
Paving	3.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.5100e-003	0.0324	0.0546	9.0000e-005		1.5400e-003	1.5400e-003		1.4100e-003	1.4100e-003	0.0000	7.7077	7.7077	2.4900e-003	0.0000	7.7700

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	7.0000e-005	8.5000e-004	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3218	0.3218	1.0000e-005	0.0000	0.3220
Total	1.2000e-004	7.0000e-005	8.5000e-004	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3218	0.3218	1.0000e-005	0.0000	0.3220

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.0800e-003	4.6800e-003	0.0666	9.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	7.7077	7.7077	2.4900e-003	0.0000	7.7700
Paving	3.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.1100e-003	4.6800e-003	0.0666	9.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	7.7077	7.7077	2.4900e-003	0.0000	7.7700

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	7.0000e-005	8.5000e-004	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3218	0.3218	1.0000e-005	0.0000	0.3220
Total	1.2000e-004	7.0000e-005	8.5000e-004	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3218	0.3218	1.0000e-005	0.0000	0.3220

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1657	0.6219	1.6916	6.0700e-003	0.2915	6.5400e-003	0.2980	0.0849	6.1100e-003	0.0910	0.0000	559.4101	559.4101	0.0239	0.0000	560.0065
Unmitigated	0.1657	0.6219	1.6916	6.0700e-003	0.2915	6.5400e-003	0.2980	0.0849	6.1100e-003	0.0910	0.0000	559.4101	559.4101	0.0239	0.0000	560.0065

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	128.95	28.66	12.34	234,112	234,112
Health Club	203.84	129.22	165.62	324,318	324,318
Hotel	386.00	386.00	282.00	705,146	705,146
Other Asphalt Surfaces	0.00	0.00	0.00		
Quality Restaurant	198.97	208.77	159.58	230,997	230,997
User Defined Industrial	0.00	0.00	0.00		
Total	917.76	752.64	619.54	1,494,572	1,494,572

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Quality Restaurant	9.50	7.30	7.30	12.00	69.00	19.00	38	18	44
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.604697	0.038136	0.192426	0.089922	0.013708	0.005077	0.031210	0.009257	0.004288	0.003553	0.006262	0.000945	0.000519
General Office Building	0.604697	0.038136	0.192426	0.089922	0.013708	0.005077	0.031210	0.009257	0.004288	0.003553	0.006262	0.000945	0.000519
Health Club	0.604697	0.038136	0.192426	0.089922	0.013708	0.005077	0.031210	0.009257	0.004288	0.003553	0.006262	0.000945	0.000519
Hotel	0.604697	0.038136	0.192426	0.089922	0.013708	0.005077	0.031210	0.009257	0.004288	0.003553	0.006262	0.000945	0.000519
Other Asphalt Surfaces	0.604697	0.038136	0.192426	0.089922	0.013708	0.005077	0.031210	0.009257	0.004288	0.003553	0.006262	0.000945	0.000519
Quality Restaurant	0.604697	0.038136	0.192426	0.089922	0.013708	0.005077	0.031210	0.009257	0.004288	0.003553	0.006262	0.000945	0.000519
User Defined Industrial	0.604697	0.038136	0.192426	0.089922	0.013708	0.005077	0.031210	0.009257	0.004288	0.003553	0.006262	0.000945	0.000519

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	231.6087	231.6087	0.0298	6.1700e-003	234.1932
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	231.6087	231.6087	0.0298	6.1700e-003	234.1932
NaturalGas Mitigated	0.0435	0.3958	0.3325	2.3700e-003		0.0301	0.0301		0.0301	0.0301	0.0000	430.8535	430.8535	8.2600e-003	7.9000e-003	433.4139
NaturalGas Unmitigated	0.0435	0.3958	0.3325	2.3700e-003		0.0301	0.0301		0.0301	0.0301	0.0000	430.8535	430.8535	8.2600e-003	7.9000e-003	433.4139

5.2 Energy by Land Use - NaturalGas

Unmitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	782672	4.2200e-003	0.0384	0.0322	2.3000e-004		2.9200e-003	2.9200e-003		2.9200e-003	2.9200e-003	0.0000	41.7663	41.7663	8.0000e-004	7.7000e-004	42.0145
Health Club	871943	4.7000e-003	0.0427	0.0359	2.6000e-004		3.2500e-003	3.2500e-003		3.2500e-003	3.2500e-003	0.0000	46.5302	46.5302	8.9000e-004	8.5000e-004	46.8067
Hotel	5.33283e+006	0.0288	0.2614	0.2196	1.5700e-003		0.0199	0.0199		0.0199	0.0199	0.0000	284.5803	284.5803	5.4500e-003	5.2200e-003	286.2714
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	1.08644e+006	5.8600e-003	0.0533	0.0447	3.2000e-004		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	57.9767	57.9767	1.1100e-003	1.0600e-003	58.3212
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0435	0.3958	0.3325	2.3800e-003		0.0301	0.0301		0.0301	0.0301	0.0000	430.8535	430.8535	8.2500e-003	7.9000e-003	433.4139

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	782672	4.2200e-003	0.0384	0.0322	2.3000e-004		2.9200e-003	2.9200e-003		2.9200e-003	2.9200e-003	0.0000	41.7663	41.7663	8.0000e-004	7.7000e-004	42.0145
Health Club	871943	4.7000e-003	0.0427	0.0359	2.6000e-004		3.2500e-003	3.2500e-003		3.2500e-003	3.2500e-003	0.0000	46.5302	46.5302	8.9000e-004	8.5000e-004	46.8067
Hotel	5.33283e+006	0.0288	0.2614	0.2196	1.5700e-003		0.0199	0.0199		0.0199	0.0199	0.0000	284.5803	284.5803	5.4500e-003	5.2200e-003	286.2714

Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	1.08644e+006	5.8600e-003	0.0533	0.0447	3.2000e-004		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	57.9767	57.9767	1.1100e-003	1.0600e-003	58.3212
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0435	0.3958	0.3325	2.3800e-003		0.0301	0.0301		0.0301	0.0301	0.0000	430.8535	430.8535	8.2500e-003	7.9000e-003	433.4139

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	114856	11.7324	1.5100e-003	3.1000e-004	11.8634
General Office Building	505315	51.6174	6.6500e-003	1.3800e-003	52.1934
Health Club	266339	27.2062	3.5000e-003	7.2000e-004	27.5098
Hotel	1.19335e+006	121.8996	0.0157	3.2500e-003	123.2599
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	187501	19.1530	2.4700e-003	5.1000e-004	19.3667
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		231.6087	0.0298	6.1700e-003	234.1933

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	114856	11.7324	1.5100e-003	3.1000e-004	11.8634
General Office Building	505315	51.6174	6.6500e-003	1.3800e-003	52.1934
Health Club	266339	27.2062	3.5000e-003	7.2000e-004	27.5098
Hotel	1.19335e+006	121.8996	0.0157	3.2500e-003	123.2599
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	187501	19.1530	2.4700e-003	5.1000e-004	19.3667
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		231.6087	0.0298	6.1700e-003	234.1933

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1023	3.0000e-005	3.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.0100e-003	6.0100e-003	2.0000e-005	0.0000	6.4000e-003
Unmitigated	1.1023	3.0000e-005	3.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.0100e-003	6.0100e-003	2.0000e-005	0.0000	6.4000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1302					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9718					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.0100e-003	6.0100e-003	2.0000e-005	0.0000	6.4000e-003
Total	1.1023	3.0000e-005	3.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.0100e-003	6.0100e-003	2.0000e-005	0.0000	6.4000e-003

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1302					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9718					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.0100e-003	6.0100e-003	2.0000e-005	0.0000	6.4000e-003
Total	1.1023	3.0000e-005	3.0900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.0100e-003	6.0100e-003	2.0000e-005	0.0000	6.4000e-003

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	16.5068	0.5347	0.0129	33.7156
Unmitigated	16.5068	0.5347	0.0129	33.7156

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	7.0738 / 4.33556	7.7041	0.2312	5.5900e-003	15.1495
Health Club	2.15281 / 1.31946	2.3446	0.0704	1.7000e-003	4.6105
Hotel	5.07335 / 0.563706	4.6153	0.1657	3.9800e-003	9.9449
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	2.06403 / 0.131747	1.8428	0.0674	1.6200e-003	4.0107
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		16.5068	0.5347	0.0129	33.7156

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	7.0738 / 4.33556	7.7041	0.2312	5.5900e-003	15.1495
Health Club	2.15281 / 1.31946	2.3446	0.0704	1.7000e-003	4.6105
Hotel	5.07335 / 0.563706	4.6153	0.1657	3.9800e-003	9.9449
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	2.06403 / 0.131747	1.8428	0.0674	1.6200e-003	4.0107
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		16.5068	0.5347	0.0129	33.7156

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	73.1173	4.3211	0.0000	181.1451
Unmitigated	73.1173	4.3211	0.0000	181.1451

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	37.01	7.5127	0.4440	0.0000	18.6124
Health Club	207.48	42.1166	2.4890	0.0000	104.3420
Hotel	109.5	22.2275	1.3136	0.0000	55.0677
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	6.21	1.2606	0.0745	0.0000	3.1230
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		73.1173	4.3211	0.0000	181.1451

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
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Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	37.01	7.5127	0.4440	0.0000	18.6124
Health Club	207.48	42.1166	2.4890	0.0000	104.3420
Hotel	109.5	22.2275	1.3136	0.0000	55.0677
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	6.21	1.2606	0.0745	0.0000	3.1230
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		73.1173	4.3211	0.0000	181.1451

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	50	400	0.73	Diesel
Emergency Generator	1	0	50	464	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
----------------	--------

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (300 - 600 HP)	0.0354	0.0991	0.0904	1.7000e-004		5.2100e-003	5.2100e-003		5.2100e-003	5.2100e-003	0.0000	16.4504	16.4504	2.3100e-003	0.0000	16.5081
Total	0.0354	0.0991	0.0904	1.7000e-004		5.2100e-003	5.2100e-003		5.2100e-003	5.2100e-003	0.0000	16.4504	16.4504	2.3100e-003	0.0000	16.5081

11.0 Vegetation

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A2 CalEEMod Output: Residential Variant Construction Emissions and Operational Area, Energy, and Stationary Source Emissions

530 Sansome - Residential Variant - San Francisco County, Annual

530 Sansome - Residential Variant
San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.10	20,240.00	0
Other Asphalt Surfaces	0.02	Acre	0.02	871.20	0
Condo/Townhouse High Rise	256.00	Dwelling Unit	0.29	257,400.00	732

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	4.6	Precipitation Freq (Days)	64
Climate Zone	5			Operational Year	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	225.2	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PGE emission factor calculated from 2016 - 2018 average.

Land Use - "User Defined Industrial" represents the fire station.

Construction Phase - per Project Sponsor data

Off-road Equipment - Place holder phase for soil hauling trucks

Trips and VMT - Material export truck trips based on 16 cubic yards capacity per truck (CalEEMod default). Vendor trips based on a total of 14,000 round trips.

Demolition -

Grading - per Project Sponsor data

Vehicle Trips - Trip rates from TIS for the project (residential variant).

Road Dust - Silt Loading factor of 0.04 g/m² based on: California Air Resources Board (CARB), Miscellaneous Process Methodology 7.9 - Entrained Road Travel-Related Road Dust, Revised and updated March 2018. https://www2.arb.ca.gov/airproceeds/filled/filled7.9_2018.pdf

Woodstoves - per Project Sponsor data.

Energy Use -

Construction Off-road Equipment Mitigation - per Project Sponsor data

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	10,120.00	10,175.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	30,360.00	30,525.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	173,745.00	172,800.00
tblArchitecturalCoating	ConstArea_Residential_Interior	521,235.00	518,400.00
tblAreaCoating	Area_Nonresidential_Exterior	10120	10175
tblAreaCoating	Area_Nonresidential_Interior	30360	30525
tblAreaCoating	Area_Residential_Exterior	173745	172800
tblAreaCoating	Area_Residential_Interior	521235	518400
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstructionPhase	NumDays	100.00	80.00
tblConstructionPhase	NumDays	100.00	80.00
tblConstructionPhase	NumDays	100.00	340.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	NumDays	2.00	150.00
tblConstructionPhase	NumDays	2.00	100.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	80.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblFireplaces	NumberNoFireplace	10.24	12.00
tblFireplaces	NumberWood	43.52	0.00

tblGrading	AcresOfGrading	6.25	0.00
tblGrading	AcresOfGrading	5.00	0.50
tblLandUse	LandUseSquareFeet	0.00	20,240.00
tblLandUse	LandUseSquareFeet	256,000.00	257,400.00
tblLandUse	LotAcreage	0.00	0.10
tblLandUse	LotAcreage	4.00	0.29
tblOffRoadEquipment	HorsePower	187.00	1.00
tblOffRoadEquipment	HorsePower	63.00	0.00
tblOffRoadEquipment	HorsePower	187.00	1.00
tblOffRoadEquipment	LoadFactor	0.41	0.10
tblOffRoadEquipment	LoadFactor	0.41	0.10
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	225.2
tblRoadDust	RoadSiltLoading	0.1	0.04
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	464.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,750.00
tblTripsAndVMT	VendorTripNumber	0.00	44.00
tblTripsAndVMT	VendorTripNumber	31.00	640.00

tblTripsAndVMT	VendorTripNumber	31.00	44.00
tblTripsAndVMT	VendorTripNumber	31.00	44.00
tblTripsAndVMT	VendorTripNumber	31.00	44.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	20.00	5.00
tblTripsAndVMT	WorkerTripNumber	13.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	109.00
tblTripsAndVMT	WorkerTripNumber	28.00	18.00
tblTripsAndVMT	WorkerTripNumber	193.00	109.00
tblTripsAndVMT	WorkerTripNumber	193.00	109.00
tblTripsAndVMT	WorkerTripNumber	193.00	109.00
tblTripsAndVMT	WorkerTripNumber	193.00	109.00
tblTripsAndVMT	WorkerTripNumber	39.00	22.00
tblVehicleTrips	ST_TR	4.31	1.30
tblVehicleTrips	SU_TR	3.43	1.00
tblVehicleTrips	WD_TR	4.18	1.26

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0434	0.4759	0.4339	1.0600e-003	0.0602	0.0187	0.0789	0.0175	0.0176	0.0351	0.0000	99.6746	99.6746	0.0175	0.0000	100.1128
2022	0.3649	3.7346	3.6401	9.2400e-003	0.2949	0.1432	0.4380	0.1016	0.1347	0.2363	0.0000	851.1628	851.1628	0.1600	0.0000	855.1626
2023	2.1135	2.0425	1.9988	5.3700e-003	0.1537	0.0730	0.2267	0.0418	0.0687	0.1105	0.0000	496.1282	496.1282	0.0796	0.0000	498.1181

2024	0.0480	0.4718	0.5180	1.2900e-003	0.0337	0.0166	0.0503	9.1600e-003	0.0156	0.0247	0.0000	118.2730	118.2730	0.0207	0.0000	118.7916
Maximum	2.1135	3.7346	3.6401	9.2400e-003	0.2949	0.1432	0.4380	0.1016	0.1347	0.2363	0.0000	851.1628	851.1628	0.1600	0.0000	855.1626

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0352	0.4186	0.4413	1.0600e-003	0.0602	0.0124	0.0726	0.0175	0.0119	0.0293	0.0000	99.6746	99.6746	0.0175	0.0000	100.1128
2022	0.2487	2.6137	3.8134	9.2400e-003	0.2949	0.0761	0.3710	0.1016	0.0720	0.1736	0.0000	826.6510	826.6510	0.1584	0.0000	830.6110
2023	2.0395	1.2494	2.0899	5.3700e-003	0.1537	0.0352	0.1889	0.0418	0.0326	0.0744	0.0000	491.0214	491.0214	0.0793	0.0000	493.0037
2024	0.0310	0.2877	0.5558	1.2900e-003	0.0337	7.9700e-003	0.0417	9.1600e-003	7.4200e-003	0.0166	0.0000	118.2730	118.2730	0.0207	0.0000	118.7915
Maximum	2.0395	2.6137	3.8134	9.2400e-003	0.2949	0.0761	0.3710	0.1016	0.0720	0.1736	0.0000	826.6510	826.6510	0.1584	0.0000	830.6110

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	8.38	32.05	-4.70	0.00	0.00	47.63	15.09	0.00	47.62	27.71	0.00	1.89	1.89	0.68	0.00	1.89

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	12-1-2021	2-28-2022	1.2302	1.0855
2	3-1-2022	5-31-2022	1.1101	0.8406
3	6-1-2022	8-31-2022	0.8218	0.5022
4	9-1-2022	11-30-2022	1.2240	0.7351
5	12-1-2022	2-28-2023	0.5426	0.3448
6	3-1-2023	5-31-2023	0.5308	0.3350
7	6-1-2023	8-31-2023	0.5297	0.3339

8	9-1-2023	11-30-2023	2.5783	2.2922
9	12-1-2023	2-29-2024	0.5072	0.3235
10	3-1-2024	5-31-2024	0.1867	0.1058
		Highest	2.5783	2.2922

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.3530	0.0290	2.0846	7.2000e-004		0.0407	0.0407		0.0407	0.0407	3.9928	7.8988	11.8916	0.0217	9.0000e-005	12.4612
Energy	0.0121	0.1030	0.0438	6.6000e-004		8.3300e-003	8.3300e-003		8.3300e-003	8.3300e-003	0.0000	236.4634	236.4634	0.0174	5.3100e-003	238.4799
Mobile	0.0682	0.2659	0.7640	2.9100e-003	0.1417	3.0800e-003	0.1447	0.0413	2.8800e-003	0.0441	0.0000	268.4229	268.4229	0.0111	0.0000	268.6993
Stationary	0.0354	0.0991	0.0904	1.7000e-004		5.2100e-003	5.2100e-003		5.2100e-003	5.2100e-003	0.0000	16.4504	16.4504	2.3100e-003	0.0000	16.5081
Waste						0.0000	0.0000		0.0000	0.0000	23.9042	0.0000	23.9042	1.4127	0.0000	59.2217
Water						0.0000	0.0000		0.0000	0.0000	5.2916	12.9786	18.2703	0.5452	0.0132	35.8269
Total	1.4687	0.4969	2.9828	4.4600e-003	0.1417	0.0573	0.1990	0.0413	0.0571	0.0984	33.1886	542.2142	575.4028	2.0104	0.0186	631.1970

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Area	1.3530	0.0290	2.0846	7.2000e-004		0.0407	0.0407		0.0407	0.0407	3.9928	7.8988	11.8916	0.0217	9.0000e-005	12.4612
Energy	0.0121	0.1030	0.0438	6.6000e-004		8.3300e-003	8.3300e-003		8.3300e-003	8.3300e-003	0.0000	236.4634	236.4634	0.0174	5.3100e-003	238.4799
Mobile	0.0682	0.2659	0.7640	2.9100e-003	0.1417	3.0800e-003	0.1447	0.0413	2.8800e-003	0.0441	0.0000	268.4229	268.4229	0.0111	0.0000	268.6993
Stationary	0.0354	0.0991	0.0904	1.7000e-004		5.2100e-003	5.2100e-003		5.2100e-003	5.2100e-003	0.0000	16.4504	16.4504	2.3100e-003	0.0000	16.5081
Waste						0.0000	0.0000		0.0000	0.0000	23.9042	0.0000	23.9042	1.4127	0.0000	59.2217
Water						0.0000	0.0000		0.0000	0.0000	5.2916	12.9786	18.2703	0.5452	0.0132	35.8269
Total	1.4687	0.4969	2.9828	4.4600e-003	0.1417	0.0573	0.1990	0.0413	0.0571	0.0984	33.1886	542.2142	575.4028	2.0104	0.0186	631.1970

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/1/2021	1/25/2022	5	40	
2	Site Preparation	Site Preparation	12/1/2021	3/22/2022	5	80	
3	Soil Hauling	Grading	12/1/2021	4/29/2022	7	150	
4	Grading	Grading	3/1/2022	7/18/2022	5	100	
5	Concrete Pour	Building Construction	8/1/2022	8/1/2022	5	1	
6	Drainage Utilities Subgrade	Building Construction	8/1/2022	11/18/2022	5	80	
7	Foundations and Concrete Pour	Building Construction	8/1/2022	11/18/2022	5	80	
8	Building Construction	Building Construction	12/1/2022	3/20/2024	5	340	
9	Architectural Coating	Architectural Coating	9/1/2023	11/9/2023	5	50	
10	Paving	Paving	3/1/2024	3/28/2024	5	20	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.02

Residential Indoor: 518,400; Residential Outdoor: 172,800; Non-Residential Indoor: 30,525; Non-Residential Outdoor: 10,175; Striped

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Sweepers/Scrubbers	1	8.00	64	0.46
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	1	1.00	1	0.10
Site Preparation	Plate Compactors	1	8.00	8	0.43
Site Preparation	Sweepers/Scrubbers	1	8.00	64	0.46
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Soil Hauling	Aerial Lifts	1	0.00	0	0.31
Soil Hauling	Concrete/Industrial Saws	1	8.00	81	0.73
Soil Hauling	Rubber Tired Dozers	1	1.00	247	0.40
Soil Hauling	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Air Compressors	2	4.00	78	0.48
Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	1.00	1	0.10
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Sweepers/Scrubbers	1	8.00	64	0.46
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Concrete Pour	Cement and Mortar Mixers	1	20.00	9	0.56
Concrete Pour	Cranes	1	4.00	231	0.29
Concrete Pour	Forklifts	2	6.00	89	0.20
Concrete Pour	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Drainage Utilities Subgrade	Cranes	1	4.00	231	0.29
Drainage Utilities Subgrade	Forklifts	2	6.00	89	0.20
Drainage Utilities Subgrade	Plate Compactors	1	8.00	8	0.43
Drainage Utilities Subgrade	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Foundations and Concrete Pour	Air Compressors	2	4.00	78	0.48
Foundations and Concrete Pour	Bore/Drill Rigs	1	8.00	221	0.50
Foundations and Concrete Pour	Cranes	2	8.00	231	0.29
Foundations and Concrete Pour	Excavators	1	8.00	158	0.38
Foundations and Concrete Pour	Forklifts	2	6.00	89	0.20
Foundations and Concrete Pour	Pumps	1	8.00	84	0.74
Foundations and Concrete Pour	Sweepers/Scrubbers	1	8.00	64	0.46
Foundations and Concrete Pour	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Pumps	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Architectural Coating	Cranes	1	8.00	231	0.29
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	10.00	0.00	224.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	5	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Soil Hauling	5	109.00	44.00	1,750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	11	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Concrete Pour	6	109.00	640.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Drainage Utilities	5	109.00	44.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Subgrade	5	109.00	44.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundations and	12	109.00	44.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Concrete Pour	5	109.00	44.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	109.00	44.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	22.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

- Use Alternative Fuel for Construction Equipment
- Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0151	0.0000	0.0151	2.2900e-003	0.0000	2.2900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0137	0.1295	0.1385	2.1000e-004		7.5400e-003	7.5400e-003		7.0900e-003	7.0900e-003	0.0000	18.1972	18.1972	4.2400e-003	0.0000	18.3033
Total	0.0137	0.1295	0.1385	2.1000e-004	0.0151	7.5400e-003	0.0226	2.2900e-003	7.0900e-003	9.3800e-003	0.0000	18.1972	18.1972	4.2400e-003	0.0000	18.3033

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.9000e-004	0.0208	6.8000e-003	5.0000e-005	1.6800e-003	6.0000e-005	1.7400e-003	4.4000e-004	6.0000e-005	5.0000e-004	0.0000	5.6510	5.6510	1.0400e-003	0.0000	5.6769
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.1000e-004	2.3900e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8328	0.8328	2.0000e-005	0.0000	0.8332
Total	8.2000e-004	0.0210	9.1900e-003	6.0000e-005	2.5900e-003	7.0000e-005	2.6600e-003	6.8000e-004	7.0000e-005	7.5000e-004	0.0000	6.4838	6.4838	1.0600e-003	0.0000	6.5101

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0151	0.0000	0.0151	2.2900e-003	0.0000	2.2900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0109	0.1161	0.1406	2.1000e-004		4.9200e-003	4.9200e-003		4.7000e-003	4.7000e-003	0.0000	18.1972	18.1972	4.2400e-003	0.0000	18.3033
Total	0.0109	0.1161	0.1406	2.1000e-004	0.0151	4.9200e-003	0.0200	2.2900e-003	4.7000e-003	6.9900e-003	0.0000	18.1972	18.1972	4.2400e-003	0.0000	18.3033

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Worker	2.3000e-004	1.4000e-004	1.6500e-003	1.0000e-005	6.7000e-004	1.0000e-005	6.8000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5927	0.5927	1.0000e-005	0.0000	0.5930
Total	5.7000e-004	0.0143	6.8200e-003	5.0000e-005	2.2800e-003	5.0000e-005	2.3300e-003	6.0000e-004	4.0000e-005	6.4000e-004	0.0000	4.6924	4.6924	7.8000e-004	0.0000	4.7120

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0112	0.0000	0.0112	1.6900e-003	0.0000	1.6900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.2600e-003	0.0785	0.1030	1.5000e-004		3.0300e-003	3.0300e-003		2.8900e-003	2.8900e-003	0.0000	13.4565	13.4565	3.1200e-003	0.0000	13.5346
Total	7.2600e-003	0.0785	0.1030	1.5000e-004	0.0112	3.0300e-003	0.0142	1.6900e-003	2.8900e-003	4.5800e-003	0.0000	13.4565	13.4565	3.1200e-003	0.0000	13.5346

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4000e-004	0.0141	5.1700e-003	4.0000e-005	1.6100e-003	4.0000e-005	1.6500e-003	4.2000e-004	4.0000e-005	4.6000e-004	0.0000	4.0997	4.0997	7.7000e-004	0.0000	4.1190
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.4000e-004	1.6500e-003	1.0000e-005	6.7000e-004	1.0000e-005	6.8000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5927	0.5927	1.0000e-005	0.0000	0.5930
Total	5.7000e-004	0.0143	6.8200e-003	5.0000e-005	2.2800e-003	5.0000e-005	2.3300e-003	6.0000e-004	4.0000e-005	6.4000e-004	0.0000	4.6924	4.6924	7.8000e-004	0.0000	4.7120

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8800e-003	0.0731	0.0885	1.3000e-004		4.3400e-003	4.3400e-003		4.0000e-003	4.0000e-003	0.0000	11.2855	11.2855	3.5700e-003	0.0000	11.3747
Total	7.8800e-003	0.0731	0.0885	1.3000e-004	2.7000e-004	4.3400e-003	4.6100e-003	3.0000e-005	4.0000e-003	4.0300e-003	0.0000	11.2855	11.2855	3.5700e-003	0.0000	11.3747

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.1000e-004	2.3900e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8328	0.8328	2.0000e-005	0.0000	0.8332
Total	3.3000e-004	2.1000e-004	2.3900e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8328	0.8328	2.0000e-005	0.0000	0.8332

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2600e-003	0.0374	0.0933	1.3000e-004		1.1900e-003	1.1900e-003		1.1000e-003	1.1000e-003	0.0000	11.2855	11.2855	3.5700e-003	0.0000	11.3747
Total	3.2600e-003	0.0374	0.0933	1.3000e-004	2.7000e-004	1.1900e-003	1.4600e-003	3.0000e-005	1.1000e-003	1.1300e-003	0.0000	11.2855	11.2855	3.5700e-003	0.0000	11.3747

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.1000e-004	2.3900e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8328	0.8328	2.0000e-005	0.0000	0.8332
Total	3.3000e-004	2.1000e-004	2.3900e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8328	0.8328	2.0000e-005	0.0000	0.8332

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1569	0.2172	3.2000e-004		8.7300e-003	8.7300e-003		8.0500e-003	8.0500e-003	0.0000	27.9725	27.9725	8.8500e-003	0.0000	28.1938

Total	0.0171	0.1569	0.2172	3.2000e-004	2.7000e-004	8.7300e-003	9.0000e-003	3.0000e-005	8.0500e-003	8.0800e-003	0.0000	27.9725	27.9725	8.8500e-003	0.0000	28.1938
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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	4.7000e-004	5.5200e-003	2.0000e-005	2.2500e-003	2.0000e-005	2.2700e-003	6.0000e-004	2.0000e-005	6.1000e-004	0.0000	1.9873	1.9873	4.0000e-005	0.0000	1.9882
Total	7.7000e-004	4.7000e-004	5.5200e-003	2.0000e-005	2.2500e-003	2.0000e-005	2.2700e-003	6.0000e-004	2.0000e-005	6.1000e-004	0.0000	1.9873	1.9873	4.0000e-005	0.0000	1.9882

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.5600e-003	0.0875	0.2308	3.2000e-004		2.4400e-003	2.4400e-003		2.2800e-003	2.2800e-003	0.0000	27.9725	27.9725	8.8500e-003	0.0000	28.1938
Total	7.5600e-003	0.0875	0.2308	3.2000e-004	2.7000e-004	2.4400e-003	2.7100e-003	3.0000e-005	2.2800e-003	2.3100e-003	0.0000	27.9725	27.9725	8.8500e-003	0.0000	28.1938

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	4.7000e-004	5.5200e-003	2.0000e-005	2.2500e-003	2.0000e-005	2.2700e-003	6.0000e-004	2.0000e-005	6.1000e-004	0.0000	1.9873	1.9873	4.0000e-005	0.0000	1.9882
Total	7.7000e-004	4.7000e-004	5.5200e-003	2.0000e-005	2.2500e-003	2.0000e-005	2.2700e-003	6.0000e-004	2.0000e-005	6.1000e-004	0.0000	1.9873	1.9873	4.0000e-005	0.0000	1.9882

3.4 Soil Hauling - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0117	0.0000	0.0117	6.4100e-003	0.0000	6.4100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.1124	0.1173	1.9000e-004		6.3100e-003	6.3100e-003		6.0200e-003	6.0200e-003	0.0000	16.1345	16.1345	3.0100e-003	0.0000	16.2097
Total	0.0124	0.1124	0.1173	1.9000e-004	0.0117	6.3100e-003	0.0180	6.4100e-003	6.0200e-003	0.0124	0.0000	16.1345	16.1345	3.0100e-003	0.0000	16.2097

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Hauling	1.3700e-003	0.0584	0.0191	1.5000e-004	0.0118	1.7000e-004	0.0120	2.9900e-003	1.6000e-004	3.1500e-003	0.0000	15.8677	15.8677	2.9100e-003	0.0000	15.9405
Vendor	2.0800e-003	0.0782	0.0239	1.8000e-004	4.4600e-003	1.8000e-004	4.6300e-003	1.2900e-003	1.7000e-004	1.4600e-003	0.0000	18.6383	18.6383	2.4700e-003	0.0000	18.7002
Worker	4.8100e-003	3.0700e-003	0.0351	1.4000e-004	0.0134	1.0000e-004	0.0135	3.5500e-003	9.0000e-005	3.6400e-003	0.0000	12.2349	12.2349	2.5000e-004	0.0000	12.2412
Total	8.2600e-003	0.1396	0.0781	4.7000e-004	0.0296	4.5000e-004	0.0301	7.8300e-003	4.2000e-004	8.2500e-003	0.0000	46.7409	46.7409	5.6300e-003	0.0000	46.8818

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0117	0.0000	0.0117	6.4100e-003	0.0000	6.4100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0117	0.1044	0.1177	1.9000e-004		5.8200e-003	5.8200e-003		5.5700e-003	5.5700e-003	0.0000	16.1345	16.1345	3.0100e-003	0.0000	16.2096
Total	0.0117	0.1044	0.1177	1.9000e-004	0.0117	5.8200e-003	0.0175	6.4100e-003	5.5700e-003	0.0120	0.0000	16.1345	16.1345	3.0100e-003	0.0000	16.2096

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3700e-003	0.0584	0.0191	1.5000e-004	0.0118	1.7000e-004	0.0120	2.9900e-003	1.6000e-004	3.1500e-003	0.0000	15.8677	15.8677	2.9100e-003	0.0000	15.9405
Vendor	2.0800e-003	0.0782	0.0239	1.8000e-004	4.4600e-003	1.8000e-004	4.6300e-003	1.2900e-003	1.7000e-004	1.4600e-003	0.0000	18.6383	18.6383	2.4700e-003	0.0000	18.7002

Worker	4.8100e-003	3.0700e-003	0.0351	1.4000e-004	0.0134	1.0000e-004	0.0135	3.5500e-003	9.0000e-005	3.6400e-003	0.0000	12.2349	12.2349	2.5000e-004	0.0000	12.2412
Total	8.2600e-003	0.1396	0.0781	4.7000e-004	0.0296	4.5000e-004	0.0301	7.8300e-003	4.2000e-004	8.2500e-003	0.0000	46.7409	46.7409	5.6300e-003	0.0000	46.8818

3.4 Soil Hauling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0448	0.0000	0.0448	0.0246	0.0000	0.0246	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0422	0.3816	0.4444	7.1000e-004		0.0201	0.0201		0.0192	0.0192	0.0000	61.9609	61.9609	0.0114	0.0000	62.2469
Total	0.0422	0.3816	0.4444	7.1000e-004	0.0448	0.0201	0.0649	0.0246	0.0192	0.0438	0.0000	61.9609	61.9609	0.0114	0.0000	62.2469

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0100e-003	0.2062	0.0754	5.5000e-004	0.0139	5.6000e-004	0.0145	3.7600e-003	5.4000e-004	4.3000e-003	0.0000	59.7876	59.7876	0.0112	0.0000	60.0683
Vendor	7.4800e-003	0.2842	0.0899	6.9000e-004	0.0171	6.0000e-004	0.0177	4.9500e-003	5.7000e-004	5.5100e-003	0.0000	70.6024	70.6024	9.3600e-003	0.0000	70.8365
Worker	0.0174	0.0107	0.1257	5.0000e-004	0.0513	3.8000e-004	0.0516	0.0136	3.5000e-004	0.0140	0.0000	45.2224	45.2224	8.7000e-004	0.0000	45.2442
Total	0.0299	0.5010	0.2909	1.7400e-003	0.0823	1.5400e-003	0.0838	0.0223	1.4600e-003	0.0238	0.0000	175.6124	175.6124	0.0215	0.0000	176.1490

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0448	0.0000	0.0448	0.0246	0.0000	0.0246	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0400	0.3547	0.4463	7.1000e-004		0.0186	0.0186		0.0178	0.0178	0.0000	61.9608	61.9608	0.0114	0.0000	62.2468
Total	0.0400	0.3547	0.4463	7.1000e-004	0.0448	0.0186	0.0634	0.0246	0.0178	0.0424	0.0000	61.9608	61.9608	0.0114	0.0000	62.2468

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0100e-003	0.2062	0.0754	5.5000e-004	0.0139	5.6000e-004	0.0145	3.7600e-003	5.4000e-004	4.3000e-003	0.0000	59.7876	59.7876	0.0112	0.0000	60.0683
Vendor	7.4800e-003	0.2842	0.0899	6.9000e-004	0.0171	6.0000e-004	0.0177	4.9500e-003	5.7000e-004	5.5100e-003	0.0000	70.6024	70.6024	9.3600e-003	0.0000	70.8365
Worker	0.0174	0.0107	0.1257	5.0000e-004	0.0513	3.8000e-004	0.0516	0.0136	3.5000e-004	0.0140	0.0000	45.2224	45.2224	8.7000e-004	0.0000	45.2442
Total	0.0299	0.5010	0.2909	1.7400e-003	0.0823	1.5400e-003	0.0838	0.0223	1.4600e-003	0.0238	0.0000	175.6124	175.6124	0.0215	0.0000	176.1490

3.5 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Fugitive Dust					0.0376	0.0000	0.0376	0.0207	0.0000	0.0207	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0884	0.7932	0.9481	1.7900e-003		0.0413	0.0413		0.0390	0.0390	0.0000	155.9007	155.9007	0.0388	0.0000	156.8707
Total	0.0884	0.7932	0.9481	1.7900e-003	0.0376	0.0413	0.0789	0.0207	0.0390	0.0597	0.0000	155.9007	155.9007	0.0388	0.0000	156.8707

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4200e-003	1.4800e-003	0.0174	7.0000e-005	7.1100e-003	5.0000e-005	7.1600e-003	1.8900e-003	5.0000e-005	1.9400e-003	0.0000	6.2756	6.2756	1.2000e-004	0.0000	6.2786
Total	2.4200e-003	1.4800e-003	0.0174	7.0000e-005	7.1100e-003	5.0000e-005	7.1600e-003	1.8900e-003	5.0000e-005	1.9400e-003	0.0000	6.2756	6.2756	1.2000e-004	0.0000	6.2786

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0376	0.0000	0.0376	0.0207	0.0000	0.0207	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0534	0.4737	1.0017	1.7900e-003		0.0207	0.0207		0.0199	0.0199	0.0000	142.2832	142.2832	0.0379	0.0000	143.2310

Total	0.0534	0.4737	1.0017	1.7900e-003	0.0376	0.0207	0.0583	0.0207	0.0199	0.0405	0.0000	142.2832	142.2832	0.0379	0.0000	143.2310
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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4200e-003	1.4800e-003	0.0174	7.0000e-005	7.1100e-003	5.0000e-005	7.1600e-003	1.8900e-003	5.0000e-005	1.9400e-003	0.0000	6.2756	6.2756	1.2000e-004	0.0000	6.2786
Total	2.4200e-003	1.4800e-003	0.0174	7.0000e-005	7.1100e-003	5.0000e-005	7.1600e-003	1.8900e-003	5.0000e-005	1.9400e-003	0.0000	6.2756	6.2756	1.2000e-004	0.0000	6.2786

3.6 Concrete Pour - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.2000e-004	3.9700e-003	3.9600e-003	1.0000e-005		2.0000e-004	2.0000e-004		1.9000e-004	1.9000e-004	0.0000	0.5580	0.5580	1.7000e-004	0.0000	0.5622
Total	4.2000e-004	3.9700e-003	3.9600e-003	1.0000e-005		2.0000e-004	2.0000e-004		1.9000e-004	1.9000e-004	0.0000	0.5580	0.5580	1.7000e-004	0.0000	0.5622

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1000e-004	0.0347	0.0110	8.0000e-005	2.0900e-003	7.0000e-005	2.1600e-003	6.0000e-004	7.0000e-005	6.7000e-004	0.0000	8.6298	8.6298	1.1400e-003	0.0000	8.6584
Worker	1.5000e-004	9.0000e-005	1.0600e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.1000e-004	0.0000	1.2000e-004	0.0000	0.3800	0.3800	1.0000e-005	0.0000	0.3802
Total	1.0600e-003	0.0348	0.0121	8.0000e-005	2.5200e-003	7.0000e-005	2.5900e-003	7.1000e-004	7.0000e-005	7.9000e-004	0.0000	9.0098	9.0098	1.1500e-003	0.0000	9.0386

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2000e-004	2.8400e-003	4.0200e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	0.5580	0.5580	1.7000e-004	0.0000	0.5622
Total	3.2000e-004	2.8400e-003	4.0200e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	0.5580	0.5580	1.7000e-004	0.0000	0.5622

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1000e-004	0.0347	0.0110	8.0000e-005	2.0900e-003	7.0000e-005	2.1600e-003	6.0000e-004	7.0000e-005	6.7000e-004	0.0000	8.6298	8.6298	1.1400e-003	0.0000	8.6584
Worker	1.5000e-004	9.0000e-005	1.0600e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.1000e-004	0.0000	1.2000e-004	0.0000	0.3800	0.3800	1.0000e-005	0.0000	0.3802
Total	1.0600e-003	0.0348	0.0121	8.0000e-005	2.5200e-003	7.0000e-005	2.5900e-003	7.1000e-004	7.0000e-005	7.9000e-004	0.0000	9.0098	9.0098	1.1500e-003	0.0000	9.0386

3.7 Drainage Utilities Subgrade - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0225	0.2241	0.2050	3.5000e-004		0.0117	0.0117		0.0108	0.0108	0.0000	30.3791	30.3791	9.5500e-003	0.0000	30.6178
Total	0.0225	0.2241	0.2050	3.5000e-004		0.0117	0.0117		0.0108	0.0108	0.0000	30.3791	30.3791	9.5500e-003	0.0000	30.6178

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0300e-003	0.1910	0.0604	4.6000e-004	0.0115	4.0000e-004	0.0119	3.3200e-003	3.8000e-004	3.7100e-003	0.0000	47.4638	47.4638	6.3000e-003	0.0000	47.6212

Worker	0.0117	7.1600e-003	0.0845	3.4000e-004	0.0345	2.6000e-004	0.0347	9.1700e-003	2.4000e-004	9.4000e-003	0.0000	30.4016	30.4016	5.9000e-004	0.0000	30.4163
Total	0.0167	0.1982	0.1449	8.0000e-004	0.0460	6.6000e-004	0.0466	0.0125	6.2000e-004	0.0131	0.0000	77.8654	77.8654	6.8900e-003	0.0000	78.0374

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0151	0.1426	0.2068	3.5000e-004		7.8600e-003	7.8600e-003		7.2400e-003	7.2400e-003	0.0000	30.3790	30.3790	9.5500e-003	0.0000	30.6178
Total	0.0151	0.1426	0.2068	3.5000e-004		7.8600e-003	7.8600e-003		7.2400e-003	7.2400e-003	0.0000	30.3790	30.3790	9.5500e-003	0.0000	30.6178

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0300e-003	0.1910	0.0604	4.6000e-004	0.0115	4.0000e-004	0.0119	3.3200e-003	3.8000e-004	3.7100e-003	0.0000	47.4638	47.4638	6.3000e-003	0.0000	47.6212
Worker	0.0117	7.1600e-003	0.0845	3.4000e-004	0.0345	2.6000e-004	0.0347	9.1700e-003	2.4000e-004	9.4000e-003	0.0000	30.4016	30.4016	5.9000e-004	0.0000	30.4163
Total	0.0167	0.1982	0.1449	8.0000e-004	0.0460	6.6000e-004	0.0466	0.0125	6.2000e-004	0.0131	0.0000	77.8654	77.8654	6.8900e-003	0.0000	78.0374

3.8 Foundations and Concrete Pour - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0996	0.9598	0.9342	1.9100e-003		0.0471	0.0471		0.0441	0.0441	0.0000	166.9306	166.9306	0.0443	0.0000	168.0384
Total	0.0996	0.9598	0.9342	1.9100e-003		0.0471	0.0471		0.0441	0.0441	0.0000	166.9306	166.9306	0.0443	0.0000	168.0384

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0300e-003	0.1910	0.0604	4.6000e-004	0.0115	4.0000e-004	0.0119	3.3200e-003	3.8000e-004	3.7100e-003	0.0000	47.4638	47.4638	6.3000e-003	0.0000	47.6212
Worker	0.0117	7.1600e-003	0.0845	3.4000e-004	0.0345	2.6000e-004	0.0347	9.1700e-003	2.4000e-004	9.4000e-003	0.0000	30.4016	30.4016	5.9000e-004	0.0000	30.4163
Total	0.0167	0.1982	0.1449	8.0000e-004	0.0460	6.6000e-004	0.0466	0.0125	6.2000e-004	0.0131	0.0000	77.8654	77.8654	6.8900e-003	0.0000	78.0374

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Off-Road	0.0456	0.4096	1.0254	1.9100e-003		0.0171	0.0171		0.0159	0.0159	0.0000	156.0365	156.0365	0.0436	0.0000	157.1266
Total	0.0456	0.4096	1.0254	1.9100e-003		0.0171	0.0171		0.0159	0.0159	0.0000	156.0365	156.0365	0.0436	0.0000	157.1266

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0300e-003	0.1910	0.0604	4.6000e-004	0.0115	4.0000e-004	0.0119	3.3200e-003	3.8000e-004	3.7100e-003	0.0000	47.4638	47.4638	6.3000e-003	0.0000	47.6212
Worker	0.0117	7.1600e-003	0.0845	3.4000e-004	0.0345	2.6000e-004	0.0347	9.1700e-003	2.4000e-004	9.4000e-003	0.0000	30.4016	30.4016	5.9000e-004	0.0000	30.4163
Total	0.0167	0.1982	0.1449	8.0000e-004	0.0460	6.6000e-004	0.0466	0.0125	6.2000e-004	0.0131	0.0000	77.8654	77.8654	6.8900e-003	0.0000	78.0374

3.9 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0129	0.1272	0.1238	2.2000e-004		6.3700e-003	6.3700e-003		6.0000e-003	6.0000e-003	0.0000	19.2832	19.2832	4.5400e-003	0.0000	19.3968
Total	0.0129	0.1272	0.1238	2.2000e-004		6.3700e-003	6.3700e-003		6.0000e-003	6.0000e-003	0.0000	19.2832	19.2832	4.5400e-003	0.0000	19.3968

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3800e-003	0.0525	0.0166	1.3000e-004	3.1600e-003	1.1000e-004	3.2700e-003	9.1000e-004	1.1000e-004	1.0200e-003	0.0000	13.0525	13.0525	1.7300e-003	0.0000	13.0958
Worker	3.2200e-003	1.9700e-003	0.0232	9.0000e-005	9.4700e-003	7.0000e-005	9.5400e-003	2.5200e-003	6.0000e-005	2.5900e-003	0.0000	8.3605	8.3605	1.6000e-004	0.0000	8.3645
Total	4.6000e-003	0.0545	0.0399	2.2000e-004	0.0126	1.8000e-004	0.0128	3.4300e-003	1.7000e-004	3.6100e-003	0.0000	21.4130	21.4130	1.8900e-003	0.0000	21.4603

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.8000e-003	0.0613	0.1330	2.2000e-004		3.0900e-003	3.0900e-003		2.8600e-003	2.8600e-003	0.0000	19.2832	19.2832	4.5400e-003	0.0000	19.3968
Total	6.8000e-003	0.0613	0.1330	2.2000e-004		3.0900e-003	3.0900e-003		2.8600e-003	2.8600e-003	0.0000	19.2832	19.2832	4.5400e-003	0.0000	19.3968

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3800e-003	0.0525	0.0166	1.3000e-004	3.1600e-003	1.1000e-004	3.2700e-003	9.1000e-004	1.1000e-004	1.0200e-003	0.0000	13.0525	13.0525	1.7300e-003	0.0000	13.0958
Worker	3.2200e-003	1.9700e-003	0.0232	9.0000e-005	9.4700e-003	7.0000e-005	9.5400e-003	2.5200e-003	6.0000e-005	2.5900e-003	0.0000	8.3605	8.3605	1.6000e-004	0.0000	8.3645
Total	4.6000e-003	0.0545	0.0399	2.2000e-004	0.0126	1.8000e-004	0.0128	3.4300e-003	1.7000e-004	3.6100e-003	0.0000	21.4130	21.4130	1.8900e-003	0.0000	21.4603

3.9 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1410	1.3779	1.4517	2.6100e-003		0.0657	0.0657		0.0618	0.0618	0.0000	227.9709	227.9709	0.0533	0.0000	229.3041
Total	0.1410	1.3779	1.4517	2.6100e-003		0.0657	0.0657		0.0618	0.0618	0.0000	227.9709	227.9709	0.0533	0.0000	229.3041

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0132	0.5147	0.1896	1.4500e-003	0.0374	7.4000e-004	0.0381	0.0108	7.1000e-004	0.0115	0.0000	150.4244	150.4244	0.0200	0.0000	150.9242
Worker	0.0360	0.0211	0.2564	1.0500e-003	0.1120	8.2000e-004	0.1128	0.0298	7.6000e-004	0.0306	0.0000	94.9891	94.9891	1.7300e-003	0.0000	95.0322
Total	0.0492	0.5358	0.4460	2.5000e-003	0.1494	1.5600e-003	0.1509	0.0406	1.4700e-003	0.0421	0.0000	245.4135	245.4135	0.0217	0.0000	245.9565

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0754	0.6688	1.5665	2.6100e-003		0.0317	0.0317		0.0294	0.0294	0.0000	227.9706	227.9706	0.0533	0.0000	229.3038
Total	0.0754	0.6688	1.5665	2.6100e-003		0.0317	0.0317		0.0294	0.0294	0.0000	227.9706	227.9706	0.0533	0.0000	229.3038

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0132	0.5147	0.1896	1.4500e-003	0.0374	7.4000e-004	0.0381	0.0108	7.1000e-004	0.0115	0.0000	150.4244	150.4244	0.0200	0.0000	150.9242

Worker	0.0360	0.0211	0.2564	1.0500e-003	0.1120	8.2000e-004	0.1128	0.0298	7.6000e-004	0.0306	0.0000	94.9891	94.9891	1.7300e-003	0.0000	95.0322
Total	0.0492	0.5358	0.4460	2.5000e-003	0.1494	1.5600e-003	0.1509	0.0406	1.4700e-003	0.0421	0.0000	245.4135	245.4135	0.0217	0.0000	245.9565

3.9 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0296	0.2860	0.3221	5.8000e-004		0.0130	0.0130		0.0122	0.0122	0.0000	50.8647	50.8647	0.0119	0.0000	51.1615
Total	0.0296	0.2860	0.3221	5.8000e-004		0.0130	0.0130		0.0122	0.0122	0.0000	50.8647	50.8647	0.0119	0.0000	51.1615

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8100e-003	0.1120	0.0419	3.2000e-004	8.3400e-003	1.6000e-004	8.5000e-003	2.4100e-003	1.5000e-004	2.5600e-003	0.0000	33.2449	33.2449	4.4500e-003	0.0000	33.3563
Worker	7.6400e-003	4.2800e-003	0.0536	2.2000e-004	0.0250	1.8000e-004	0.0252	6.6400e-003	1.7000e-004	6.8100e-003	0.0000	20.3463	20.3463	3.5000e-004	0.0000	20.3550
Total	0.0105	0.1163	0.0955	5.4000e-004	0.0333	3.4000e-004	0.0337	9.0500e-003	3.2000e-004	9.3700e-003	0.0000	53.5912	53.5912	4.8000e-003	0.0000	53.7113

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0161	0.1402	0.3489	5.8000e-004		6.3000e-003	6.3000e-003		5.8300e-003	5.8300e-003	0.0000	50.8647	50.8647	0.0119	0.0000	51.1614
Total	0.0161	0.1402	0.3489	5.8000e-004		6.3000e-003	6.3000e-003		5.8300e-003	5.8300e-003	0.0000	50.8647	50.8647	0.0119	0.0000	51.1614

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8100e-003	0.1120	0.0419	3.2000e-004	8.3400e-003	1.6000e-004	8.5000e-003	2.4100e-003	1.5000e-004	2.5600e-003	0.0000	33.2449	33.2449	4.4500e-003	0.0000	33.3563
Worker	7.6400e-003	4.2800e-003	0.0536	2.2000e-004	0.0250	1.8000e-004	0.0252	6.6400e-003	1.7000e-004	6.8100e-003	0.0000	20.3463	20.3463	3.5000e-004	0.0000	20.3550
Total	0.0105	0.1163	0.0955	5.4000e-004	0.0333	3.4000e-004	0.0337	9.0500e-003	3.2000e-004	9.3700e-003	0.0000	53.5912	53.5912	4.8000e-003	0.0000	53.7113

3.10 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Archit. Coating	1.9084					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0136	0.1280	0.0911	2.2000e-004		5.7500e-003	5.7500e-003		5.4400e-003	5.4400e-003	0.0000	19.0569	19.0569	4.4800e-003	0.0000	19.1690
Total	1.9220	0.1280	0.0911	2.2000e-004		5.7500e-003	5.7500e-003		5.4400e-003	5.4400e-003	0.0000	19.0569	19.0569	4.4800e-003	0.0000	19.1690

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	8.2000e-004	9.9500e-003	4.0000e-005	4.3500e-003	3.0000e-005	4.3800e-003	1.1600e-003	3.0000e-005	1.1900e-003	0.0000	3.6869	3.6869	7.0000e-005	0.0000	3.6886
Total	1.4000e-003	8.2000e-004	9.9500e-003	4.0000e-005	4.3500e-003	3.0000e-005	4.3800e-003	1.1600e-003	3.0000e-005	1.1900e-003	0.0000	3.6869	3.6869	7.0000e-005	0.0000	3.6886

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.9084					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.1100e-003	0.0440	0.0675	2.2000e-004		1.8600e-003	1.8600e-003		1.7600e-003	1.7600e-003	0.0000	13.9504	13.9504	4.1800e-003	0.0000	14.0548

Total	1.9135	0.0440	0.0675	2.2000e-004		1.8600e-003	1.8600e-003		1.7600e-003	1.7600e-003	0.0000	13.9504	13.9504	4.1800e-003	0.0000	14.0548
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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	8.2000e-004	9.9500e-003	4.0000e-005	4.3500e-003	3.0000e-005	4.3800e-003	1.1600e-003	3.0000e-005	1.1900e-003	0.0000	3.6869	3.6869	7.0000e-005	0.0000	3.6886
Total	1.4000e-003	8.2000e-004	9.9500e-003	4.0000e-005	4.3500e-003	3.0000e-005	4.3800e-003	1.1600e-003	3.0000e-005	1.1900e-003	0.0000	3.6869	3.6869	7.0000e-005	0.0000	3.6886

3.11 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.7800e-003	0.0694	0.0996	1.6000e-004		3.2500e-003	3.2500e-003		3.0300e-003	3.0300e-003	0.0000	13.4953	13.4953	4.0600e-003	0.0000	13.5969
Paving	3.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.8100e-003	0.0694	0.0996	1.6000e-004		3.2500e-003	3.2500e-003		3.0300e-003	3.0300e-003	0.0000	13.4953	13.4953	4.0600e-003	0.0000	13.5969

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	7.0000e-005	8.5000e-004	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3218	0.3218	1.0000e-005	0.0000	0.3220
Total	1.2000e-004	7.0000e-005	8.5000e-004	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3218	0.3218	1.0000e-005	0.0000	0.3220

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.3400e-003	0.0312	0.1106	1.6000e-004		1.3300e-003	1.3300e-003		1.2700e-003	1.2700e-003	0.0000	13.4953	13.4953	4.0600e-003	0.0000	13.5968
Paving	3.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.3700e-003	0.0312	0.1106	1.6000e-004		1.3300e-003	1.3300e-003		1.2700e-003	1.2700e-003	0.0000	13.4953	13.4953	4.0600e-003	0.0000	13.5968

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
--	-----	-----	----	-----	---------------	--------------	------------	----------------	---------------	-------------	----------	-----------	-----------	-----	-----	------

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	7.0000e-005	8.5000e-004	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3218	0.3218	1.0000e-005	0.0000	0.3220
Total	1.2000e-004	7.0000e-005	8.5000e-004	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3218	0.3218	1.0000e-005	0.0000	0.3220

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0682	0.2659	0.7640	2.9100e-003	0.1417	3.0800e-003	0.1447	0.0413	2.8800e-003	0.0441	0.0000	268.4229	268.4229	0.0111	0.0000	268.6993
Unmitigated	0.0682	0.2659	0.7640	2.9100e-003	0.1417	3.0800e-003	0.1447	0.0413	2.8800e-003	0.0441	0.0000	268.4229	268.4229	0.0111	0.0000	268.6993

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse High Rise	322.56	332.80	256.00	726,404	726,404
Other Asphalt Surfaces	0.00	0.00	0.00		
User Defined Industrial	0.00	0.00	0.00		
Total	322.56	332.80	256.00	726,404	726,404

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-NW	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse High Rise	0.604697	0.038136	0.192426	0.089922	0.013708	0.005077	0.031210	0.009257	0.004288	0.003553	0.006262	0.000945	0.000519
Other Asphalt Surfaces	0.604697	0.038136	0.192426	0.089922	0.013708	0.005077	0.031210	0.009257	0.004288	0.003553	0.006262	0.000945	0.000519
User Defined Industrial	0.604697	0.038136	0.192426	0.089922	0.013708	0.005077	0.031210	0.009257	0.004288	0.003553	0.006262	0.000945	0.000519

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	117.1958	117.1958	0.0151	3.1200e-003	118.5036
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	117.1958	117.1958	0.0151	3.1200e-003	118.5036
NaturalGas Mitigated	0.0121	0.1030	0.0438	6.6000e-004		8.3300e-003	8.3300e-003		8.3300e-003	8.3300e-003	0.0000	119.2676	119.2676	2.2900e-003	2.1900e-003	119.9763
NaturalGas Unmitigated	0.0121	0.1030	0.0438	6.6000e-004		8.3300e-003	8.3300e-003		8.3300e-003	8.3300e-003	0.0000	119.2676	119.2676	2.2900e-003	2.1900e-003	119.9763

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	2.23499e+006	0.0121	0.1030	0.0438	6.6000e-004		8.3300e-003	8.3300e-003		8.3300e-003	8.3300e-003	0.0000	119.2676	119.2676	2.2900e-003	2.1900e-003	119.9763
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0121	0.1030	0.0438	6.6000e-004		8.3300e-003	8.3300e-003		8.3300e-003	8.3300e-003	0.0000	119.2676	119.2676	2.2900e-003	2.1900e-003	119.9763

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	2.23499e+006	0.0121	0.1030	0.0438	6.6000e-004		8.3300e-003	8.3300e-003		8.3300e-003	8.3300e-003	0.0000	119.2676	119.2676	2.2900e-003	2.1900e-003	119.9763
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0121	0.1030	0.0438	6.6000e-004		8.3300e-003	8.3300e-003		8.3300e-003	8.3300e-003	0.0000	119.2676	119.2676	2.2900e-003	2.1900e-003	119.9763

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	1.1473e+006	117.1958	0.0151	3.1200e-003	118.5036
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		117.1958	0.0151	3.1200e-003	118.5036

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	1.1473e+006	117.1958	0.0151	3.1200e-003	118.5036
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		117.1958	0.0151	3.1200e-003	118.5036

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.3530	0.0290	2.0846	7.2000e-004		0.0407	0.0407		0.0407	0.0407	3.9928	7.8988	11.8916	0.0217	9.0000e-005	12.4612
Unmitigated	1.3530	0.0290	2.0846	7.2000e-004		0.0407	0.0407		0.0407	0.0407	3.9928	7.8988	11.8916	0.0217	9.0000e-005	12.4612

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1908					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.0844					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	7.1200e-003	0.1846	6.2000e-004		0.0302	0.0302		0.0302	0.0302	3.9928	4.7938	8.7866	0.0188	9.0000e-005	9.2817
Landscaping	0.0571	0.0219	1.9000	1.0000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	3.1050	3.1050	2.9800e-003	0.0000	3.1795
Total	1.3530	0.0290	2.0846	7.2000e-004		0.0407	0.0407		0.0407	0.0407	3.9928	7.8988	11.8916	0.0217	9.0000e-005	12.4612

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1908					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.0844					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	7.1200e-003	0.1846	6.2000e-004		0.0302	0.0302		0.0302	0.0302	3.9928	4.7938	8.7866	0.0188	9.0000e-005	9.2817
Landscaping	0.0571	0.0219	1.9000	1.0000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	3.1050	3.1050	2.9800e-003	0.0000	3.1795
Total	1.3530	0.0290	2.0846	7.2000e-004		0.0407	0.0407		0.0407	0.0407	3.9928	7.8988	11.8916	0.0217	9.0000e-005	12.4612

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	18.2703	0.5452	0.0132	35.8269
Unmitigated	18.2703	0.5452	0.0132	35.8269

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	16.6794 / 10.5153	18.2703	0.5452	0.0132	35.8269
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		18.2703	0.5452	0.0132	35.8269

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	16.6794 / 10.5153	18.2703	0.5452	0.0132	35.8269
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		18.2703	0.5452	0.0132	35.8269

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	23.9042	1.4127	0.0000	59.2217
Unmitigated	23.9042	1.4127	0.0000	59.2217

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	117.76	23.9042	1.4127	0.0000	59.2217
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		23.9042	1.4127	0.0000	59.2217

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
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Land Use	tons	MT/yr			
Condo/Townhouse High Rise	117.76	23.9042	1.4127	0.0000	59.2217
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		23.9042	1.4127	0.0000	59.2217

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	50	400	0.73	Diesel
Emergency Generator	1	0	50	464	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (300 - 600 HP)	0.0354	0.0991	0.0904	1.7000e-004		5.2100e-003	5.2100e-003		5.2100e-003	5.2100e-003	0.0000	16.4504	16.4504	2.3100e-003	0.0000	16.5081
Total	0.0354	0.0991	0.0904	1.7000e-004		5.2100e-003	5.2100e-003		5.2100e-003	5.2100e-003	0.0000	16.4504	16.4504	2.3100e-003	0.0000	16.5081

11.0 Vegetation

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A3 EMFAC2017 Output and Calculations: Proposed Project and Residential Variant On- Road Construction Emissions

530 Sansome Street - 2021 Construction Emissions

Tons	Pounds	Grams
1	2000	907185
	1	453.6

Year	Work Days
2021	30

Mile	Feet
1	5280

Construction On-Road Trips

Phase	Worker One-Way Trips	Vendor One-Way Trips	Hauling One-Way Trips	Work Days per Phase	Annual Worker Trips	Annual Vendor Trips	Annual Haul Trips
Demo	10	0	224	40	230	0	129
Site Prep	10	0	0	80	230	0	0
Soil Hauling	109	44	1750	150	3270	1320	355
TOTAL	129	44	1974	N/A	3730	1320	484

	Trips Lengths (mi)
Worker	10.8
Vendor	7.3
Hauling	20

	PhaseStartDate	PhaseEndDate	Work Days in 2021	Fraction for total Soil Hauling Amount
Demolition	12/1/2021	12/31/2021	23	0.58
Site Preparation	12/1/2021	12/31/2021	23	N/A
Soil Hauling	12/1/2021	12/31/2021	30	0.20

EMFAC2017 Output

EMFAC2017 (v1.0.2) Emission Rates
Region Type: County

Region: SAN FRANCISCO

Calendar Year: 2021

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSQAK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN
SAN FRANCISCO	2021	LDA	Aggregated	Aggregated	GAS	156525.5687	5485729.948	737676.722	0.042539745	0	0.212040884	0.001797043	0	0.001859026	0.002000001	0.015750005	0.001954416	0	0.002021725	0.008000002	0.036750011	0.012068977	0	0.272396113	0.108086712	0.234758583	0.1934575	0.19658599
SAN FRANCISCO	2021	LDT1	Aggregated	Aggregated	GAS	16761.84806	522112.2277	78069.05378	0.079850677	0	0.256337909	0.002136907	0	0.002195158	0.002000001	0.015750005	0.002323991	0	0.00238725	0.008000002	0.036750011	0.022150887	0	0.345388812	0.155314729	0.566106493	0.294427805	0.31455643
SAN FRANCISCO	2021	LDT2	Aggregated	Aggregated	GAS	52137.20517	1651683.774	245279.9206	0.07241738	0	0.303953644	0.001757212	0	0.001737995	0.002000001	0.015750005	0.001911099	0	0.001890169	0.008000002	0.036750011	0.016779116	0	0.342095115	0.114656244	0.397305691	0.251073847	0.2331379
SAN FRANCISCO	2021	MHDT	Aggregated	Aggregated	DSL	4009.563494	213998.2057	35796.06284	2.778577961	11.17218126	1.514085434	0.066470322	0.025829877	0	0.003000001	0.055860016	0.069475815	0.026997789	0	0.012000003	0.130340037	0.166079419	0.148855911	0	0	0	0	0
SAN FRANCISCO	2021	HHDT	Aggregated	Aggregated	DSL	1101.864373	73603.90795	7568.648365	5.675492831	46.45286976	2.051348997	0.056957369	0.071442247	0	0.008693593	0.025559162	0.059532728	0.074672549	0	0.03477437	0.059638045	0.143252341	2.506981106	0	0	0	0	0

CONSTRUCTION

Project Background Information

Background Info	
<i>Worker Trips</i>	
Total annual one-way trips	3730
Trip Length	10.8
<i>Vendor Trips</i>	
Total annual one-way trips	1320
Trip Length	7.3
<i>Haul Trips</i>	
Total annual one-way trips	484
Trip Length	20

Fleet Mix		
<i>Worker Trips</i>		
LDA	GAS	0.5000
LDT1	GAS	0.2500
LDT2	GAS	0.2500
<i>Vendor Trips</i>		
HHDT	Diesel	0.5
MHDT	Diesel	0.5
<i>Haul Trips</i>		
HHDT	Diesel	1

Emissions Calcs

g/ton					ROG EMISSIONS TONS PER YEAR										NOX EMISSIONS TONS PER YEAR					PM2.5 EMISSIONS TONS PER YEAR					PM10 EMISSIONS TONS PER YEAR				
907185					ROG	ROG	ROG	ROG	ROG	ROG	ROG	ROG	ROG	NOX	NOX	NOX	PM2.5	PM2.5	PM2.5	PM2.5	PM2.5	PM10	PM10	PM10	PM10	PM10			
One-Way Trips					g/mi	g/vehicle/day	g/trip	g/trip	g/trip	g/vehicle/day	g/vehicle/day	g/vehicle/day	g/mi	g/vehicle/day	g/trip	g/mi	g/mi	g/vehicle/day	g/trip	g/mi	g/mi	g/mi	g/vehicle/day	g/trip	g/mi	g/mi	g/mi		
mi					ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN	ROG_RUNEX	ROG_IDLEX	ROG_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_PMTW	PM10_PMBW	
3	LDA	GAS	1865	10.8	20142.0	1865	933	933	2.68E-04	0.00E+00	5.60E-04	2.22E-04	4.83E-04	1.99E-04	2.02E-04	9.44E-04	0.00E+00	4.36E-04	3.99E-05	0.00E+00	3.82E-06	4.44E-05	3.50E-04	4.34E-05	0.00E+00	4.16E-06	1.78E-04	8.16E-04	
4	LDT1	GAS	933	10.8	10071.0	933	466	466	2.46E-04	0.00E+00	3.55E-04	1.60E-04	5.82E-04	1.51E-04	1.62E-04	8.86E-04	0.00E+00	2.63E-04	2.37E-05	0.00E+00	2.26E-06	2.22E-05	1.75E-04	2.58E-05	0.00E+00	2.45E-06	8.88E-05	4.08E-04	
5	LDT2	GAS	933	10.8	10071.0	933	466	466	1.86E-04	0.00E+00	3.52E-04	1.18E-04	4.08E-04	1.29E-04	1.20E-04	8.04E-04	0.00E+00	3.12E-04	1.95E-05	0.00E+00	1.79E-06	2.22E-05	1.75E-04	2.12E-05	0.00E+00	1.94E-06	8.88E-05	4.08E-04	
6	HHDT	DSL	660	7.3	4818	660	330	330	7.61E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.01E-02	1.69E-02	1.49E-03	3.02E-04	2.60E-05	0.00E+00	4.62E-05	1.36E-04	3.16E-04	2.72E-05	0.00E+00	1.85E-04	3.17E-04	
7	MHDT	DSL	660	7.3	4818	660	330	330	8.82E-04	5.41E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E-02	4.06E-03	1.10E-03	3.53E-04	9.40E-06	0.00E+00	1.59E-05	2.97E-04	3.69E-04	9.82E-06	0.00E+00	6.37E-05	6.92E-04	
8	HHDT	DSL	484	20	9671	484	242	242	1.53E-03	6.68E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.05E-02	1.24E-02	1.09E-03	6.07E-04	1.90E-05	0.00E+00	9.27E-05	2.72E-04	6.35E-04	1.99E-05	0.00E+00	3.71E-04	6.36E-04	

Sum of Emissions

ton/yr		ROG	NOx	PM10	PM2.5
LDA	GAS	1.93E-03	1.38E-03	1.04E-03	4.38E-04
LDT1	GAS	1.66E-03	1.15E-03	5.25E-04	2.23E-04
LDT2	GAS	1.31E-03	1.12E-03	5.20E-04	2.18E-04
HHDT	DSL	1.67E-03	4.85E-02	8.45E-04	5.10E-04
MHDT	DSL	9.36E-04	1.99E-02	1.13E-03	6.75E-04
HHDT	DSL	2.20E-03	7.40E-02	1.66E-03	9.91E-04
Total		0.010	0.146	0.006	0.003
lbs/day		0.65	9.74	0.38	0.20

tons/yr		ROG	NOx	PM10	PM2.5
Haul		0.0022	0.0740	0.0017	0.0010
Vendor		0.0026	0.0685	0.0020	0.0012
Worker		0.0049	0.0036	0.0021	0.0009
lbs/day		ROG	NOx	PM10	PM2.5
Haul		0.1463	4.9316	0.1107	0.0661
Vendor		0.1739	4.5637	0.1320	0.0790
Worker		0.3268	0.2431	0.1391	0.0586

Delivery Truck Idling Emissions

EMFAC2017 Output

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County

Region: San Francisco

Calendar Year: 2021

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: g/hour for idling

calendar_year	season_month	sub_area	vehicle_class	process	pollutant	emission_rate (g/hr)
2021	Annual	San Francisco (SF)	MHDT	IDLEX	ROG	1.408517712
2021	Annual	San Francisco (SF)	MHDT	IDLEX	NOx	56.3833734
2021	Annual	San Francisco (SF)	MHDT	IDLEX	PM2.5	0.13022426
2021	Annual	San Francisco (SF)	MHDT	IDLEX	PM10	0.136112423
2021	Annual	San Francisco (SF)	MHDT	IDLEX	CO2	6683.840106
2021	Annual	San Francisco (SF)	HHDT	IDLEX	ROG	2.104418674
2021	Annual	San Francisco (SF)	HHDT	IDLEX	NOx	43.09321641
2021	Annual	San Francisco (SF)	HHDT	IDLEX	PM2.5	0.052908727
2021	Annual	San Francisco (SF)	HHDT	IDLEX	PM10	0.055301025
2021	Annual	San Francisco (SF)	HHDT	IDLEX	CO2	6261.667349

Emissions Calcs

		POUNDS PER DAY			
Heavy Truck Idling					
Daily Delivery and Haul Trips		78			
Idling Time per Trip (hours)		0.25			
Fleet Mix					
		ROG	NOx	PM10	PM2.5
MHDT	DSL	0.5	0.0000152	0.0006092	0.0000015
MHDT	DSL	0.5	0.0000227	0.0004656	0.0000006
Total Daily Truck Idling Emissions (pounds)		0.0000380	0.0010748	0.0000021	0.0000020

Idling time was assumed to be 15 minutes per trip, consistent with CARB's Airborne Toxic Control Measure to limit diesel-fueled commercial motor vehicle idling per Title 13, California Code of Regulations, chapter 2485, July 2004.

530 Sansome Street - 2022 Construction Emissions

Tons	Pounds	Grams
1	2000	907185
	1	453.6

Year	Work Days
2022	260

Millie	Feet
1	5280

Construction On-Road Trips

Phase	Worker One-Way Trips/Day	Vendor One-Way Trips	Hauling One-Way Trips	Work Days per Phase	Annual Worker Trips	Annual Vendor Trips	Annual Haul Trips
Demo	10	0	224	17	170	0	95
Site Prep	10	0	0	80	570	0	0
Soil Hauling	109	44	1750	150	12862	5192	1395
Grading	18	0	0	100	1800	0	0
Concrete Pour	109	640	0	1	109	640	0
Drainage, Util, Sub.	109	44	0	80	8720	3520	0
Found. & Concrete	109	44	0	80	8720	3520	0
Arch Coating	22	0	0	50	1100	0	0
TOTAL				N/A	34051	12872	1490
	Trips Lengths (mi)						
Worker	10.8						
Vendor	7.3						
Hauling	20						

	PhaseStartDate	PhaseEndDate	Work Days in 2022	Fraction for total Demo and Soil Hauling Amount
Demo	1/1/2022	1/25/2022	17	0.43
Site Prep	1/1/2022	3/22/2022	57	N/A
Soil Hauling	1/1/2022	4/29/2022	118	0.80
Grading	3/1/2022	7/18/2022	100	N/A
Concrete Pour	8/1/2022	8/1/2022	1	N/A
Drainage Utilities Subgrade	8/1/2022	11/18/2022	80	N/A
Foundations and Concrete	8/1/2022	11/18/2022	80	N/A
Architectural Coating	9/1/2022	11/9/2022	50	N/A
Building Construction	12/1/2022	12/31/2022	22	N/A

EMFAC2017 Output

EMFAC2017 (v1.0.2) Emission Rates

Region Type: County

Region: SAN FRANCISCO

Calendar Year: 2022

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN
SAN FRANCISCO	2022	LDA	Aggregated	Aggregated	GAS	158974.3436	5490904.987	749894.4893	0.037515102	0	0.19839375	0.001711286	0	0.001780809	0.002000001	0.015750005	0.001861161	0	0.001936711	0.008000002	0.036750011	0.010369879	0	0.247722333	0.100979301	0.224815806	0.180849238	0.18152181
SAN FRANCISCO	2022	LDT1	Aggregated	Aggregated	GAS	17225.75338	527114.4284	80263.74505	0.069318775	0	0.238740456	0.002007488	0	0.002068654	0.002000001	0.015750005	0.00218327	0	0.002249734	0.008000002	0.036750011	0.018959991	0	0.312258034	0.144426201	0.530067375	0.276656221	0.2900166
SAN FRANCISCO	2022	LDT2	Aggregated	Aggregated	GAS	53507.32088	1662242.685	251569.6648	0.063513126	0	0.279584325	0.001694525	0	0.001686309	0.002000001	0.015750005	0.00184293	0	0.001833972	0.008000002	0.036750011	0.014931732	0	0.317048359	0.110467085	0.390295376	0.248335838	0.22755298
SAN FRANCISCO	2022	MHDT	Aggregated	Aggregated	DSL	4172.305531	227092.9149	37001.33141	2.109033505	10.01387122	1.743993654	0.036668742	0.017382236	0	0.003000001	0.055860016	0.03832674	0.018168183	0	0.012000003	0.130340037	0.086515186	0.130856378	0	0	0	0	0
SAN FRANCISCO	2022	HHDT	Aggregated	Aggregated	DSL	1102.419742	74477.37434	7662.52304	4.902115675	45.67901171	2.278813712	0.032130994	0.047943457	0	0.008692723	0.025556606	0.033583814	0.050111247	0	0.034770893	0.059632082	0.087378451	2.527564193	0	0	0	0	0

CONSTRUCTION

Project Background Information

Background Info			
Worker Trips			
Total annual one-way trips			34051
Trip Length			10.8
Vendor Trips			
Total annual one-way trips			12872
Trip Length			7.3
Haul Trips			
Total annual one-way trips			1490
Trip Length			20

Fleet Mix		
Worker Trips		
LDA	GAS	0.5000
LDT1	GAS	0.2500
LDT2	GAS	0.2500
Vendor Trips		
HHDT	Diesel	0.5
MHDT	Diesel	0.5
Haul Trips		
HHDT	Diesel	1

Emissions Calcs

g/ton				907185				ROG EMISSIONS TONS PER YEAR										NOx EMISSIONS TONS PER YEAR						PM2.5 EMISSIONS TONS PER YEAR						PM10 EMISSIONS TONS PER YEAR																							
g/ton				907185				ROG		ROG		ROG		ROG		ROG		ROG		NOx		NOx		NOx		PM2.5		PM2.5		PM2.5		PM2.5		PM10		PM10		PM10		PM10													
g/ton				907185				g/mi		g/vehicle/day		g/trip		g/trip		g/vehicle/day		g/vehicle/day		g/mi		g/vehicle/day		g/trip		g/mi		g/mi		g/mi		g/mi		g/vehicle/day		g/trip		g/mi		g/mi													
One-Way Trips				mi				g/mi tot mi		g/trip tot trip		g/vehicle/day tot veh		ROG_RUNEX		ROG_IDLEX		ROG_STREX		ROG_HOTSOAK		ROG_RUNLOSS		ROG_RESTLOSS		ROG_DIURN		NOx_RUNEX		NOx_IDLEX		NOx_STREX		PM2.5_RUNEX		PM2.5_IDLEX		PM2.5_STREX		PM2.5_PMTW		PM2.5_PMBW		PM10_RUNEX		PM10_IDLEX		PM10_STREX		PM10_PMTW		PM10_PMBW	
3	LDA	GAS	17026	10.8	183875.4	17026	8513	4256	1.10E-03	0.00E+00	4.65E-03	1.90E-03	4.22E-03	1.70E-03	1.70E-03	7.60E-03	0.00E+00	3.72E-03	3.47E-04	0.00E+00	3.34E-05	4.05E-04	3.19E-03	3.77E-04	0.00E+00	3.63E-05	1.62E-03	7.45E-03																									
4	LDT1	GAS	8513	10.8	91937.7	8513	4256	1.92E-03	0.00E+00	2.93E-03	1.36E-03	4.97E-03	1.30E-03	1.36E-03	7.03E-03	0.00E+00	2.24E-03	2.03E-04	0.00E+00	1.94E-05	2.03E-04	1.60E-03	2.21E-04	0.00E+00	2.11E-05	8.11E-04	3.72E-03																										
5	LDT2	GAS	8513	10.8	91937.7	8513	4256	1.51E-03	0.00E+00	2.98E-03	1.04E-03	3.66E-03	1.17E-03	1.07E-03	6.44E-03	0.00E+00	2.62E-03	1.72E-04	0.00E+00	1.58E-05	2.03E-04	1.60E-03	1.87E-04	0.00E+00	1.72E-05	8.11E-04	3.72E-03																										
6	HHDT	DSL	6436	7.3	46982.8	6436	3218	4.53E-03	8.97E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.54E-01	1.62E-01	1.62E-02	1.66E-03	1.70E-04	0.00E+00	4.50E-04	1.32E-03	1.74E-03	1.78E-04	0.00E+00	1.80E-03	3.09E-03																										
7	MHDT	DSL	6436	7.3	46982.8	6436	3218	4.48E-03	4.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-01	3.55E-02	1.24E-02	1.90E-03	6.17E-05	0.00E+00	1.55E-04	2.89E-03	1.98E-03	6.44E-05	0.00E+00	6.21E-04	6.75E-03																										
8	HHDT	DSL	1490	20	29809	1490	745	2.87E-03	2.08E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-01	3.75E-02	3.74E-03	1.06E-03	3.94E-05	0.00E+00	2.86E-04	8.40E-04	1.10E-03	4.12E-05	0.00E+00	1.14E-03	1.96E-03																										

Sum of Emissions

ton/yr		ROG	NOx	PM10	PM2.5
LDA	GAS	1.63E-02	1.13E-02	9.48E-03	3.98E-03
LDT1	GAS	1.38E-02	9.27E-03	4.78E-03	2.02E-03
LDT2	GAS	1.14E-02	9.06E-03	4.74E-03	1.99E-03
HHDT	DSL	1.35E-02	4.32E-01	6.81E-03	3.61E-03
MHDT	DSL	4.94E-03	1.57E-01	9.42E-03	5.01E-03
HHDT	DSL	4.95E-03	2.02E-01	4.25E-03	2.22E-03
Total		0.0649	0.8212	0.0395	0.0188
lbs/day		0.50	6.32	0.30	0.14

tons/yr	ROG	NOx	PM10	PM2.5
Haul	0.0049	0.2023	0.0042	0.0022
Vendor	0.0184	0.5892	0.0162	0.0086
Worker	0.0415	0.0297	0.0190	0.0080

lbs/day	ROG	NOx	PM10	PM2.5
Haul	0.0381	1.5565	0.0327	0.0171
Vendor	0.1418	4.5323	0.1248	0.0663
Worker	0.3194	0.2281	0.1462	0.0614

Delivery Truck Idling Emissions

EMFAC2017 Output

Source: EMFAC2017 (v1.0.3) Emission Rates

Region Type: County

Region: San Francisco

Calendar Year: 2022

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: g/hour for idling

calendar_year	season_month	sub_area	vehicle_class	process	pollutant	emission_rate (g/hr)
2022	Annual	San Francisco (SF)	MHDT	IDLEX	ROG	1.280504516
2022	Annual	San Francisco (SF)	MHDT	IDLEX	NOx	50.10049466
2022	Annual	San Francisco (SF)	MHDT	IDLEX	PM2.5	0.086870176
2022	Annual	San Francisco (SF)	MHDT	IDLEX	PM10	0.090798059
2022	Annual	San Francisco (SF)	MHDT	IDLEX	CO2	6545.594513
2022	Annual	San Francisco (SF)	HHDT	IDLEX	ROG	2.087351029
2022	Annual	San Francisco (SF)	HHDT	IDLEX	NOx	40.82267312
2022	Annual	San Francisco (SF)	HHDT	IDLEX	PM2.5	0.043114552
2022	Annual	San Francisco (SF)	HHDT	IDLEX	PM10	0.045064001
2022	Annual	San Francisco (SF)	HHDT	IDLEX	CO2	6160.228305

Emissions Calcs

POUNDS PER DAY					
Delivery Truck Trips					
Daily Delivery and Haul Trips		55			
Idling Time per Trip (hours)		0.25			
Fleet Mix		ROG	NOx	PM10	PM2.5
MHDT	DSL	0.5	0.0000097	0.0003813	0.0000007
HHDT	DSL	0.5	0.0000159	0.0003107	0.0000003
Total Daily Truck Idling Emissions (pounds)		0.0000256	0.0006920	0.0000010	0.0000010

Idling time was assumed to be 15 minutes per trip, consistent with CARB's Airborne Toxic Control Measure to limit diesel-fueled commercial motor vehicle idling per Title 13, California Code of Regulations, chapter 2485, July 2004.

530 Sansome Street - 2023 Construction Emissions

Tons	Pounds	Grams
	1	2000
	1	907185
		453.6

Year	Work Days
2023	260

Mile	Feet
1	5280

Construction On-Road Trips

	Worker One-Way Trips	Vendor One-Way Trips	Hauling One-Way Trips	Work Days per Phase	Annual Worker Trips	Annual Vendor Trips
Phase						
Building Constr.	109	44	0	260	28340	11440

	PhaseStartDate	PhaseEndDate	Work Days in 2023
Building Constr.	1/1/2023	12/31/2023	260

	Trips Lengths (mi)
Worker	10.8
Vendor	7.3
Hauling	20

EMFAC2017 Output

EMFAC2017 (v1.0.2) Emission Rates

Region Type: County

Region: SAN FRANCISCO

Calendar Year: 2023

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN
SAN FRANCISCO	2023	LDA	Aggregated	Aggregated	GAS	161367.5254	5500029.786	761670.7597	0.033455291	0	0.186203565	0.001635011	0	0.001709662	0.002000001	0.015750005	0.001778213	0	0.001859367	0.008000002	0.036750011	0.008975291	0	0.225953357	0.094729662	0.215898681	0.169402221	0.16819115
SAN FRANCISCO	2023	LDT1	Aggregated	Aggregated	GAS	17686.48377	532518.1594	82418.29182	0.060488404	0	0.222937637	0.001894801	0	0.001957487	0.002000001	0.015750005	0.002060742	0	0.002128891	0.008000002	0.036750011	0.016255265	0	0.282787232	0.134725932	0.499989967	0.26059694	0.26833577
SAN FRANCISCO	2023	LDT2	Aggregated	Aggregated	GAS	54830.80016	1673679.19	257591.6391	0.056078628	0	0.258130678	0.001640123	0	0.001641938	0.002000001	0.015750005	0.001783773	0	0.001785736	0.008000002	0.036750011	0.013316126	0	0.294023608	0.106637656	0.384404749	0.245535895	0.22232181
SAN FRANCISCO	2023	MHDT	Aggregated	Aggregated	DSL	4267.480541	240025.9423	37523.1845	1.524749952	8.409482833	2.153423708	0.006972861	0.007900669	0	0.003000001	0.055860016	0.007288143	0.008257902	0	0.012000003	0.130340037	0.011598675	0.110976454	0	0	0	0	0
SAN FRANCISCO	2023	HHDT	Aggregated	Aggregated	DSL	1101.651548	75402.68465	7731.816001	4.068075173	42.92627593	2.551924879	0.023079352	0.042840192	0	0.008691516	0.025553057	0.024122898	0.044777236	0	0.034766064	0.0596238	0.036013464	2.549889813	0	0	0	0	0

CONSTRUCTION

Project Background Information

Background Info
Worker Trips
Total annual one-way trips
Trip Length
Vendor Trips
Total annual one-way trips
Trip Length
Haul Trips
Total annual one-way trips
Trip Length

Fleet Mix
Worker Trips
LDA
LDT1
LDT2
Vendor Trips
HHDT
MHDT
Haul Trips
HHDT

Emissions Calcs

		g/ton		907185		ROG EMISSIONS TONS PER YEAR										NOx EMISSIONS TONS PER YEAR					PM2.5 EMISSIONS TONS PER YEAR					PM10 EMISSIONS TONS PER YEAR															
						ROG		ROG		ROG		ROG		ROG		ROG		NOx		NOx		NOx		PM2.5		PM2.5		PM2.5		PM2.5		PM10		PM10		PM10		PM10			
						g/mi		g/vehicle/day		g/trip		g/trip		g/vehicle/day		g/vehicle/day		g/mi		g/vehicle/day		g/trip		g/mi		g/vehicle/day		g/trip		g/mi		g/vehicle/day		g/trip		g/mi					
		One-Way Trips		mi		g/mi		g/vehicle/day		g/trip		g/trip		g/vehicle/day		g/vehicle/day		NOx_RUNEX		NOx_IDLEX		NOx_STREX		PM2.5_RUNEX		PM2.5_IDLEX		PM2.5_STREX		PM2.5_PMTW		PM2.5_PMBW		PM10_RUNEX		PM10_IDLEX		PM10_PMTW		PM10_PMBW	
3	LDA	GAS	14170	10.8	153036.0	14170	7085	1.51E-03	0.00E+00	3.53E-03	1.48E-03	3.37E-03	1.32E-03	1.31E-03	5.64E-03	0.00E+00	2.91E-03	2.76E-04	0.00E+00	2.67E-05	3.37E-04	2.66E-03	3.00E-04	0.00E+00	2.90E-05	1.35E-03	6.20E-03														
4	LDT1	GAS	7085	10.8	76518.0	7085	3543	1.37E-03	0.00E+00	2.21E-03	1.05E-03	3.90E-03	1.02E-03	1.05E-03	5.10E-03	0.00E+00	1.74E-03	1.60E-04	0.00E+00	1.53E-05	1.69E-04	1.33E-03	1.74E-04	0.00E+00	1.66E-05	6.75E-04	3.10E-03														
5	LDT2	GAS	7085	10.8	76518.0	7085	3543	1.12E-03	0.00E+00	2.30E-03	8.33E-04	3.00E-03	9.59E-04	8.68E-04	4.73E-03	0.00E+00	2.02E-03	1.38E-04	0.00E+00	1.28E-05	1.69E-04	1.33E-03	1.50E-04	0.00E+00	1.39E-05	6.75E-04	3.10E-03														
6	HHDT	DSL	5720	7.3	41756	5720	2860	1.66E-03	8.04E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.87E-01	1.35E-01	1.61E-02	1.06E-03	1.35E-04	0.00E+00	4.00E-04	1.18E-03	1.11E-03	1.41E-04	0.00E+00	1.60E-03	2.74E-03														
7	MHDT	DSL	5720	7.3	41756	5720	2860	5.34E-04	3.50E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.02E-02	2.65E-02	1.36E-02	3.21E-04	2.49E-05	0.00E+00	1.38E-04	2.57E-03	3.35E-04	2.60E-05	0.00E+00	5.52E-04	6.00E-03														
8	HHDT	DSL	0	20	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00													

Sum of Emissions

ton/yr		ROG	NOx	PM10	PM2.5
LDA	GAS	1.25E-02	8.55E-03	7.88E-03	3.30E-03
LDT1	GAS	1.06E-02	6.84E-03	3.96E-03	1.67E-03
LDT2	GAS	9.08E-03	6.75E-03	3.94E-03	1.65E-03
HHDT	DSL	9.70E-03	3.39E-01	5.60E-03	2.77E-03
MHDT	DSL	8.84E-04	1.10E-01	6.91E-03	3.06E-03
HHDT	DSL	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total		0.0428	0.4711	0.0283	0.0124
lbs/day		0.33	3.62	0.22	0.10

tons/yr	ROG	NOx	PM10	PM2.5
Haul	0.0000	0.0000	0.0000	0.0000
Vendor	0.0106	0.4489	0.0125	0.0058
Worker	0.0322	0.0221	0.0158	0.0066
lbs/day	ROG	NOx	PM10	PM2.5
Haul	0.0000	0.0000	0.0000	0.0000
Vendor	0.0814	3.4534	0.0962	0.0448
Worker	0.2478	0.1703	0.1214	0.0509

Delivery Truck Idling Emissions

EMFAC2017 Output

Source: EMFAC2017 (v1.0.3) Emission Rates

Region Type: County

Region: San Francisco

Calendar Year: 2023

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: g/hour for idling

calendar_year	season	month	sub_area	vehicle_class	process	pollutant	emission_rate (g/hr)
2023	Annual		San Francisco (SF)	MHDT	IDLEX	ROG	1.149440815
2023	Annual		San Francisco (SF)	MHDT	IDLEX	NOx	41.4257563
2023	Annual		San Francisco (SF)	MHDT	IDLEX	PM2.5	0.038869778
2023	Annual		San Francisco (SF)	MHDT	IDLEX	PM10	0.040627297
2023	Annual		San Francisco (SF)	MHDT	IDLEX	CO2	6345.102725
2023	Annual		San Francisco (SF)	HHDT	IDLEX	ROG	2.081528119
2023	Annual		San Francisco (SF)	HHDT	IDLEX	NOx	38.1231379
2023	Annual		San Francisco (SF)	HHDT	IDLEX	PM2.5	0.038810196
2023	Annual		San Francisco (SF)	HHDT	IDLEX	PM10	0.040565021
2023	Annual		San Francisco (SF)	HHDT	IDLEX	CO2	5974.54793

Emissions Calcs

							POUNDS PER DAY			
Delivery Truck Trips										
Daily Delivery and Haul Trips										
Idling Time per Trip (hours)							0.25			
Fleet Mix							ROG	NOx	PM10	PM2.5
MHDT	DSL	0.5	0.0000070	0.0002511	0.0000002	0.0000002				
HHDT	DSL	0.5	0.0000126	0.0002311	0.0000002	0.0000002				
Total Daily Truck Idling Emissions (pounds)							0.0000196	0.0004823	0.0000005	0.0000005

Idling time was assumed to be 15 minutes per trip, consistent with CARB's Airborne Toxic Control Measure to limit diesel-fueled commercial motor vehicle idling per Title 13, California Code of Regulations, chapter 2485, July 2004.

530 Sansome Street - 2024 Construction Emissions

Tons	Pounds	Grams
	1	2000
	1	453.6

Year	Work Days
1	58

Mile	Feet
1	5280

Construction On-Road Trips

Phase	Worker One-Way Trips	Vendor One-Way Trips	Hauling One-Way Trips	Work Days per Phase	Annual Worker Trips	Annual Vendor Trips
Building Constr.	109	44	0	58	6322	2552
Paving	5	0	0	20	100	0
TOTAL					6422	2552

	PhaseStartDate	PhaseEndDate	Work Days in 2024
Building Const.	1/1/2024	3/20/2024	58
Paving	3/1/2024	3/28/2024	20

	Trips Lengths (mi)
Worker	10.8
Vendor	7.3
Hauling	20

EMFAC2017 Output

EMFAC2017 (v1.0.2) Emission Rates

Region Type: County

Region: SAN FRANCISCO

Calendar Year: 2024

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN
SAN FRANCISCO	2024	LDA	Aggregated	Aggregated	GAS	163734.1006	5508576.903	773124.2786	0.030194596	0	0.17514932	0.001568021	0	0.001647092	0.002000001	0.015750005	0.001705366	0	0.001791363	0.008000002	0.036750011	0.007823913	0	0.206509031	0.089299453	0.208352778	0.159252221	0.15663952
SAN FRANCISCO	2024	LDT1	Aggregated	Aggregated	GAS	18144.31553	537839.8913	84533.10791	0.053247498	0	0.208691309	0.001796468	0	0.001860536	0.002000001	0.015750005	0.001953813	0	0.002023483	0.008000002	0.036750011	0.014026058	0	0.256574038	0.126077917	0.473440604	0.246112044	0.24919975
SAN FRANCISCO	2024	LDT2	Aggregated	Aggregated	GAS	56108.06507	1684641.33	263352.4596	0.049930964	0	0.239214876	0.001591358	0	0.001603205	0.002000001	0.015750005	0.001730745	0	0.001743627	0.008000002	0.036750011	0.011923542	0	0.272821995	0.103075037	0.378813669	0.242449531	0.21723132
SAN FRANCISCO	2024	MHDT	Aggregated	Aggregated	DSL	4559.674657	252707.8914	40097.34972	1.525212438	7.975604041	2.165184647	0.006958156	0.006637677	0	0.003000001	0.055860016	0.007272773	0.006937804	0	0.012000003	0.130340037	0.011374366	0.107868307	0	0	0	0	0
SAN FRANCISCO	2024	HHDT	Aggregated	Aggregated	DSL	1104.365622	76354.37625	7858.384306	3.94352033	42.3782252	2.590633821	0.023106733	0.040549544	0	0.008690351	0.025549633	0.024151517	0.042383014	0	0.034761406	0.05961581	0.035382065	2.588336207	0	0	0	0	0

CONSTRUCTION

Project Background Information

Background Info
Worker Trips
Total annual one-way trips
Trip Length
Vendor Trips
Total annual one-way trips
Trip Length
Haul Trips
Total annual one-way trips
Trip Length

Fleet Mix
Worker Trips
LDA
LDT1
LDT2
Vendor Trips
HHDT
MHDT
Haul Trips
HHDT

Emissions Calcs

							ROG EMISSIONS TONS PER YEAR								NOx EMISSIONS TONS PER YEAR					PM2.5 EMISSIONS TONS PER YEAR					PM10 EMISSIONS TONS PER YEAR				
g/ton		907185					ROG	ROG	ROG	ROG	ROG	ROG	ROG	NOx	NOx	NOx	PM2.5	PM2.5	PM2.5	PM2.5	PM2.5	PM10	PM10	PM10	PM10				
				g/mi	g/trip	g/vehicle/day	g/mi	g/vehicle/day	g/trip	g/trip	g/vehicle/day	g/vehicle/day	g/mi	g/vehicle/day	g/trip	g/mi	g/vehicle/day	g/trip	g/mi	g/vehicle/day	g/trip	g/mi	g/vehicle/day	g/trip	g/mi	g/vehicle/day			
One-Way Trips		mi		tot mi	tot trip	tot veh	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW			
3	LDA	GAS	3211	10.8	34678.8	3211	1606	2.99E-04	0.00E+00	7.31E-04	3.16E-04	7.37E-04	2.82E-04	2.77E-04	1.15E-03	0.00E+00	6.20E-04	5.99E-05	0.00E+00	5.83E-06	7.65E-05	6.02E-04	6.52E-05	0.00E+00	6.34E-06	3.06E-04	1.40E-03		
4	LDT1	GAS	1606	10.8	17339.4	1606	803	2.68E-04	0.00E+00	4.54E-04	2.23E-04	8.38E-04	2.18E-04	2.21E-04	1.02E-03	0.00E+00	3.69E-04	3.43E-05	0.00E+00	3.29E-06	3.82E-05	3.01E-04	3.73E-05	0.00E+00	3.58E-06	1.53E-04	7.02E-04		
5	LDT2	GAS	1606	10.8	17339.4	1606	803	2.28E-04	0.00E+00	4.83E-04	1.82E-04	6.70E-04	2.15E-04	1.92E-04	9.54E-04	0.00E+00	4.23E-04	3.04E-05	0.00E+00	2.84E-06	3.82E-05	3.01E-04	3.31E-05	0.00E+00	3.09E-06	1.53E-04	7.02E-04		
6	HHDT	DSL	1276	7.3	9314.8	1276	638	3.63E-04	1.82E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.05E-02	2.98E-02	3.64E-03	2.37E-04	2.85E-05	0.00E+00	8.92E-05	2.62E-04	2.48E-04	2.98E-05	0.00E+00	3.57E-04	6.12E-04		
7	MHDT	DSL	1276	7.3	9314.8	1276	638	1.17E-04	7.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-02	5.61E-03	3.05E-03	7.14E-05	4.67E-06	0.00E+00	3.08E-05	5.74E-04	7.47E-05	4.88E-06	0.00E+00	1.23E-04	1.34E-03		
8	HHDT	DSL	0	20	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		

Sum of Emissions

ton/yr		ROG	NOx	PM10	PM2.5
LDA	GAS	2.64E-03	1.77E-03	1.78E-03	7.44E-04
LDT1	GAS	2.22E-03	1.39E-03	8.96E-04	3.77E-04
LDT2	GAS	1.97E-03	1.38E-03	8.91E-04	3.73E-04
HHDT	DSL	2.18E-03	7.39E-02	1.25E-03	6.17E-04
MHDT	DSL	1.93E-04	2.43E-02	1.54E-03	6.80E-04
HHDT	DSL	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total		0.0092	0.1028	0.0064	0.0028
lbs/day		0.32	3.54	0.22	0.10

tons/yr	ROG	NOx	PM10	PM2.5
Haul	0.0000	0.0000	0.0000	0.0000
Vendor	0.0024	0.0983	0.0028	0.0013
Worker	0.0068	0.0045	0.0036	0.0015
lbs/day	ROG	NOx	PM10	PM2.5
Haul	0.0000	0.0000	0.0000	0.0000
Vendor	0.0819	3.3881	0.0961	0.0448
Worker	0.2357	0.1565	0.1231	0.0515

Delivery Truck Idling Emissions

EMFAC2017 Output

Source: EMFAC2017 (v1.0.3) Emission Rates

Region Type: County

Region: San Francisco

Calendar Year: 2024

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: g/hour for idling

calendar_year	season_month	sub_area	vehicle_class	process	pollutant	emission_rate (g/hr)
2024	Annual	San Francisco (SF)	MHDT	IDLEX	ROG	1.107605157
2024	Annual	San Francisco (SF)	MHDT	IDLEX	NOx	39.65158474
2024	Annual	San Francisco (SF)	MHDT	IDLEX	PM2.5	0.032958375
2024	Annual	San Francisco (SF)	MHDT	IDLEX	PM10	0.034448606
2024	Annual	San Francisco (SF)	MHDT	IDLEX	CO2	6241.578857
2024	Annual	San Francisco (SF)	HHDT	IDLEX	ROG	2.083640088
2024	Annual	San Francisco (SF)	HHDT	IDLEX	NOx	37.20507784
2024	Annual	San Francisco (SF)	HHDT	IDLEX	PM2.5	0.036175215
2024	Annual	San Francisco (SF)	HHDT	IDLEX	PM10	0.037810898
2024	Annual	San Francisco (SF)	HHDT	IDLEX	CO2	5897.625468

Emissions Calcs

POUNDS PER DAY					
Delivery Truck Trips					
Daily Delivery and Haul Trips					
Idling Time per Trip (hours)					
Fleet Mix					
MHDT	DSL	0.5	0.0000067	0.0002404	0.0000002
HHDT	DSL	0.5	0.0000126	0.0002256	0.0000002
Total Daily Truck Idling Emissions (pounds)					
0.0000193 0.0004660 0.0000004 0.0000004					

Idling time was assumed to be 15 minutes per trip, consistent with CARB's Airborne Toxic Control Measure to limit diesel-fueled commercial motor vehicle idling per Title 13, California Code of Regulations, chapter 2485, July 2004.

A4 EMFAC2017 Output and Calculations: Proposed Project Operational On-Road Emissions

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A5 EMFAC2017 Output and Calculations: Residential Variant Operational On-Road Emissions Year

530 Sansome Street - Proposed Project - 2024 Operational Emissions

tons	Pounds	grams
1	2000	907185
1		453.6

Feet	Operational Days
1	303

mile	Feet
1	5280

Operational Trips			
	Daily One-Way Trips	One-way Annual Trips	Trip Length (mi)
Autos/Taxis/TNC	302	117530	2.3
Delivery Trucks	16	4992	2.3

Trip Data are from the Transportation Study, Table 11 for vehicles, Table 15 for freight deliveries
truck delivery trip origin from LAKEWOOD default; assume truck deliveries 6 days/week

EMFAC2017 Output																													
EMFAC2017 (v1.0.2) Emission Rates																													
Region Type: County																													
Region: SAN FRANCISCO																													
Calendar Year: 2024																													
Season: Annual																													
Vehicle Classification: EMFAC2007 Categories																													
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/rip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.																													
Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSQAOK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN	
SAN FRANCISCO	2024	LDA	Aggregated	Aggregated	GAS	163734.1006	5508576.903	773124.2786	0.030194596	0	0.17514932	0.001588021	0	0.001647092	0.002000001	0.015750005	0.001705366	0	0.001791363	0.008000002	0.036750011	0.007823913	0	0.206509031	0.089299453	0.208352778	0.159252221	0.15663952	
SAN FRANCISCO	2024	LDA	Aggregated	Aggregated	DSL	2245.991202	73372.38859	10476.65414	0.054723934	0	0	0.006078612	0	0	0.002000001	0.015750005	0.00632346	0	0	0.008000002	0.036750011	0.018685539	0	0	0	0	0	0	
SAN FRANCISCO	2024	LDA	Aggregated	Aggregated	ELEC	5004.454312	19538.1059	24640.17355	0	0	0	0	0	0.002000001	0.015750005	0	0	0	0.008000002	0.036750011	0.016197892	0	0	0	0	0	0	0	
SAN FRANCISCO	2024	LDT1	Aggregated	Aggregated	GAS	18144.31553	537839.8913	84533.10791	0.053247498	0	0.208691309	0.001796468	0	0.001860536	0.002000001	0.015750005	0.001953813	0	0.0002023483	0.008000002	0.036750011	0.014026058	0	0.256574038	0.126077917	0.473440604	0.246112044	0.24919975	
SAN FRANCISCO	2024	LDT1	Aggregated	Aggregated	DSL	182.5208026	152.5494388	36.0946578	0.923345616	0	0	0.117468856	0	0	0.002000001	0.015750005	0.012789277	0	0	0.008000002	0.036750011	0.016197892	0	0	0	0	0	0	
SAN FRANCISCO	2024	LDT1	Aggregated	Aggregated	ELEC	202.3157893	8273.533315	1009.227447	0	0	0	0	0	0	0.002000001	0.015750005	0	0	0	0.008000002	0.036750011	0.015995484	0	0	0	0	0	0	
SAN FRANCISCO	2024	LDT2	Aggregated	Aggregated	GAS	56108.06507	1684641.33	263352.4596	0.049930964	0	0.239214876	0.001591358	0	0.001603205	0.002000001	0.015750005	0.001730745	0	0.001743627	0.008000002	0.036750011	0.011923542	0	0.272821995	0.103075037	0.378813669	0.242449531	0.21723132	
SAN FRANCISCO	2024	LDT2	Aggregated	Aggregated	DSL	598.2141521	18953.02185	2869.618118	0.04139856	0	0	0.004905258	0	0	0.002000001	0.015750005	0.005127052	0	0	0.008000002	0.036750011	0.024492649	0	0	0	0	0	0	
SAN FRANCISCO	2024	LDT2	Aggregated	Aggregated	ELEC	869.0407731	25403.37938	4340.460832	0	0	0	0	0	0	0.002000001	0.015750005	0	0	0	0.008000002	0.036750011	0	0	0	0.004888026	0	0.003329798	0.01193709	0
SAN FRANCISCO	2024	MCY	Aggregated	Aggregated	GAS	10824.88122	70626.99721	21649.76244	1.187092788	0	0.275941066	0.002230161	0	0.002818997	0.001	0.060540001	0.002384984	0	0.002993381	0.004000001	0.011760003	2.800348026	0	1.986570317	0.778967007	2.280819528	1.022949883	1.58271733	
SAN FRANCISCO	2024	MDV	Aggregated	Aggregated	GAS	29933.21275	1003721.835	141548.0335	0.050049995	0	0.243625713	0.001689702	0	0.001689702	0.002000001	0.015750005	0.001771446	0	0.000837663	0.008000002	0.036750011	0.012297275	0	0.288446168	0.09508028	0.340507215	0.239760723	0.21576097	
SAN FRANCISCO	2024	MDV	Aggregated	Aggregated	DSL	994.4433375	35161.12803	4798.570526	0.03347392	0	0	0.003984516	0	0	0.002000001	0.015750005	0.001646678	0	0	0.008000002	0.036750011	0.015995484	0	0	0	0	0	0	
SAN FRANCISCO	2024	MDV	Aggregated	Aggregated	ELEC	465.6163304	14266.46023	2361.897603	0	0	0	0	0	0	0.002000001	0.015750005	0	0	0	0.008000002	0.036750011	0.015995484	0	0	0	0	0	0	
SAN FRANCISCO	2024	MH	Aggregated	Aggregated	GAS	362.5762447	4192.615487	6.37212752	0.239057277	0	0.317164693	0.001517209	0	0.000364416	0.003000001	0.058600016	0.001650103	0	0.000396335	0.012000003	0.130340037	0.039935062	0	0.117732356	0.052709274	1.587708632	0.021566175	0.0526883	
SAN FRANCISCO	2024	MH	Aggregated	Aggregated	DSL	142.2054296	1614.614115	14.32054296	2.90364808	0	0	0.040234039	0	0	0.004000001	0.058600016	0.042052344	0	0.016000005	0.130340037	0.078001995	0	0	0	0	0	0		
SAN FRANCISCO	2024	LDH1	Aggregated	Aggregated	GAS	63405.958369	145205.3312	63407.43832	0.152121107	0.036874138	0.48398951	0.001931862	0	0.002760009	0.002000001	0.015750005	0.002102049	0	0.000347095	0.008000002	0.076440022	0.032630916	0.422843801	0.097700282	0.088151617	0.611531119	0.019649726	0.03070234	
SAN FRANCISCO	2024	LDH1	Aggregated	Aggregated	DSL	2253.840821	90672.9642	28350.4822	0.64878421	1.636389753	0	0.03263746	0.026483773	0	0.003000001	0.032760009	0.013863474	0.027681251	0	0.012000003	0.076440022	0.131077711	0.109759705	0	0	0	0	0	
SAN FRANCISCO	2024	LDH2	Aggregated	Aggregated	GAS	537.9041039	18436.21298	8013.969671	0.166438053	0.035743644	0.467402188	0.001896672	0	0.000292471	0.002000001	0.038220011	0.002062804	0	0.000318089	0.008000002	0.089180026	0.025065515	0.409915814	0.094138076	0.090126935	0.0640533108	0.019037801	0.03000676	
SAN FRANCISCO	2024	LDH2	Aggregated	Aggregated	DSL	965.7201108	36643.24526	12147.54412	0.618873996	1.743889617	0	0.016935023	0.002704979	0	0.003000001	0.038220011	0.017703841	0.028722861	0	0.012000003	0.089180026	0.131317418	0.109759705	0	0	0	0	0	
SAN FRANCISCO	2024	MDH	Aggregated	Aggregated	GAS	516.7564417	24640.80273	10339.26289	0.08874401	0.367623313	0.001115172	0	0.000384725	0.003000001	0.00208936	0.005860016	0.001208936	0	0.00148423	0.012000003	0.130340037	0.046488278	1.016472188	0.194667935	0.079108893	0.451959261	0.019400815	0.029991301	
SAN FRANCISCO	2024	MHDT	Aggregated	Aggregated	GAS	4559.674657	252707.8914	40097.34972	1.525212438	7.975604041	2.165184647	0.006958156	0.000637677	0	0.003000001	0.058600016	0.007277773	0.008937804	0	0.012000003	0.130340037	0.011374366	0.107868307	0	0	0	0	0	
SAN FRANCISCO	2024	MHDT	Aggregated	Aggregated	DSL	11280.26317	129.8815775	3.545458581	0	0.00912594	0	0.001324498	0	0.000752367	0.002000001	0.026000008	0.004437249	0	0.000812627	0.002000003	0.061740018	0.418920073	0	0.002217094	0.137658072	0.0393926249	0.031289675	0.04836504	
SAN FRANCISCO	2024	MHDT	Aggregated	Aggregated	ELEC	1104.365622	78364.384306	24378.2525	2.590633821	3.94352033	0.004954954	0.000680351	0	0.003680314	0.002549633	0.004151517	0.042383014	0	0.034761406	0.05961581	0.035382005	2.588336207	0	0	0	0	0	0	
SAN FRANCISCO	2024	MHDT	Aggregated	Aggregated	NG	215.2692661	8776.611325	839.5501376	1.323389572	20.33353458	0	0.004253983	0.023134136	0	0.009000003	0.026460008	0.004446329	0.024180159	0	0.036000001	0.061740018	0.123038428	0.035890573	0	0	0	0	0	

OPERATION

Truck & Employee Vehicle Aggregate Speed On-Road Emissions

EMFAC2017 Output - Worker and Truck Trips (Aggregate Speed)

Project Background Information	
Background Info	
Autos/Taxis/TNC	
Annual VMT from CalEEMod	736,404.0
Annual One-Way Trips from TS	117530
Delivery Trucks	
Annual one-way trips	4992
Trip Length	2.3

Fleet Mix	
Autos/Taxis/TNC	
LDA	GAS 60.03%
	DSL 0.80%
	ELEC 2.13%
LDT1	GAS 5.86%
	DSL 0.00%
	ELEC 0.00%
LDT2	GAS 18.36%
	DSL 0.21%
	ELEC 0.28%
MCY	GAS 0.77%
MDV	GAS 10.34%
	DSL 0.38%
	ELEC 0.16%
Delivery trucks	MHDT DSL 50.00%
Delivery trucks	MHDT DSL 50.00%

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate		Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Sunday		
Cords/Townhouse High Rise	322.58	322.80	296.00	726.404
Other Asphalt Surfaces	0.00	0.00	0.00	726.404
User Defined Industrial	0.00	0.00	0.00	
Total	322.58	322.80	296.00	726.404

Row Labels	Sum of VMT
LDA	62.96%
GAS	60.03%
DSL	0.80%
ELEC	2.13%
LDT1	5.95%
GAS	5.86%
DSL	0.21%
ELEC	0.28%
LDT2	18.84%
GAS	18.36%
DSL	0.21%
ELEC	0.28%
MCY	0.77%
GAS	0.77%
MDV	11.48%
GAS	10.34%
DSL	0.38%
ELEC	0.16%
Grand Total	100.00%

Emissions Calc		ROG EMISSIONS - TONS PER YEAR										NOx EMISSIONS - TONS PER YEAR					PM2.5 EMISSIONS - TONS PER YEAR					PM10 EMISSIONS - TONS PER YEAR				
g/ton	907185	Annual VMT	g/mi tot mi	g/rip tot one-way trips	g/vehicle/day tot veh	ROG	ROG	ROG	ROG	ROG	ROG	ROG	ROG	NOx	NOx	NOx	PM2.5	PM2.5	PM2.5	PM2.5	PM2.5	PM10	PM10	PM10	PM10	
						g/mi ROG_RUNEX	g/vehicle/day ROG_IDLEX	g/rip ROG_STREX	g/rip ROG_HOTSQAOK	g/rip ROG_RUNLOSS	g/vehicle/day ROG_RESTLOSS	g/vehicle/day ROG_DIURN	g/mi NOx_RUNEX	g/mi NOx_IDLEX	g/rip NOx_STREX	g/mi PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW	g/mi PM10_RUNEX	g/vehicle/day PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	
3 LDA	GAS	435683	435682.5	70554	35277	3.79E-03	0.00E+00	1.61E-02	6.94E-03	1.63E-02	6.19E-03	6.09E-03	1.44E-02	0.00E+00	1.39E-02	7.54E-04	0.00E+00	1.28E-04	9.61E-04	7.57E-04	8.20E-04	0.00E+00	1.39E-04	3.85E-04	1.77E-02	
4 DSL	GAS	3808	5808.2	940	470	1.20E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.50E-04	0.00E+00	0.00E+00	3.89E-05	0.00E+00	0.00E+00	1.28E-05	1.01E-04	4.07E-05	0.00E+00	0.00E+00	5.12E-05	2.35E-04	
5 ELEC	GAS	15463.1	15463.1	2502	1251	0.00E+00	0.00E+00	0.00E+00	1.35E-05	0.00E+00	4.59E-06	1.65E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.41E-05	2.68E-04	0.00E+00	0.00E+00	0.00E+00	1.36E-04	6.26E-04	
6 LDL1	GAS	42576	42575.8	6889	3444	6.58E-04	0.00E+00	1.59E-03	9.57E-04	3.60E-03	9.34E-04	9.46E-04	2.50E-03	0.00E+00	1.58E-03	8.43E-05	0.00E+00	1.41E-05	9.39E-05	7.39E-04	9.17E-05	0.00E+00	1.54E-05	3.75E-04	1.72E-03	
7 DSL	GAS	12	12.1	2	1	2.14E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-06	0.00E+00	0.00E+00	1.26E-06	0.00E+00	0.00E+00	2.66E-06	2.14E-06	1.63E-06	0.00E+00	0.00E+00	4.89E-07	1.49E-06	
8 ELEC	GAS	655	654.9	106	53	0.00E+00	0.00E+00	5.71E-07	0.00E+00	1.94E-07	9.97E-07	9.97E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.46E-14	1.14E-05	0.00E+00	0.00E+00	0.00E+00	5.78E-06	2.65E-05	
9 LDL2	GAS	133357	133357.3	21577	10781	1.75E-03	0.00E+00	6.49E-03	2.45E-03	9.01E-03	2.88E-03	2.58E-03	6.59E-03	0.00E+00	5.69E-03	2.31E-04	0.00E+00	3.81E-05	2.94E-04	2.32E-03	2.54E-04	0.00E+00	4.15E-05	1.18E-04	5.40E-03	
10 DSL	GAS	1500	1500.3	243	122	4.05E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.85E-05	0.00E+00	0.00E+00	8.11E-06	0.00E+00	0.00E+00	3.31E-06	2.60E-05	8.48E-06	0.00E+00	0.00E+00	1.32E-05	6.08E-05	
11 ELEC	GAS	20313	20312.9	325	163	0.00E+00	0.00E+00	1.57E-06	5.91E-07	2.14E-06	5.10E-07	5.10E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.43E-06	3.49E-06	3.49E-06	0.00E+00	0.00E+00	1.77E-06	8.43E-06	
12 MCY	GAS	5591	5590.9	805	402	1.77E-02	0.00E+00	1.98E-03	7.77E-04	2.27E-03	5.10E-04	7.89E-04	3.72E-03	0.00E+00	2.75E-04	1.37E-05	0.00E+00	2.81E-06	1.65E-06	3.11E-05	1.47E-05	0.00E+00	2.98E-06	2.47E-05	7.75E-05	
13 MDV	GAS	79455	79454.3	12856	6428	1.08E-03	0.00E+00	4.09E-03	1.35E-03	4.83E-03	1.70E-03	1.53E-03	4.35E-03	0.00E+00	3.43E-03	1.43E-04	0.00E+00	2.39E-05	1.76E-04	1.38E-03	1.55E-04	0.00E+00	2.60E-05	7.01E-04	3.22E-03	
14 DSL	GAS	2783	2783.4	450	225	4.91E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-04	0.00E+00	0.00E+00	1.22E-05	0.00E+00	6.14E-06	4.83E-05	1.28E-05	0.00E+00	0.00E+00	2.45E-05	1.13E-04		
15 ELEC	GAS	1129	1129.3	183	91	0.00E+00	0.00E+00	9.85E-07	0.00E+00	0.00E+00	3.35E-07	1.20E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-06	1.96E-05	0.00E+00	0.00E+00	0.00E+00	5.96E-06	4.57E-05	
16																										
18 MHDT	DSL	18221	18220.8	58765	29383	2.29E-04	3.89E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.06E-02	2.58E-01	1.40E-01	1.40E-04	2.15E-04	0.00E+00	6.03E-05	1.12E-03	1.46E-04	2.25E-04	0.00E+00	2.41E-04	6.26E-03	
19 HHDT	DSL	18221	18220.8	58765	29383	7.11E-04	3.89E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.92E-02	1.37E-01	1.68E-01	1.46E-04	3.16E-03	0.00E+00	1.75E-05	5.13E-04	4.85E-04	1.37E-03	0.00E+00	6.98E-04	1.62E-03	

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A6 EMFAC2017 Output Files

EMFAC2017 (v1.0.2) Emission Rates

Region Type: County

Region: SAN FRANCISCO

Calendar Year: 2021

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNI	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDI	PM2.5_STI	PM2.5_PM	PM2.5_PM	PM10_RUI	PM10_IDL	PM10_STR	PM10_PM	PM10_PM	CO2_RUNI	CO2_IDLE	CO2_STRE	CH4_RUNI
SAN FRAN	2021	LDA	Aggregate	Aggregate	GAS	156525.5687	5485730	737676.7	0.04254	0	0.212041	0.001797	0	0.001859	0.002	0.01575	0.001954	0	0.002022	0.008	0.03675	282.0829	0	56.85632	0.003054
SAN FRAN	2021	LDA	Aggregate	Aggregate	DSL	2150.12764	74995.65	10054.87	0.086469	0	0	0.009162	0	0	0.002	0.01575	0.009577	0	0	0.008	0.03675	233.3727	0	0	0.001148
SAN FRAN	2021	LDA	Aggregate	Aggregate	ELEC	3437.540513	128234.7	17025.82	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	
SAN FRAN	2021	LDT1	Aggregate	Aggregate	GAS	16761.84806	522112.2	78069.05	0.079851	0	0.256338	0.002137	0	0.002195	0.002	0.01575	0.002324	0	0.002387	0.008	0.03675	329.3509	0	65.87939	0.005116
SAN FRAN	2021	LDT1	Aggregate	Aggregate	DSL	13.38344571	201.2914	46.50751	1.112001	0	0	0.142811	0	0	0.002	0.01575	0.149268	0	0	0.008	0.03675	485.5739	0	0	0.008982
SAN FRAN	2021	LDT1	Aggregate	Aggregate	ELEC	89.96328653	3347.041	443.3604	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	
SAN FRAN	2021	LDT2	Aggregate	Aggregate	GAS	52137.20517	1651684	245279.9	0.072417	0	0.303954	0.001757	0	0.001738	0.002	0.01575	0.001911	0	0.00189	0.008	0.03675	356.8204	0	72.34289	0.004154
SAN FRAN	2021	LDT2	Aggregate	Aggregate	DSL	519.2189144	18224.18	2531.875	0.044856	0	0	0.005151	0	0	0.002	0.01575	0.005384	0	0	0.008	0.03675	326.0688	0	0	0.001148
SAN FRAN	2021	LDT2	Aggregate	Aggregate	ELEC	453.7823347	14192.02	2281.32	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	
SAN FRAN	2021	MCY	Aggregate	Aggregate	GAS	10817.92141	76215.42	21635.84	1.19052	0	0.275651	0.002107	0	0.003233	0.001	0.00504	0.002248	0	0.003419	0.004	0.01176	230.1136	0	62.50205	0.408285
SAN FRAN	2021	MDV	Aggregate	Aggregate	GAS	26173.65712	920124.1	123708	0.079952	0	0.325042	0.001893	0	0.001963	0.002	0.01575	0.002058	0	0.002134	0.008	0.03675	420.4815	0	85.48423	0.004763
SAN FRAN	2021	MDV	Aggregate	Aggregate	DSL	800.2633122	30806.18	3907.27	0.04876	0	0	0.005022	0	0	0.002	0.01575	0.005249	0	0	0.008	0.03675	410.7207	0	0	0.000884
SAN FRAN	2021	MDV	Aggregate	Aggregate	ELEC	155.328691	5144.097	795.3181	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	
SAN FRAN	2021	MH	Aggregate	Aggregate	GAS	305.8361054	3475.46	30.59584	0.407981	0	0.324779	0.00182	0	0.000449	0.003	0.05586	0.001979	0	0.000488	0.012	0.13034	1723.617	0	25.89836	0.016879
SAN FRAN	2021	MH	Aggregate	Aggregate	DSL	109.697929	1292.808	10.96979	3.264754	0	0	0.056621	0	0	0.004	0.05586	0.059181	0	0	0.016	0.13034	1006.945	0	0	0.004027
SAN FRAN	2021	LHDT1	Aggregate	Aggregate	GAS	4210.778474	152494.6	62734.33	0.199021	0.039684	0.531286	0.001921	0	0.000334	0.002	0.03276	0.002089	0	0.000364	0.008	0.07644	1018.383	121.9388	19.10209	0.009155
SAN FRAN	2021	LHDT1	Aggregate	Aggregate	DSL	1786.7713	77205.19	22475.34	1.025117	1.987842	0	0.016535	0.026699	0	0.003	0.03276	0.017283	0.027907	0	0.012	0.07644	541.8335	131.6679	0	0.006409
SAN FRAN	2021	LHDT2	Aggregate	Aggregate	GAS	508.2105804	18182.08	7571.58	0.239536	0.039075	0.521595	0.001942	0	0.000317	0.002	0.03822	0.002113	0	0.000345	0.008	0.08918	1160.681	140.1257	21.79921	0.008756
SAN FRAN	2021	LHDT2	Aggregate	Aggregate	DSL	780.0375104	31735.11	9811.891	0.929141	2.065048	0	0.018467	0.027342	0	0.003	0.03822	0.019301	0.028579	0	0.012	0.08918	614.5263	213.3974	0	0.006348
SAN FRAN	2021	MHDT	Aggregate	Aggregate	GAS	518.6676677	25320.96	10377.5	0.51547	0.088247	0.391559	0.00111	0	0.000438	0.003	0.05586	0.001208	0	0.000476	0.012	0.13034	1793.54	549.0168	39.80436	0.016253
SAN FRAN	2021	MHDT	Aggregate	Aggregate	DSL	4009.563494	213998.2	35796.06	2.778578	11.17218	1.514085	0.06647	0.02583	0	0.003	0.05586	0.069476	0.026998	0	0.012	0.13034	1060.677	1271.337	0	0.007714
SAN FRAN	2021	HHDT	Aggregate	Aggregate	GAS	1.973460213	105.7956	39.48499	4.774746	0	0.005701	0.002679	0	0.001575	0.005	0.02646	0.002914	0	0.001713	0.02	0.06174	2047.862	0	43.88892	0.212696
SAN FRAN	2021	HHDT	Aggregate	Aggregate	DSL	1101.864373	73603.91	7568.648	5.675493	46.45287	2.051349	0.056957	0.071442	0	0.008694	0.025559	0.059533	0.074673	0	0.034774	0.059638	1864.637	6687.937	0	0.006654
SAN FRAN	2021	HHDT	Aggregate	Aggregate	NG	193.3361249	7880.247	754.0109	1.792134	21.38461	0	0.005043	0.03143	0	0.009	0.02646	0.005271	0.032852	0	0.036	0.06174	3236.262	4143.882	0	3.523578
SAN FRAN	2021	OBUS	Aggregate	Aggregate	GAS	226.6624857	11012.85	4535.063	0.451088	0.064966	0.307042	0.000805	0	0.000224	0.003	0.05586	0.000876	0	0.000243	0.012	0.13034	1822.783	385.425	26.79412	0.014369
SAN FRAN	2021	OBUS	Aggregate	Aggregate	DSL	393.5458219	25390.47	3599.583	3.622038	14.27759	1.550175	0.072135	0.051561	0	0.003	0.05586	0.075396	0.053893	0	0.012	0.13034	1252.2	1913.399	0	0.00934
SAN FRAN	2021	SBUS	Aggregate	Aggregate	GAS	121.7251516	5855.845	486.9006	0.184235	0.925871	0.566845	0.001173	0	0.000515	0.002	0.3192	0.001276	0	0.00056	0.008	0.7448	864.6484	2584.71	46.14382	0.004327
SAN FRAN	2021	SBUS	Aggregate	Aggregate	DSL	112.9750264	3693.648	1303.716	3.811685	35.2098	1.257515	0.023318	0.027721	0	0.003	0.3192	0.024372	0.028975	0	0.012	0.7448	1078.666	3595.015	0	0.002802
SAN FRAN	2021	UBUS	Aggregate	Aggregate	DSL	583.0155953	53687.52	2332.062	1.643839	0	0	0.006444	0	0	0.008597	0.028433	0.006736	0	0	0.034389	0.066344	1698.756	0	0	0.123239
SAN FRAN	2021	UBUS	Aggregate	Aggregate	NG	122.8402498	10604.36	491.361	0.505648	0	0	0.003281	0	0	0.00894	0.026752	0.003429	0	0	0.035762	0.062421	2073.304	0	0	6.68812

CH4_IDLE	CH4_STRE	N2O_RUN	N2O_IDLE	N2O_STRE	ROG_RUN	ROG_IDLE	ROG_STRE	ROG_HOT	ROG_RUN	ROG_REST	ROG_DIUF	TOG_RUN	TOG_IDLE	TOG_STRE	TOG_HOT	TOG_RUN	TOG_REST	TOG_DIUR	CO_RUNE	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
0	0.058007	0.004735	0	0.027218	0.012069	0	0.272396	0.108087	0.234759	0.193458	0.196586	0.017601	0	0.298237	0.108087	0.234759	0.193458	0.196586	0.710436	0	2.435408	0.002791	0	0.0005626
0	0	0.036683	0	0	0.02471	0	0	0	0	0	0	0.02813	0	0	0	0	0	0	0.369709	0	0	0.002206	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.069225	0.006712	0	0.028922	0.022151	0	0.345389	0.155315	0.566106	0.294428	0.314556	0.0323	0	0.378155	0.155315	0.566106	0.294428	0.314556	1.034453	0	2.543035	0.003259	0	0.0006519
0	0	0.076325	0	0	0.193376	0	0	0	0	0	0	0.220146	0	0	0	0	0	0	1.167287	0	0	0.00459	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.07213	0.006299	0	0.033442	0.016779	0	0.342095	0.114656	0.397306	0.251074	0.233138	0.024477	0	0.37455	0.114656	0.397306	0.251074	0.233138	0.882302	0	2.985822	0.003531	0	0.0007159
0	0	0.051253	0	0	0.024713	0	0	0	0	0	0	0.028134	0	0	0	0	0	0	0.229912	0	0	0.003083	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.257552	0.067816	0	0.015506	2.866753	0	2.020873	0.790419	2.54126	1.007213	1.554624	3.519191	0	2.19849	0.790419	2.54126	1.007213	1.554624	21.58416	0	8.998848	0.002277	0	0.0006185
0	0.079512	0.006806	0	0.034392	0.020292	0	0.388343	0.110727	0.373408	0.259903	0.241677	0.029058	0	0.425157	0.110727	0.373408	0.259903	0.241677	0.932044	0	3.262457	0.004161	0	0.0008459
0	0	0.06456	0	0	0.019022	0	0	0	0	0	0	0.021655	0	0	0	0	0	0	0.340328	0	0	0.003883	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.032226	0.024587	0	0.034317	0.077362	0	0.140161	0.088103	2.651167	0.034924	0.088523	0.112887	0	0.153458	0.088103	2.651167	0.034924	0.088523	2.113155	0	3.257368	0.017057	0	0.0002563
0	0	0.158278	0	0	0.086703	0	0	0	0	0	0	0.098706	0	0	0	0	0	0	0.287964	0	0	0.009519	0	0
0.127946	0.023386	0.012637	0.003342	0.042844	0.043351	0.454882	0.11556	0.094465	0.657385	0.020157	0.032515	0.063258	0.663762	0.126524	0.094465	0.657385	0.020157	0.032515	0.788728	3.758479	1.691232	0.010078	0.001207	0.000189
0.005098	0	0.085169	0.020696	0	0.137975	0.10976	0	0	0	0	0	0.157075	0.124954	0	0	0	0	0	0.542763	0.909745	0	0.005122	0.001245	0
0.125468	0.023306	0.015238	0.003176	0.041016	0.039245	0.447766	0.115788	0.10554	0.768259	0.02086	0.035124	0.057266	0.653379	0.126773	0.10554	0.768259	0.02086	0.035124	0.710092	3.754059	1.785693	0.011486	0.001387	0.0002157
0.005098	0	0.096595	0.033543	0	0.136674	0.10976	0	0	0	0	0	0.155595	0.124954	0	0	0	0	0	0.553946	0.909745	0	0.005809	0.002017	0
0.259835	0.040586	0.025131	0.00729	0.029592	0.080741	1.009005	0.220643	0.090094	0.529321	0.021903	0.036233	0.117818	1.472337	0.241576	0.090094	0.529321	0.021903	0.036233	1.863081	15.07398	4.754491	0.017749	0.005433	0.0003939
0.006914	0	0.166724	0.199836	0	0.166079	0.148856	0	0	0	0	0	0.189069	0.169461	0	0	0	0	0	0.480048	3.541604	0	0.010021	0.012011	0
0	0.000251	0.165506	0	0.000278	1.266427	0	0.001312	0.301402	2.725464	0.074287	0.11079	1.847968	0	0.001436	0.301402	2.725464	0.074287	0.11079	57.82393	0	2.363118	0.020265	0	0.0004343
0.116443	0	0.293095	1.051251	0	0.143252	2.506981	0	0	0	0	0	0.163082	2.854007	0	0	0	0	0	0.515492	29.27664	0	0.017616	0.063184	0
1.251518	0	0.659733	0.844757	0	0.159554	0.044951	0	0	0	0	0	3.7205	1.308108	0	0	0	0	0	10.72516	20.53886	0	0	0	0
0.20053	0.030806	0.022936	0.005689	0.025682	0.070494	0.74478	0.160655	0.027399	0.279918	0.018117	0.035755	0.102864	1.086781	0.175897	0.027399	0.279918	0.018117	0.035755	1.623578	5.765801	3.238386	0.018038	0.003814	0.0002651
0.034587	0	0.196828	0.30076	0	0.201092	0.744658	0	0	0	0	0	0.228928	0.847737	0	0	0	0	0	0.603287	8.501748	0	0.01183	0.018077	0
2.486229	0.049503	0.014927	0.092493	0.056418	0.019809	10.63189	0.273544	0.027694	0.193801	0.005742	0.011665	0.028906	15.51402	0.299497	0.027694	0.193801	0.005742	0.011665	0.375378	82.18239	7.137443	0.008556	0.025578	0.0004566
0.013212	0	0.169551	0.565086	0	0.060336	0.284454	0	0	0	0	0	0.068688	0.323829	0	0	0	0	0	0.192249	7.801669	0	0.010191	0.033964	0
0	0	0.267021	0	0	0.001761	0	0	0	0	0	0	0.125775	0	0	0	0	0	0	0.20435	0	0	0.016059	0	0
0	0	0.422657	0	0	0.09556	0	0	0	0	0	0	6.825717	0	0	0	0	0	0	52.15528	0	0	0	0	0

EMFAC2017 (v1.0.2) Emission Rates

Region Type: County

Region: SAN FRANCISCO

Calendar Year: 2022

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNI	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDI	PM2.5_STI	PM2.5_PV	PM2.5_PV	PM10_RUI	PM10_IDL	PM10_STR	PM10_PM	PM10_PM	CO2_RUNI	CO2_IDLE	CO2_STRE	CH4_RUNI
SAN FRAN	2022	LDA	Aggregate	Aggregate	GAS	158974.3	5490905	749894.5	0.037515	0	0.198394	0.001711	0	0.001781	0.002	0.01575	0.001861	0	0.001937	0.008	0.03675	274.3049	0	55.30887	0.002683
SAN FRAN	2022	LDA	Aggregate	Aggregate	DSL	2191.865	74466.77	10235.52	0.074493	0	0	0.008121	0	0	0.002	0.01575	0.008488	0	0	0.008	0.03675	227.9665	0	0	0.001053
SAN FRAN	2022	LDA	Aggregate	Aggregate	ELEC	3889.038	146773.6	19210.24	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0
SAN FRAN	2022	LDT1	Aggregate	Aggregate	GAS	17225.75	527114.4	80263.75	0.069319	0	0.23874	0.002007	0	0.002069	0.002	0.01575	0.002183	0	0.00225	0.008	0.03675	321.5348	0	64.28644	0.004445
SAN FRAN	2022	LDT1	Aggregate	Aggregate	DSL	12.34088	182.3729	42.65535	1.053244	0	0	0.134635	0	0	0.002	0.01575	0.140722	0	0	0.008	0.03675	479.7393	0	0	0.008518
SAN FRAN	2022	LDT1	Aggregate	Aggregate	ELEC	122.4194	4745.874	607.92	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0
SAN FRAN	2022	LDT2	Aggregate	Aggregate	GAS	53507.32	1662243	251569.7	0.063513	0	0.279584	0.001695	0	0.001686	0.002	0.01575	0.001843	0	0.001834	0.008	0.03675	345.4691	0	70.14759	0.003746
SAN FRAN	2022	LDT2	Aggregate	Aggregate	DSL	548.6045	18532.96	2659.233	0.043708	0	0	0.005122	0	0	0.002	0.01575	0.005353	0	0	0.008	0.03675	319.2043	0	0	0.001148
SAN FRAN	2022	LDT2	Aggregate	Aggregate	ELEC	575.2437	17583.47	2886.469	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0
SAN FRAN	2022	MCY	Aggregate	Aggregate	GAS	10825.22	74080.45	21650.44	1.189378	0	0.275945	0.002157	0	0.00314	0.001	0.00504	0.002304	0	0.003325	0.004	0.01176	230.0239	0	62.23858	0.406067
SAN FRAN	2022	MDV	Aggregate	Aggregate	GAS	27472.11	949816.6	129915.1	0.067533	0	0.294249	0.001793	0	0.001863	0.002	0.01575	0.00195	0	0.002026	0.008	0.03675	406.6908	0	82.67958	0.004088
SAN FRAN	2022	MDV	Aggregate	Aggregate	DSL	867.6666	32383.44	4220.135	0.04345	0	0	0.004636	0	0	0.002	0.01575	0.004845	0	0	0.008	0.03675	399.5999	0	0	0.00083
SAN FRAN	2022	MDV	Aggregate	Aggregate	ELEC	245.4842	7930.472	1254.07	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0
SAN FRAN	2022	MH	Aggregate	Aggregate	GAS	324.6304	3747.273	32.47603	0.331332	0	0.323125	0.001681	0	0.000412	0.003	0.05586	0.001828	0	0.000448	0.012	0.13034	1691.57	0	25.20083	0.013557
SAN FRAN	2022	MH	Aggregate	Aggregate	DSL	120.9635	1409.98	12.09635	3.113389	0	0	0.049814	0	0	0.004	0.05586	0.052066	0	0	0.016	0.13034	990.7831	0	0	0.003856
SAN FRAN	2022	LHDT1	Aggregate	Aggregate	GAS	4226.043	149772.2	62961.75	0.181314	0.038778	0.515711	0.001919	0	0.000327	0.002	0.03276	0.002087	0	0.000356	0.008	0.07644	1009.195	121.1365	18.96497	0.008293
SAN FRAN	2022	LHDT1	Aggregate	Aggregate	DSL	1944.82	82093.08	24463.39	0.874232	1.855818	0	0.015247	0.026606	0	0.003	0.03276	0.015936	0.027809	0	0.012	0.07644	533.9051	129.8915	0	0.006275
SAN FRAN	2022	LHDT2	Aggregate	Aggregate	GAS	518.4497	18273.52	7724.128	0.212203	0.037949	0.5035	0.001922	0	0.000307	0.002	0.03822	0.00209	0	0.000334	0.008	0.08918	1148.249	138.9991	21.59552	0.007667
SAN FRAN	2022	LHDT2	Aggregate	Aggregate	DSL	842.9548	33510.55	10603.31	0.807143	1.936828	0	0.017785	0.02722	0	0.003	0.03822	0.018589	0.02845	0	0.012	0.08918	605.3999	210.7343	0	0.006246
SAN FRAN	2022	MHDT	Aggregate	Aggregate	GAS	516.9835	25017.35	10343.81	0.437197	0.08843	0.382248	0.001103	0	0.000417	0.003	0.05586	0.001199	0	0.000453	0.012	0.13034	1768.036	544.0832	39.0903	0.013659
SAN FRAN	2022	MHDT	Aggregate	Aggregate	DSL	4172.306	227092.9	37001.33	2.109034	10.01387	1.743994	0.036669	0.017382	0	0.003	0.05586	0.038327	0.018168	0	0.012	0.13034	1030.778	1258.642	0	0.004018
SAN FRAN	2022	HHDT	Aggregate	Aggregate	GAS	1.745215	113.7112	34.91827	4.070636	0	0.006622	0.002272	0	0.001488	0.005	0.02646	0.002471	0	0.001619	0.02	0.06174	1975.409	0	44.17797	0.170029
SAN FRAN	2022	HHDT	Aggregate	Aggregate	DSL	1102.42	74477.37	7662.523	4.902116	45.67901	2.278814	0.032131	0.047943	0	0.008693	0.025557	0.033584	0.050111	0	0.034771	0.059632	1802.751	6835.84	0	0.004059
SAN FRAN	2022	HHDT	Aggregate	Aggregate	NG	201.3067	8207.325	785.0963	1.618477	20.99915	0	0.004741	0.028265	0	0.009	0.02646	0.004955	0.029543	0	0.036	0.06174	3203.66	4096.076	0	3.466233
SAN FRAN	2022	OBUS	Aggregate	Aggregate	GAS	220.5656	10251.21	4413.077	0.42795	0.06497	0.306285	0.000841	0	0.000228	0.003	0.05586	0.000915	0	0.000248	0.012	0.13034	1806.853	383.483	26.61998	0.013673
SAN FRAN	2022	OBUS	Aggregate	Aggregate	DSL	386.1201	25208.95	3531.831	2.705138	10.58513	1.851903	0.029317	0.016976	0	0.003	0.05586	0.030643	0.017744	0	0.012	0.13034	1222.479	1869.765	0	0.00393
SAN FRAN	2022	SBUS	Aggregate	Aggregate	GAS	125.2398	5922.467	500.959	0.188057	0.925917	0.583674	0.00118	0	0.000519	0.002	0.3192	0.001283	0	0.000564	0.008	0.7448	861.6785	2576.485	45.90927	0.004269
SAN FRAN	2022	SBUS	Aggregate	Aggregate	DSL	118.7612	3872.086	1370.488	3.63226	34.01286	1.314051	0.022354	0.025374	0	0.003	0.3192	0.023364	0.026521	0	0.012	0.7448	1065.889	3559.031	0	0.002696
SAN FRAN	2022	UBUS	Aggregate	Aggregate	DSL	558.4952	51193.41	2233.981	0.819331	0	0	0.005748	0	0	0.00869	0.027977	0.006008	0	0	0.034761	0.065281	1629.904	0	0	0.079342
SAN FRAN	2022	UBUS	Aggregate	Aggregate	NG	147.6816	13127.71	590.7265	0.490647	0	0	0.003191	0	0	0.008512	0.028851	0.003335	0	0	0.034048	0.067319	2020.868	0	0	6.435607

CH4_IDLE	CH4_STRE	N2O_RUN	N2O_IDLE	N2O_STRE	ROG_RUN	ROG_IDLE	ROG_STRE	ROG_HOT	ROG_RUN	ROG_REST	ROG_DIUF	TOG_RUN	TOG_IDLE	TOG_STRE	TOG_HOT	TOG_RUN	TOG_REST	TOG_DIUR	CO_RUNE	CO_IDLE	CO_STRE	SOx_RUNE	SOx_IDLE	SOx_STRE
0	0.053631	0.004381	0	0.026182	0.01037	0	0.247722	0.100979	0.224816	0.180849	0.181522	0.015126	0	0.271223	0.100979	0.224816	0.180849	0.181522	0.659983	0	2.367301	0.002714	0	0.000547
0	0	0.035833	0	0	0.022662	0	0	0	0	0	0	0.025799	0	0	0	0	0	0	0.357786	0	0	0.002155	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.063619	0.006083	0	0.027828	0.01896	0	0.312258	0.144426	0.530067	0.276656	0.290017	0.027654	0	0.341882	0.144426	0.530067	0.276656	0.290017	0.935017	0	2.464666	0.003182	0	0.000636
0	0	0.075408	0	0	0.183379	0	0	0	0	0	0	0.208764	0	0	0	0	0	0	1.112624	0	0	0.004535	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.067586	0.005747	0	0.031775	0.014932	0	0.317048	0.110467	0.390295	0.248336	0.227553	0.021783	0	0.347127	0.110467	0.390295	0.248336	0.227553	0.822075	0	2.905747	0.003419	0	0.000694
0	0	0.050174	0	0	0.024719	0	0	0	0	0	0	0.028141	0	0	0	0	0	0	0.235348	0	0	0.003018	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.256147	0.067734	0	0.015505	2.842273	0	2.009642	0.789926	2.467735	1.016059	1.567795	3.499527	0	2.186501	0.789926	2.467735	1.016059	1.567795	21.23237	0	9.021583	0.002276	0	0.000616
0	0.073094	0.006083	0	0.03244	0.016532	0	0.351079	0.104676	0.359419	0.252278	0.231761	0.024082	0	0.384382	0.104676	0.359419	0.252278	0.231761	0.838072	0	3.122482	0.004025	0	0.000818
0	0	0.062812	0	0	0.017877	0	0	0	0	0	0	0.020352	0	0	0	0	0	0	0.33421	0	0	0.003778	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.03111	0.021422	0	0.035296	0.060152	0	0.131187	0.073388	2.224047	0.029324	0.073597	0.087773	0	0.143633	0.073388	2.224047	0.029324	0.073597	1.586387	0	3.04735	0.016739	0	0.000249
0	0	0.155737	0	0	0.083009	0	0	0	0	0	0	0.094501	0	0	0	0	0	0	0.271007	0	0	0.009366	0	0
0.125552	0.022131	0.011618	0.003296	0.041812	0.038981	0.44457	0.109045	0.092034	0.636335	0.019967	0.031701	0.056882	0.648715	0.11939	0.092034	0.636335	0.019967	0.031701	0.714638	3.760786	1.654716	0.009987	0.001199	0.000188
0.005098	0	0.083922	0.020417	0	0.135099	0.10976	0	0	0	0	0	0.153801	0.124954	0	0	0	0	0	0.534465	0.909745	0	0.005047	0.001228	0
0.122637	0.021882	0.013714	0.003133	0.040007	0.033947	0.434988	0.108103	0.100357	0.709553	0.020285	0.033398	0.049535	0.634733	0.118359	0.100357	0.709553	0.020285	0.033398	0.617903	3.758078	1.727836	0.011363	0.001376	0.000214
0.005098	0	0.09516	0.033124	0	0.134467	0.10976	0	0	0	0	0	0.153081	0.124954	0	0	0	0	0	0.547882	0.909745	0	0.005723	0.001992	0
0.26248	0.039186	0.022076	0.007457	0.029583	0.067269	1.011759	0.210628	0.086327	0.502602	0.02106	0.033971	0.098159	1.476356	0.230612	0.086327	0.502602	0.02106	0.033971	1.541326	15.10588	4.516023	0.017496	0.005384	0.000387
0.006078	0	0.162024	0.197841	0	0.086515	0.130856	0	0	0	0	0	0.098491	0.14897	0	0	0	0	0	0.300918	3.612596	0	0.009738	0.011891	0
0	0.00029	0.149858	0	0.000323	0.988078	0	0.001514	0.278333	2.48731	0.06832	0.101899	1.441801	0	0.001658	0.278333	2.48731	0.06832	0.101899	49.45713	0	2.957447	0.019548	0	0.000437
0.117399	0	0.283367	1.074499	0	0.087378	2.527564	0	0	0	0	0	0.099474	2.877439	0	0	0	0	0	0.361985	31.41789	0	0.017032	0.064582	0
1.239636	0	0.653087	0.835012	0	0.14607	0.041569	0	0	0	0	0	3.647546	1.292321	0	0	0	0	0	10.78153	20.64815	0	0	0	0
0.199941	0.030435	0.021896	0.005676	0.025556	0.067353	0.744841	0.159065	0.028663	0.298662	0.019074	0.037282	0.098281	1.08687	0.174156	0.028663	0.298662	0.019074	0.037282	1.544051	5.766172	3.201283	0.01788	0.003795	0.000263
0.027488	0	0.192157	0.293901	0	0.084602	0.591803	0	0	0	0	0	0.096313	0.673722	0	0	0	0	0	0.310362	8.39884	0	0.011549	0.017665	0
2.48139	0.049211	0.015132	0.091715	0.057531	0.019637	10.63256	0.272466	0.034151	0.259763	0.007061	0.013886	0.028655	15.515	0.298316	0.034151	0.259763	0.007061	0.013886	0.365607	82.18646	7.064896	0.008527	0.025496	0.000454
0.013077	0	0.167543	0.55943	0	0.058043	0.281543	0	0	0	0	0	0.066078	0.320515	0	0	0	0	0	0.18896	8.020851	0	0.01007	0.033624	0
0	0	0.256198	0	0	0.001134	0	0	0	0	0	0	0.080974	0	0	0	0	0	0	0.134988	0	0	0.015408	0	0
0	0	0.411967	0	0	0.091952	0	0	0	0	0	0	6.568009	0	0	0	0	0	0	49.99241	0	0	0	0	0

EMFAC2017 (v1.0.2) Emission Rates

Region Type: County

Region: SAN FRANCISCO

Calendar Year: 2023

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNI	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDI	PM2.5_STI	PM2.5_PM	PM2.5_PV	PM10_RUI	PM10_IDL	PM10_STR	PM10_PM	PM10_PM	CO2_RUNI	CO2_IDLE	CO2_STRE	CH4_RUNI
SAN FRAN	2023	LDA	Aggregate	Aggregate	GAS	161367.5	5500030	761670.8	0.033455	0	0.186204	0.001635	0	0.00171	0.002	0.01575	0.001778	0	0.001859	0.008	0.03675	266.4943	0	53.76244	0.002374
SAN FRAN	2023	LDA	Aggregate	Aggregate	DSL	2222.455	73903.2	10370.4	0.063947	0	0	0.007083	0	0	0.002	0.01575	0.007403	0	0	0.008	0.03675	222.2335	0	0	0.000958
SAN FRAN	2023	LDA	Aggregate	Aggregate	ELEC	4412.676	169210.7	21756.1	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0
SAN FRAN	2023	LDT1	Aggregate	Aggregate	GAS	17686.48	532518.2	82418.29	0.060488	0	0.222938	0.001895	0	0.001957	0.002	0.01575	0.002061	0	0.002129	0.008	0.03675	313.6107	0	62.69368	0.003874
SAN FRAN	2023	LDT1	Aggregate	Aggregate	DSL	11.36427	166.0424	39.12493	0.989139	0	0	0.125924	0	0	0.002	0.01575	0.131618	0	0	0.008	0.03675	472.7711	0	0	0.008005
SAN FRAN	2023	LDT1	Aggregate	Aggregate	ELEC	160.0195	6393.259	797.3853	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0
SAN FRAN	2023	LDT2	Aggregate	Aggregate	GAS	54830.8	1673679	257591.6	0.056079	0	0.258131	0.00164	0	0.001642	0.002	0.01575	0.001784	0	0.001786	0.008	0.03675	334.3011	0	67.98991	0.003387
SAN FRAN	2023	LDT2	Aggregate	Aggregate	DSL	574.4447	18775.88	2770.511	0.042138	0	0	0.004901	0	0	0.002	0.01575	0.005123	0	0	0.008	0.03675	311.9311	0	0	0.001136
SAN FRAN	2023	LDT2	Aggregate	Aggregate	ELEC	714.5721	21349.61	3577.617	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0
SAN FRAN	2023	MCY	Aggregate	Aggregate	GAS	10819.31	72227.5	21638.62	1.188181	0	0.275935	0.002191	0	0.002951	0.001	0.00504	0.002342	0	0.003129	0.004	0.01176	229.9306	0	61.9332	0.404054
SAN FRAN	2023	MDV	Aggregate	Aggregate	GAS	28726.18	977999.1	135868.7	0.057929	0	0.267394	0.001706	0	0.001772	0.002	0.01575	0.001856	0	0.001927	0.008	0.03675	393.3862	0	79.98292	0.003593
SAN FRAN	2023	MDV	Aggregate	Aggregate	DSL	932.4039	33840.56	4517.466	0.039053	0	0	0.004294	0	0	0.002	0.01575	0.004488	0	0	0.008	0.03675	388.6081	0	0	0.000784
SAN FRAN	2023	MDV	Aggregate	Aggregate	ELEC	349.1603	10983.11	1777.8	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0
SAN FRAN	2023	MH	Aggregate	Aggregate	GAS	343.7103	3986.304	34.38478	0.276933	0	0.320392	0.001583	0	0.000384	0.003	0.05586	0.001722	0	0.000417	0.012	0.13034	1666.432	0	24.61466	0.011202
SAN FRAN	2023	MH	Aggregate	Aggregate	DSL	132.1292	1516.642	13.21292	2.995658	0	0	0.044459	0	0	0.004	0.05586	0.046469	0	0	0.016	0.13034	977.7889	0	0	0.003723
SAN FRAN	2023	LHDT1	Aggregate	Aggregate	GAS	4245.007	147426.4	63244.28	0.166281	0.037826	0.499663	0.001926	0	0.000323	0.002	0.03276	0.002095	0	0.000351	0.008	0.07644	998.7258	120.2169	18.81636	0.007662
SAN FRAN	2023	LHDT1	Aggregate	Aggregate	DSL	2100.581	86548.78	26422.67	0.750729	1.737952	0	0.014164	0.026537	0	0.003	0.03276	0.014805	0.027737	0	0.012	0.07644	525.7918	128.0877	0	0.006171
SAN FRAN	2023	LHDT2	Aggregate	Aggregate	GAS	527.9141	18347.36	7865.134	0.18698	0.036814	0.485249	0.001903	0	0.000298	0.002	0.03822	0.002069	0	0.000324	0.008	0.08918	1134.397	137.7271	21.37331	0.006602
SAN FRAN	2023	LHDT2	Aggregate	Aggregate	DSL	905.3433	35148.39	11388.08	0.706085	1.820869	0	0.01729	0.027121	0	0.003	0.03822	0.018072	0.028347	0	0.012	0.08918	596.1432	207.9998	0	0.006165
SAN FRAN	2023	MHDT	Aggregate	Aggregate	GAS	516.058	24788.32	10325.29	0.370845	0.0886	0.374477	0.001103	0	0.000398	0.003	0.05586	0.0012	0	0.000432	0.012	0.13034	1743.862	539.1033	38.42967	0.011421
SAN FRAN	2023	MHDT	Aggregate	Aggregate	DSL	4267.481	240025.9	37523.18	1.52475	8.409483	2.153424	0.006973	0.007901	0	0.003	0.05586	0.007288	0.008258	0	0.012	0.13034	993.9775	1240.563	0	0.000539
SAN FRAN	2023	HHDT	Aggregate	Aggregate	GAS	1.547012	123.1968	30.95262	3.568011	0	0.007622	0.0019	0	0.001331	0.005	0.02646	0.002067	0	0.001447	0.02	0.06174	1918.951	0	44.25198	0.135409
SAN FRAN	2023	HHDT	Aggregate	Aggregate	DSL	1101.652	75402.68	7731.816	4.068075	42.92628	2.551925	0.023079	0.04284	0	0.008692	0.025553	0.024123	0.044777	0	0.034766	0.059624	1718.849	6685.001	0	0.001673
SAN FRAN	2023	HHDT	Aggregate	Aggregate	NG	208.4749	8499.459	813.0521	1.464466	20.65477	0	0.004484	0.02557	0	0.009	0.02646	0.004687	0.026726	0	0.036	0.06174	3171.538	4048.681	0	3.415759
SAN FRAN	2023	OBUS	Aggregate	Aggregate	GAS	214.8367	9579.374	4298.453	0.406583	0.064976	0.3047	0.000879	0	0.000233	0.003	0.05586	0.000955	0	0.000253	0.012	0.13034	1790.472	381.4969	26.44782	0.01301
SAN FRAN	2023	OBUS	Aggregate	Aggregate	DSL	377.0522	25043.24	3447.863	1.971948	8.179599	2.199555	0.009773	0.002553	0	0.003	0.05586	0.010215	0.002668	0	0.012	0.13034	1184.102	1803.691	0	0.000586
SAN FRAN	2023	SBUS	Aggregate	Aggregate	GAS	128.6973	5989.042	514.7894	0.187768	0.92597	0.608664	0.001186	0	0.000523	0.002	0.3192	0.00129	0	0.000569	0.008	0.7448	858.8231	2568.591	45.64224	0.004063
SAN FRAN	2023	SBUS	Aggregate	Aggregate	DSL	124.6669	4054.443	1438.639	3.465401	32.89283	1.366669	0.021476	0.023349	0	0.003	0.3192	0.022447	0.024405	0	0.012	0.7448	1053.841	3523.101	0	0.002595
SAN FRAN	2023	UBUS	Aggregate	Aggregate	DSL	558.7238	51214.23	2234.895	0.81933	0	0	0.005748	0	0	0.00869	0.027978	0.006008	0	0	0.034761	0.065281	1629.869	0	0	0.079341
SAN FRAN	2023	UBUS	Aggregate	Aggregate	NG	147.774	13136.12	591.096	0.490651	0	0	0.003191	0	0	0.008512	0.028851	0.003336	0	0	0.034049	0.067318	2020.88	0	0	6.435661

CH4_IDLE	CH4_STRE	N2O_RUN	N2O_IDLE	N2O_STRE	ROG_RUN	ROG_IDLE	ROG_STRE	ROG_HOT	ROG_RUN	ROG_REST	ROG_DIUR	TOG_RUN	TOG_IDLE	TOG_STRE	TOG_HOT	TOG_RUN	TOG_REST	TOG_DIUR	CO_RUNE	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
0	0.049677	0.004088	0	0.025173	0.008975	0	0.225953	0.09473	0.215899	0.169402	0.168191	0.013093	0	0.24739	0.09473	0.215899	0.169402	0.168191	0.619122	0	2.299337	0.002637	0	0.000532
0	0	0.034932	0	0	0.020633	0	0	0	0	0	0	0.023489	0	0	0	0	0	0	0.345721	0	0	0.002101	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.058554	0.005551	0	0.026775	0.016255	0	0.282787	0.134726	0.49999	0.260597	0.268336	0.023716	0	0.309616	0.134726	0.49999	0.260597	0.268336	0.851253	0	2.389129	0.003103	0	0.0006204
0	0	0.074313	0	0	0.172353	0	0	0	0	0	0	0.196213	0	0	0	0	0	0	1.052113	0	0	0.004469	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.063325	0.005278	0	0.030204	0.013316	0	0.294024	0.106638	0.384405	0.245536	0.222322	0.019429	0	0.321919	0.106638	0.384405	0.245536	0.222322	0.770806	0	2.82713	0.003308	0	0.0006728
0	0	0.049031	0	0	0.024451	0	0	0	0	0	0	0.027836	0	0	0	0	0	0	0.239479	0	0	0.002949	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.25468	0.067655	0	0.015496	2.820041	0	1.997199	0.78314	2.362163	1.019583	1.57507	3.481536	0	2.173197	0.78314	2.362163	1.019583	1.57507	20.9151	0	9.048819	0.002275	0	0.0006129
0	0.06724	0.005488	0	0.030599	0.01424	0	0.318099	0.099463	0.348716	0.245468	0.223037	0.020756	0	0.348276	0.099463	0.348716	0.245468	0.223037	0.773079	0	2.986114	0.003893	0	0.0007915
0	0	0.061084	0	0	0.016881	0	0	0	0	0	0	0.019218	0	0	0	0	0	0	0.328873	0	0	0.003674	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.030137	0.019191	0	0.035849	0.048045	0	0.123766	0.061584	1.870944	0.024868	0.061663	0.070107	0	0.135508	0.061584	1.870944	0.024868	0.061663	1.222045	0	2.875546	0.016491	0	0.0002436
0	0	0.153695	0	0	0.080162	0	0	0	0	0	0	0.091259	0	0	0	0	0	0	0.257747	0	0	0.009244	0	0
0.122935	0.020927	0.010734	0.003242	0.040752	0.035897	0.433704	0.102813	0.090057	0.621055	0.019957	0.031252	0.052381	0.63286	0.112568	0.090057	0.621055	0.019957	0.031252	0.663217	3.762478	1.624374	0.009883	0.00119	0.0001862
0.005098	0	0.082647	0.020134	0	0.132849	0.10976	0	0	0	0	0	0.151239	0.124954	0	0	0	0	0	0.529962	0.909745	0	0.004971	0.001211	0
0.119771	0.020523	0.012318	0.003088	0.038985	0.028639	0.422096	0.100761	0.094839	0.651964	0.019565	0.031487	0.04179	0.615922	0.11032	0.094839	0.651964	0.019565	0.031487	0.525795	3.761899	1.67373	0.011226	0.001363	0.0002115
0.005098	0	0.093705	0.032695	0	0.132733	0.10976	0	0	0	0	0	0.151108	0.124954	0	0	0	0	0	0.544939	0.909745	0	0.005636	0.001966	0
0.264881	0.038015	0.019485	0.007609	0.029609	0.055524	1.014313	0.202266	0.082405	0.475312	0.020061	0.031612	0.08102	1.480083	0.221456	0.082405	0.475312	0.020061	0.031612	1.265402	15.13544	4.309359	0.017257	0.005335	0.0003803
0.005155	0	0.156239	0.194999	0	0.011599	0.110976	0	0	0	0	0	0.013204	0.126338	0	0	0	0	0	0.110891	3.769354	0	0.009391	0.01172	0
0	0.000332	0.138625	0	0.000371	0.759376	0	0.001734	0.24414	2.196597	0.059779	0.089178	1.108079	0	0.001898	0.24414	2.196597	0.059779	0.089178	41.88183	0	3.538629	0.01899	0	0.0004379
0.118436	0	0.270179	1.050789	0	0.036013	2.54989	0	0	0	0	0	0.040999	2.902855	0	0	0	0	0	0.247635	33.83323	0	0.016239	0.063157	0
1.229575	0	0.646539	0.82535	0	0.134049	0.0386	0	0	0	0	0	3.583159	1.278834	0	0	0	0	0	10.83231	20.75571	0	0	0	0
0.199385	0.030046	0.020918	0.005662	0.025412	0.064354	0.744927	0.157373	0.029816	0.316042	0.019988	0.038796	0.093905	1.086996	0.172303	0.029816	0.316042	0.019988	0.038796	1.469217	5.766694	3.167236	0.017718	0.003775	0.0002617
0.02429	0	0.186124	0.283515	0	0.012624	0.522966	0	0	0	0	0	0.014371	0.595357	0	0	0	0	0	0.145667	8.924022	0	0.011187	0.01704	0
2.476999	0.04913	0.01531	0.090669	0.059236	0.01862	10.63333	0.272363	0.040286	0.310288	0.008353	0.015992	0.02717	15.51613	0.298203	0.040286	0.310288	0.008353	0.015992	0.355819	82.19117	6.966868	0.008499	0.025418	0.0004517
0.012978	0	0.165649	0.553782	0	0.055871	0.279413	0	0	0	0	0	0.063604	0.31809	0	0	0	0	0	0.185832	8.226536	0	0.009956	0.033285	0
0	0	0.256193	0	0	0.001134	0	0	0	0	0	0	0.080974	0	0	0	0	0	0	0.134988	0	0	0.015408	0	0
0	0	0.41197	0	0	0.091953	0	0	0	0	0	0	6.568064	0	0	0	0	0	0	49.99287	0	0	0	0	0

EMFAC2017 (v1.0.2) Emission Rates

Region Type: County

Region: SAN FRANCISCO

Calendar Year: 2024

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNI	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDI	PM2.5_STI	PM2.5_PN	PM2.5_PN	PM10_RUI	PM10_IDL	PM10_STR	PM10_PM	PM10_PM	CO2_RUNI	CO2_IDLE	CO2_STRE	CH4_RUNI
SAN FRAN	2024	LDA	Aggregate	Aggregate	GAS	163734.1	5508577	773124.3	0.030195	0	0.175149	0.001568	0	0.001647	0.002	0.01575	0.001705	0	0.001791	0.008	0.03675	258.6925	0	52.20971	0.002114
SAN FRAN	2024	LDA	Aggregate	Aggregate	DSL	2245.9912	73372.39	10478.65	0.054729	0	0	0.006079	0	0	0.002	0.01575	0.006353	0	0	0.008	0.03675	216.2359	0	0	0.000868
SAN FRAN	2024	LDA	Aggregate	Aggregate	ELEC	5004.4543	195338.1	24640.17	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0
SAN FRAN	2024	LDT1	Aggregate	Aggregate	GAS	18144.316	537839.9	84533.11	0.053247	0	0.208691	0.001796	0	0.001861	0.002	0.01575	0.001954	0	0.002023	0.008	0.03675	305.6398	0	61.10325	0.003396
SAN FRAN	2024	LDT1	Aggregate	Aggregate	DSL	10.520808	152.5494	36.09847	0.923346	0	0	0.117469	0	0	0.002	0.01575	0.12278	0	0	0.008	0.03675	464.2877	0	0	0.007524
SAN FRAN	2024	LDT1	Aggregate	Aggregate	ELEC	202.31579	8273.533	1009.227	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0
SAN FRAN	2024	LDT2	Aggregate	Aggregate	GAS	56108.065	1684641	263352.5	0.049931	0	0.239215	0.001591	0	0.001603	0.002	0.01575	0.001731	0	0.001744	0.008	0.03675	323.336	0	65.86535	0.003073
SAN FRAN	2024	LDT2	Aggregate	Aggregate	DSL	598.21415	18953.02	2869.618	0.041399	0	0	0.004905	0	0	0.002	0.01575	0.005127	0	0	0.008	0.03675	304.3821	0	0	0.001138
SAN FRAN	2024	LDT2	Aggregate	Aggregate	ELEC	869.04077	25403.38	4340.461	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0
SAN FRAN	2024	MCY	Aggregate	Aggregate	GAS	10824.881	70626.1	21649.76	1.187093	0	0.275941	0.00223	0	0.00282	0.001	0.00504	0.002385	0	0.002993	0.004	0.01176	229.8481	0	61.65765	0.402255
SAN FRAN	2024	MDV	Aggregate	Aggregate	GAS	29933.213	1003722	141548	0.05005	0	0.243626	0.001629	0	0.00169	0.002	0.01575	0.001771	0	0.001838	0.008	0.03675	380.5041	0	77.35912	0.00317
SAN FRAN	2024	MDV	Aggregate	Aggregate	DSL	994.44534	35161.13	4799.571	0.035347	0	0	0.003985	0	0	0.002	0.01575	0.004165	0	0	0.008	0.03675	377.6928	0	0	0.000743
SAN FRAN	2024	MDV	Aggregate	Aggregate	ELEC	465.61633	14266.46	2361.898	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0
SAN FRAN	2024	MH	Aggregate	Aggregate	GAS	362.57624	4192.615	36.27213	0.239057	0	0.317165	0.001517	0	0.000364	0.003	0.05586	0.00165	0	0.000396	0.012	0.13034	1630.282	0	24.00396	0.009603
SAN FRAN	2024	MH	Aggregate	Aggregate	DSL	143.20543	1614.614	14.32054	2.903647	0	0	0.040234	0	0	0.004	0.05586	0.042053	0	0	0.016	0.13034	960.3763	0	0	0.003623
SAN FRAN	2024	LHDT1	Aggregate	Aggregate	GAS	4255.9584	145205.3	63407.44	0.152121	0.036874	0.483986	0.001933	0	0.000319	0.002	0.03276	0.002102	0	0.000347	0.008	0.07644	987.0763	119.1858	18.6575	0.007017
SAN FRAN	2024	LHDT1	Aggregate	Aggregate	DSL	2253.8408	90672.96	28350.48	0.648784	1.63634	0	0.013264	0.026484	0	0.003	0.03276	0.013863	0.027681	0	0.012	0.07644	517.594	126.2717	0	0.006088
SAN FRAN	2024	LHDT2	Aggregate	Aggregate	GAS	537.9041	18436.23	8013.97	0.166438	0.035744	0.467402	0.001897	0	0.000292	0.002	0.03822	0.002063	0	0.000318	0.008	0.08918	1119.543	136.3428	21.13904	0.005856
SAN FRAN	2024	LHDT2	Aggregate	Aggregate	DSL	965.72011	36643.25	12147.54	0.619873	1.71839	0	0.016935	0.02705	0	0.003	0.03822	0.017701	0.028273	0	0.012	0.08918	586.7815	205.1966	0	0.006099
SAN FRAN	2024	MHDT	Aggregate	Aggregate	GAS	516.75644	24640.8	10339.26	0.316668	0.088744	0.367625	0.001112	0	0.000385	0.003	0.05586	0.001209	0	0.000418	0.012	0.13034	1712.597	532.671	37.71747	0.009685
SAN FRAN	2024	MHDT	Aggregate	Aggregate	DSL	4559.6747	252707.9	40097.35	1.525212	7.975604	2.165185	0.006958	0.006638	0	0.003	0.05586	0.007273	0.006938	0	0.012	0.13034	976.6949	1212.183	0	0.000528
SAN FRAN	2024	HHDT	Aggregate	Aggregate	GAS	1.1286264	129.8816	22.58156	3.316549	0	0.009133	0.001321	0	0.000752	0.005	0.02646	0.001437	0	0.000818	0.02	0.06174	1835.057	0	44.00207	0.084908
SAN FRAN	2024	HHDT	Aggregate	Aggregate	DSL	1104.3656	76354.38	7858.384	3.94352	42.37823	2.590634	0.023107	0.04055	0	0.00869	0.02555	0.024152	0.042383	0	0.034761	0.059616	1675.937	6679.355	0	0.001643
SAN FRAN	2024	HHDT	Aggregate	Aggregate	NG	215.26927	8776.611	839.5501	1.32339	20.33353	0	0.004254	0.023134	0	0.009	0.02646	0.004446	0.02418	0	0.036	0.06174	3133.602	3994.395	0	3.369756
SAN FRAN	2024	SBUS	Aggregate	Aggregate	DSL	130.664	4243.532	1507.844	3.307196	31.8283	1.416478	0.020643	0.021504	0	0.003	0.3192	0.021576	0.022476	0	0.012	0.7448	1040.05	3482.184	0	0.002502
SAN FRAN	2024	UBUS	Aggregate	Aggregate	DSL	558.95239	51235.05	2235.81	0.819329	0	0	0.005748	0	0	0.00869	0.027978	0.006008	0	0	0.034761	0.065281	1629.834	0	0	0.079341
SAN FRAN	2024	UBUS	Aggregate	Aggregate	NG	147.86637	13144.53	591.4655	0.490654	0	0	0.003191	0	0	0.008512	0.02885	0.003336	0	0	0.034049	0.067317	2020.891	0	0	6.435714

CH4_IDLE	CH4_STRE	N2O_RUN	N2O_IDLE	N2O_STRE	ROG_RUN	ROG_IDLE	ROG_STRE	ROG_HOT	ROG_RUN	ROG_REST	ROG_DIUF	TOG_RUN	TOG_IDLE	TOG_STRE	TOG_HOT	TOG_RUN	TOG_REST	TOG_DIUR	CO_RUNE	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
0	0.046035	0.003846	0	0.024168	0.007824	0	0.206509	0.089299	0.208353	0.159252	0.15664	0.011417	0	0.226101	0.089299	0.208353	0.159252	0.15664	0.584914	0	2.22492	0.00256	0	0.00051666
0	0	0.033989	0	0	0.018686	0	0	0	0	0	0	0.021272	0	0	0	0	0	0	0.333959	0	0	0.002044	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.053947	0.005107	0	0.02575	0.014026	0	0.256574	0.126078	0.473441	0.246112	0.2492	0.020466	0	0.280916	0.126078	0.473441	0.246112	0.2492	0.782684	0	2.315038	0.003025	0	0.00060467
0	0	0.07298	0	0	0.161979	0	0	0	0	0	0	0.184402	0	0	0	0	0	0	0.995361	0	0	0.004389	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.059315	0.004884	0	0.02872	0.011924	0	0.272822	0.103075	0.378814	0.24245	0.217231	0.017398	0	0.298706	0.103075	0.378814	0.24245	0.217231	0.728157	0	2.750039	0.0032	0	0.00065179
0	0	0.047845	0	0	0.024493	0	0	0	0	0	0	0.027883	0	0	0	0	0	0	0.243582	0	0	0.002878	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.253375	0.067582	0	0.015486	2.800348	0	1.98657	0.778967	2.28082	1.02295	1.582717	3.465505	0	2.16184	0.778967	2.28082	1.02295	1.582717	20.63186	0	9.073353	0.002275	0	0.00061015
0	0.061867	0.004993	0	0.028864	0.012297	0	0.288416	0.09508	0.340507	0.239761	0.215761	0.017937	0	0.315779	0.09508	0.340507	0.239761	0.215761	0.717751	0	2.854624	0.003765	0	0.00076553
0	0	0.059368	0	0	0.015995	0	0	0	0	0	0	0.01821	0	0	0	0	0	0	0.324069	0	0	0.003571	0	0
0	0	0	0	0	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0.004888	0	0.00333	0.011937	0	0	0	0	0	0
0	0.029307	0.017633	0	0.036118	0.039935	0	0.117732	0.052709	1.587709	0.021566	0.052688	0.058273	0	0.128902	0.052709	1.587709	0.021566	0.052688	0.981478	0	2.740354	0.016133	0	0.00023754
0	0	0.150958	0	0	0.078002	0	0	0	0	0	0	0.0888	0	0	0	0	0	0	0.247473	0	0	0.009079	0	0
0.120316	0.019838	0.009917	0.003188	0.039735	0.032631	0.422834	0.0972	0.088194	0.611531	0.01985	0.030702	0.047615	0.616998	0.106422	0.088194	0.611531	0.01985	0.030702	0.609772	3.764144	1.599007	0.009768	0.001179	0.00018463
0.005098	0	0.081359	0.019848	0	0.131078	0.10976	0	0	0	0	0	0.149223	0.124954	0	0	0	0	0	0.528244	0.909745	0	0.004893	0.001194	0
0.11699	0.019292	0.011171	0.003043	0.037971	0.025066	0.409916	0.094138	0.090127	0.604533	0.019038	0.030007	0.036576	0.598148	0.103069	0.090127	0.604533	0.019038	0.030007	0.464027	3.764897	1.627311	0.011079	0.001349	0.00020919
0.005098	0	0.092234	0.032254	0	0.131317	0.10976	0	0	0	0	0	0.149496	0.124954	0	0	0	0	0	0.543901	0.909745	0	0.005547	0.00194	0
0.266825	0.036947	0.017369	0.007735	0.029626	0.046488	1.016472	0.194668	0.079109	0.451959	0.019401	0.029913	0.067836	1.483234	0.213137	0.079109	0.451959	0.019401	0.029913	1.050365	15.16046	4.12368	0.016948	0.005271	0.00037324
0.00501	0	0.153523	0.190538	0	0.011374	0.107868	0	0	0	0	0	0.012949	0.1228	0	0	0	0	0	0.111506	3.806249	0	0.009227	0.011452	0
0	0.000424	0.132741	0	0.000447	0.41892	0	0.002217	0.137659	0.939305	0.03129	0.048385	0.611287	0	0.002427	0.137659	0.939305	0.03129	0.048385	28.20394	0	4.668896	0.018159	0	0.00043544
0.120222	0	0.263434	1.049902	0	0.035382	2.588336	0	0	0	0	0	0.04028	2.946624	0	0	0	0	0	0.25059	34.66721	0	0.015833	0.063103	0
1.220521	0	0.638805	0.814284	0	0.123038	0.035891	0	0	0	0	0	3.524413	1.266655	0	0	0	0	0	10.87901	20.87434	0	0	0	0
0.012899	0	0.163481	0.547351	0	0.05386	0.277714	0	0	0	0	0	0.061316	0.316157	0	0	0	0	0	0.182949	8.422227	0	0.009826	0.032898	0
0	0	0.256187	0	0	0.001134	0	0	0	0	0	0	0.080974	0	0	0	0	0	0	0.134988	0	0	0.015408	0	0
0	0	0.411972	0	0	0.091954	0	0	0	0	0	0	6.568118	0	0	0	0	0	0	49.99333	0	0	0	0	0

A7 Road Dust Calculations: Proposed Project and Residential Variant

Entrained Road Dust Calculation

Yellow = update cells for project county
Green = use to calculate emissions

Road Dust Equation

$$E [lb/VMT] = k*(sl)^{0.91} * (W)^{1.02} * (1-P/4N)$$

Where:

E = the particulate emission factor in units of pounds of particulate matter per VMT

k = the U.S. EPA AP-42 particle size multiplier (PM₁₀ = 0.0022 lb/VMT)^[1]

sl = the roadway-specific silt loading in grams/square meter (g/m²)^[2,3,4,5]

W = the average weight of vehicles traveling the road (California statewide default

= 2.4 tons)^[2,9]

P = number of "wet" days, when at least one site per county received at least 0.01 inch

of precipitation during the annual averaging period^[9] and

N = the number of days in the annual averaging period (default = 365)

[Source: California Air Resources Board (CARB), Miscellaneous Process Methodology 7.9 — Entrained Road Travel, Paved Road Dust. Revised and updated March 2018,

Silt Loading Factor

For entry into CalEEMod - Construction onroad and Operation mobile

Source: CARB, 2018.

Table 6: 2008 Roadway Travel Fractions and VMT (1) Estimates for California Entrained Paved Road Dust

County	Freeway	Major	Collector	Local
San Francisco	0.36	0.52	0.068	0.053

Table 7: 2008 Silt Loadings and PM₁₀ Emission Factors for California Entrained Paved Road Dust Estimates

County	Freeway	Major	Collector	Local
San Francisco	0.015	0.032	0.032	0.32

Composite SL 0.041176 enter into CalEEMod NOTE: for operational mobile sources run, must do this as a last step immediately before running the model or else it will default to zero

Re-entrained PAVED Road Dust Emission Factors

Methodology

Calculation Methodology: USEPA AP-42, Paved Roads, Section 13.2.1, Revised January 2011:

<http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s0201.pdf>

K-value from CARB, 2018.

Pollutant	Variables	k	sl	W	P	N	E _{est} (g/mi)
PM ₁₀	1.00	0.041176	23	67	365	1.28200	
PM _{2.5}	0.15	0.041176	23	67	365	0.19230	

← use in off-model spreadsheet as EF

← use in off-model spreadsheet as EF

Where:

E = particulate emission factor (grams of particulate matter/VMT)

k = particle size multiplier (g/VMT)

sl = local roadway silt loading (g/m²)

W = average weight of vehicles on the road (tons)

lb/ton

P = number of wet days with at least 0.254mm of precipitation

N = number of days in the averaging period

Source

calculation

Table 13.2.1-1 Particle Size Multipliers for Paved Road

Calculated above (silt loading factor)

<https://www.worktruckonline.com/147868>

(calculating commercial vehicle weight distribution payload made easy

Table 8 of CARB, 2018.

annual days (365)

Table 13.2.1-1. PARTICLE SIZE MULTIPLIERS FOR PAVED ROAD EQUATION

Size range ^a	Particle Size Multiplier k ^b		
	g/VKT	g/VMT	lb/VMT
PM-2.5 ^c	0.15	0.25	0.00054
PM-10	0.62	1.00	0.0022
PM-15	0.77	1.23	0.0027
PM-30 ^d	3.23	5.24	0.011

^a Refers to airborne particulate matter (PM-x) with an aerodynamic diameter equal to or less than x micrometers

^b Units shown are grams per vehicle kilometer traveled (g/VKT), grams per vehicle mile traveled (g/VMT), and pounds per vehicle mile traveled (lb/VMT). The multiplier k includes unit conversions to produce emission factors in the units shown for the indicated size range from the mixed units required in Equation 1.

^c The k-factors for PM₁₅ were based on the average PM₁₀:PM₁₅ ratio of test runs in Reference 30.

^d PM-30 is sometimes termed "suspensible particulate" (SP) and is often used as a surrogate for TSP.



Table 6
2008 Roadway Travel Fractions and VMT (1) Estimates
for California Entrained Paved Road Dust

Air Basin	County	Air District	2012 VMT (million VMT per year)	2008 HPMS Travel Fractions (2)				
				Freeway	Major	Collector	Local, Local Urban (3)	Local Rural
GB	Alpine	GBU	67	0.000	0.775	0.118	0.107	
GB	Inyo	GBU	555	0.002	0.743	0.156	0.099	
GB	Mono	GBU	314	0.000	0.776	0.085	0.139	
LC	Lake	LAK	510	0.000	0.610	0.278	0.113	
LT	El Dorado	ED	387	0.174	0.572	0.130	0.124	
LT	Placer	PLA	312	0.408	0.381	0.113	0.097	
MC	Amador	AMA	443	0.000	0.763	0.139	0.098	
MC	Calaveras	CAL	369	0.000	0.688	0.186	0.126	
MC	El Dorado	ED	1,384	0.174	0.572	0.130	0.124	
MC	Mariposa	MPI	177	0.000	0.488	0.075	0.437	
MC	Nevada	NSI	1,050	0.437	0.261	0.167	0.135	
MC	Placer	PLA	556	0.408	0.381	0.113	0.097	
MC	Plumas	PLU	259	0.000	0.519	0.273	0.209	
MC	Sierra	NSI	90	0.140	0.435	0.153	0.272	
MC	Tuolumne	TUO	387	0.000	0.583	0.246	0.171	
MD	Kern	KER	1,666	0.268	0.562	0.082	0.089	
MD	Los Angeles	AV	3,466	0.453	0.442	0.054	0.051	
MD	Riverside	MOJ	392	0.478	0.333	0.126	0.063	
MD	San Bernardino	MOJ	8,814	0.524	0.340	0.069	0.067	
NC	Del Norte	NCU	224	0.000	0.657	0.227	0.116	
NC	Humboldt	NCU	1,111	0.222	0.497	0.175	0.106	
NC	Mendocino	MEN	1,020	0.062	0.599	0.221	0.118	
NC	Sonoma	NS	716	0.258	0.470	0.185	0.087	
NC	Trinity	NCU	200	0.000	0.712	0.082	0.206	
NCC	Monterey	MBU	3,620	0.164	0.572	0.164	0.101	
NCC	San Benito	MBU	686	0.000	0.853	0.082	0.064	
NCC	Santa Cruz	MBU	1,523	0.271	0.476	0.167	0.066	
NEP	Lassen	LAS	374	0.000	0.587	0.256	0.157	

Table 7

2008 Silt Loadings and PM₁₀ Emission Factors for California

Entrained Paved Road Dust Estimates

Air Basin	County	Air District	Silt Loadings (SL, g/m ²) and PM10 Emission Factors (EF; lbs PM10/106 VMT)										Avg. Vehicle Weight (tons)
			Freeway		Major (1)		Collector (1)		Local, Local Urban		Local Rural (2)		
			SL	EF	SL	EF	SL	EF	SL	EF	SL	EF	
GB	Alpine	GBU	0.015	111.8	0.032	222.8	0.032	222.8	0.32	1,811.2			2.4
GB	Inyo	GBU	0.015	115.4	0.032	229.9	0.032	229.9	0.32	1,868.6			2.4
GB	Mono	GBU	0.015	114.5	0.032	228.1	0.032	228.1	0.32	1,854.2			2.4
LC	Lake	LAK	0.015	112.1	0.032	223.5	0.032	223.5	0.32	1,816.4			2.4
LT	El Dorado	ED	0.015	112.1	0.032	223.5	0.032	223.5	0.32	1,816.4			2.4
LT	Placer	PLA	0.015	111.4	0.032	222.0	0.032	222.0	0.32	1,804.7			2.4
MC	Amador	AMA	0.015	112.5	0.032	224.1	0.032	224.1	0.32	1,821.6			2.4
MC	Calaveras	CAL	0.015	111.8	0.032	222.8	0.032	222.8	0.32	1,811.2			2.4
MC	El Dorado	ED	0.015	112.3	0.032	223.8	0.032	223.8	0.32	1,819.0			2.4
MC	Mariposa	MPPA	0.015	112.1	0.032	223.3	0.032	223.3	0.32	1,815.1			2.4
MC	Nevada	NSI	0.015	110.9	0.032	221.1	0.032	221.1	0.32	1,796.8			2.4
MC	Placer	PLA	0.015	111.7	0.032	222.7	0.032	222.7	0.32	1,809.9			2.4
MC	Plumas	NSI	0.015	111.6	0.032	222.3	0.032	222.3	0.32	1,807.3			2.4
MC	Sierra	NSI	0.015	111.3	0.032	221.7	0.032	221.7	0.32	1,802.0			2.4
MC	Tuolumne	TUO	0.015	112.4	0.032	223.9	0.032	223.9	0.32	1,820.3			2.4
MD	Kern	KER	0.015	115.7	0.032	230.5	0.032	230.5	0.32	1,873.8			2.4
MD	Los Angeles	AV	0.015	115.7	0.032	230.5	0.032	230.5	0.32	1,873.8			2.4
MD	Riverside	MOJ	0.015	116.3	0.08	533.3	0.08	533.3	0.84	4,531.5			2.4
MD	Riverside	SC	0.015	116.3	0.08	533.3	0.08	533.3	0.84	4,531.5			2.4
MD	San Bernardino	MOJ	0.015	115.8	0.08	531.1	0.08	531.1	0.84	4,512.7			2.4
NC	Del Norte	NCU	0.015	108.7	0.032	216.6	0.032	216.6	0.32	1,760.3			2.4
NC	Humboldt	NCU	0.015	107.9	0.032	215.0	0.032	215.0	0.32	1,747.2			2.4
NC	Mendocino	MEN	0.015	108.4	0.032	215.9	0.032	215.9	0.32	1,755.1			2.4
NC	Sonoma	NS	0.015	111.6	0.032	222.3	0.032	222.3	0.32	1,807.3			2.4
NC	Trinity	NCU	0.015	110.9	0.032	220.9	0.032	220.9	0.32	1,795.5			2.4
NCC	Monterey	MBU	0.015	113.2	0.032	225.6	0.032	225.6	0.32	1,833.4			2.4
NCC	San Benito	MBU	0.015	113.5	0.032	226.2	0.032	226.2	0.32	1,838.6			2.4
NCC	Santa Cruz	MBU	0.015	112.4	0.032	223.9	0.032	223.9	0.32	1,820.3			2.4
NEP	Lassen	LAS	0.015	112.9	0.032	224.9	0.032	224.9	0.32	1,828.1			2.4
NEP	Modoc	MOD	0.015	111.5	0.032	222.2	0.032	222.2	0.32	1,806.0			2.4
NEP	Siskiyou	SIS	0.015	109.9	0.032	219.0	0.032	219.0	0.32	1,779.9			2.4
SC	Los Angeles	SC	0.015	114.9	0.013	100.9	0.013	100.9	0.135	848.4			2.4
SC	Orange	SC	0.015	115.0	0.013	100.9	0.013	100.9	0.135	849.0			2.4
SC	Riverside	SC	0.015	114.9	0.08	527.0	0.08	527.0	0.84	4,478.2			2.4
SC	San Bernardino	SC	0.015	114.3	0.08	524.4	0.08	524.4	0.84	4,456.2			2.4
SCC	San Luis Obispo	SLO	0.015	114.2	0.032	227.6	0.032	227.6	0.32	1,850.3			2.4
SCC	Santa Barbara	SB	0.015	113.9	0.032	227.0	0.032	227.0	0.32	1,845.1			2.4
SCC	Ventura	VEN	0.015	115.1	0.032	229.4	0.032	229.4	0.32	1,864.7			2.4
SD	San Diego	SD	0.015	114.2	0.032	227.6	0.032	227.6	0.32	1,850.3			2.4
SF	Alameda	BA	0.015	112.7	0.032	224.6	0.032	224.6	0.32	1,825.5			2.4
SF	Contra Costa	BA	0.015	112.8	0.032	224.8	0.032	224.8	0.32	1,826.8			2.4
SF	Marin	BA	0.015	112.3	0.032	223.9	0.032	223.9	0.32	1,819.0			2.4
SF	Napa	BA	0.015	112.1	0.032	223.5	0.032	223.5	0.32	1,816.4			2.4
SF	San Francisco	BA	0.015	112.2	0.032	223.6	0.032	223.6	0.32	1,817.7			2.4
SF	San Mateo	BA	0.015	112.8	0.032	224.8	0.032	224.8	0.32	1,826.8			2.4
SF	Santa Clara	BA	0.015	112.5	0.032	224.1	0.032	224.1	0.32	1,821.6			2.4
SF	Solano	BA	0.015	113.3	0.032	225.7	0.032	225.7	0.32	1,834.7			2.4
SF	Sonoma	BA	0.015	112.1	0.032	223.3	0.032	223.3	0.32	1,815.1			2.4
SJV	Fresno	SJU	0.015	116.0	0.032	227.2	0.032	227.2	0.32	1,846.4	1.6	7987.1	2.4
SJV	Kern	SJU	0.015	114.6	0.032	225.4	0.032	225.4	0.32	1,846.8	1.6	8032.3	2.4
SJV	Kings	SJU	0.015	114.4	0.032	228.3	0.032	228.3	0.32	1,855.5	1.6	8026.8	2.4
SJV	Madera	SJU	0.015	114.1	0.032	227.3	0.032	227.3	0.32	1,847.1	1.6	7992.8	2.4
SJV	Merced	SJU	0.015	113.5	0.032	226.2	0.032	226.2	0.32	1,838.6	1.6	7953.3	2.4
SJV	San Joaquin	SJU	0.015	113.2	0.032	225.6	0.032	225.6	0.32	1,833.4	1.6	7930.7	2.4
SJV	Stanislaus	SJU	0.015	113.4	0.032	226.0	0.032	226.0	0.32	1,837.3	1.6	7947.8	2.4
SJV	Tulare	SJU	0.015	114.4	0.032	228.0	0.032	228.0	0.32	1,852.9	1.6	8015.4	2.4
SS	Imperial	IMP	0.015	116.7	0.032	232.6	0.032	232.6	0.32	1,890.8			2.4
SS	Riverside	SC	0.015	116.3	0.08	533.3	0.08	533.3	0.84	4,531.5			2.4
SV	Butte	BUT	0.015	112.5	0.032	224.3	0.032	224.3	0.32	1,822.9			2.4
SV	Colusa	COL	0.015	113.1	0.032	225.4	0.032	225.4	0.32	1,832.1			2.4
SV	Glenn	GLE	0.015	112.5	0.032	224.3	0.032	224.3	0.32	1,822.9			2.4
SV	Placer	PLA	0.015	112.3	0.032	223.8	0.032	223.8	0.32	1,818.0			2.4
SV	Sacramento (4)	SAC	0.015	113.0	0.032	225.2	0.032	225.2	0.32	1,830.8			2.4
SV	Shasta	SHA	0.015	111.0	0.032	221.2	0.032	221.2	0.32	1,798.4			2.4
SV	Solano	SJU	0.015	112.9	0.032	225.1	0.032	225.1	0.32	1,829.1			2.4
SV	Yuba	SC	0.015	111.6	0.032	222.1	0.032	222.1	0.32	1,807.3			2.4
SV	Tehama	TEH	0.015	111.9	0.032	223.0	0.032	223.0	0.32	1,812.5			2.4
SV	Yolo	SV	0.015	112.9	0.032	225.1	0.032	225.1	0.32	1,829.4			2.4
SV	Yuba	FR	0.015	112.5	0.032	224.3	0.032	224.3	0.32	1,822.9			2.4
1	2	3	4	5	6	7	8	9	10	11	12	13	

NEP	Modoc	MOD	134	0.000	0.453	0.224	0.323	
NEP	Siskiyou	SIS	1,000	0.453	0.224	0.121	0.201	
SC	Los Angeles	SC	78,066	0.453	0.442	0.054	0.051	
SC	Orange	SC	27,160	0.483	0.431	0.027	0.059	
SC	Riverside	SC	18,207	0.478	0.333	0.126	0.063	
SC	San Bernardino	SC	14,487	0.524	0.340	0.069	0.067	
SCC	San Luis Obispo	SLO	2,761	0.211	0.611	0.086	0.092	
SCC	Santa Barbara	SB	3,304	0.299	0.505	0.127	0.069	
SCC	Ventura	VEN	7,191	0.370	0.469	0.082	0.079	
SD	San Diego	SD	30,297	0.353	0.319	0.080	0.048	
SF	Alameda	BA	13,732	0.566	0.317	0.064	0.053	
SF	Contra Costa	BA	7,985	0.517	0.334	0.066	0.082	
SF	Marin	BA	2,258	0.497	0.290	0.146	0.067	
SF	Napa	BA	1,101	0.180	0.524	0.204	0.092	
SF	San Francisco	BA	3,199	0.360	0.520	0.068	0.053	
SF	San Mateo	BA	5,595	0.563	0.319	0.063	0.055	
SF	Santa Clara	BA	14,041	0.434	0.449	0.054	0.064	
SF	Solano	BA	2,891	0.627	0.251	0.061	0.062	
SF	Sonoma	BA	3,947	0.258	0.470	0.185	0.087	
SJV	Fresno	SJU	8,641	0.293	0.427	0.126	0.085	0.022
SJV	Kern	SJU	6,872	0.268	0.562	0.082	0.066	0.026
SJV	Kings	SJU	1,408	0.264	0.503	0.144	0.063	0.070
SJV	Madera	SJU	1,854	0.139	0.650	0.100	0.041	0.052
SJV	Merced	SJU	2,575	0.244	0.527	0.125	0.052	0.018
SJV	San Joaquin	SJU	6,485	0.456	0.351	0.117	0.058	0.020
SJV	Stanislaus	SJU	3,769	0.300	0.375	0.229	0.075	0.071
SJV	Tulare	SJU	3,777	0.152	0.545	0.172	0.059	0.022
SS	Imperial	IMP	2,400	0.273	0.453	0.168	0.106	
SS	Riverside	SC	4,714	0.478	0.333	0.126	0.063	
SV	Butte	BUT	1,693	0.080	0.557	0.240	0.124	
SV	Colusa	COL	696	0.609	0.167	0.077	0.147	
SV	Glenn	GLE	527	0.541	0.209	0.121	0.129	
SV	Placer	PLA	3,110	0.408	0.361	0.113	0.097	
SV	Sacramento (4)	SAC	13,027	0.469	0.389	0.075	0.067	
SV	Shasta	SHA	1,923	0.419	0.401	0.090	0.090	
SV	Solano	YS	1,660	0.627	0.251	0.061	0.062	
SV	Sutter	FR	798	0.088	0.628	0.129	0.155	
SV	Tehama	TEH	1,065	0.492	0.264	0.148	0.095	
SV	Yolo	YS	2,167	0.561	0.252	0.086	0.101	
SV	Yuba	FR	658	0.165	0.503	0.220	0.111	
Statewide Total			337,332					

- 1 2012 VMT from EMFAC2014 or provided by regional transportation planning agencies. Does not include VMT on unspecified roads, e.g., sand and gravel processing facilities.
2 Sacramento Area Council of Governments (SACOG) provided 2008 travel fractions for Sacramento County.
3 SJU District distributes Local Roads VMT to Local Urban and Local Rural fractions. For all other regions, the Local Roads fraction includes both Local Urban and Local Rural VMT.

SD San Diego			SD	0.015	114.2	0.032	227.6	0.032	227.6	0.32	1,850.3		2.4
SF	Alameda	BA	0.015	112.7	0.032	224.6	0.032	224.6	0.32	1,826.5		2.4	
SF	Contra Costa	BA	0.015	112.8	0.032	224.8	0.032	224.8	0.32	1,826.8		2.4	
SF	Marin	BA	0.015	112.3	0.032	223.8	0.032	223.8	0.32	1,819.0		2.4	
SF	Napa	BA	0.015	112.1	0.032	223.5	0.032	223.5	0.32	1,816.4		2.4	
SF	San Francisco	BA	0.015	112.2	0.032	223.6	0.032	223.6	0.32	1,817.7		2.4	
SF	San Mateo	BA	0.015	112.8	0.032	224.8	0.032	224.8	0.32	1,826.8		2.4	
SF	Santa Clara	BA	0.015	112.5	0.032	224.1	0.032	224.1	0.32	1,821.6		2.4	
SF	Solano	BA	0.015	113.3	0.032	225.7	0.032	225.7	0.32	1,834.7		2.4	
SF	Sonoma	BA	0.015	112.1	0.032	223.3	0.032	223.3	0.32	1,815.1		2.4	
SJV	Fresno	SJU	0.015	114.0	0.032	227.2	0.032	227.2	0.32	1,848.4	1.6	7,687.1	2.4
SJV	Kern	SJU	0.015	114.6	0.032	228.4	0.032	228.4	0.32	1,856.8	1.6	8,032.8	2.4
SJV	Kings	SJU	0.015	114.6	0.032	228.3	0.032	228.3	0.32	1,855.5	1.6	8,026.6	2.4
SJV	Madera	SJU	0.015	114.1	0.032	227.3	0.032	227.3	0.32	1,847.7	1.6	7,982.8	2.4
SJV	Merced	SJU	0.015	113.3	0.032	226.2	0.032	226.2	0.32	1,838.6	1.6	7,951.3	2.4
SJV	San Joaquin	SJU	0.015	113.2	0.032	225.6	0.032	225.6	0.32	1,833.4	1.6	7,930.7	2.4
SJV	Stanislaus	SJU	0.015	113.4	0.032	226.0	0.032	226.0	0.32	1,837.3	1.6	7,947.6	2.4
SJV	Tulare	SJU	0.015	114.4	0.032	228.0	0.032	228.0	0.32	1,852.9	1.6	8,015.4	2.4
SS	Imperial	IMP	0.015	116.7	0.032	232.6	0.032	232.6	0.32	1,890.8		2.4	
SS	Riverside	SC	0.015	116.3	0.08	333.3	0.08	333.3	0.84	4,531.5		2.4	
SV	Butte	BUT	0.015	112.5	0.032	224.3	0.032	224.3	0.32	1,822.8		2.4	
SV	Colusa	COL	0.015	113.1	0.032	225.4	0.032	225.4	0.32	1,832.1		2.4	
SV	Glenn	GLE	0.015	112.5	0.032	224.3	0.032	224.3	0.32	1,822.9		2.4	
SV	Placer	PLA	0.015	112.3	0.032	223.8	0.032	223.8	0.32	1,819.0		2.4	
SV	Sacramento (4)	SAC	0.015	113.0	0.032	225.2	0.032	225.2	0.32	1,830.8		2.4	
SV	Shasta	SHA	0.015	111.0	0.032	221.2	0.032	221.2	0.32	1,788.1		2.4	
SV	Solano	YS	0.015	112.8	0.032	225.1	0.032	225.1	0.32	1,829.4		2.4	
SV	Sutter	FR	0.015	111.0	0.032	222.3	0.032	222.3	0.32	1,807.3		2.4	
SV	Tehama	TEH	0.015	111.9	0.032	223.0	0.032	223.0	0.32	1,812.5		2.4	
SV	Yolo	YS	0.015	112.9	0.032	225.1	0.032	225.1	0.32	1,829.4		2.4	
SV	Yuba	FR	0.015	112.5	0.032	224.3	0.032	224.3	0.32	1,822.8		2.4	

- 1 For Major, Collector and Local roads, the portion of Los Angeles County in the SC Air District (South Coast Air Quality Management District, SCAQMD) and all portions of Orange, Riverside and San Bernardino counties use silt loading values derived from a subset of measurements collected in the SCAQMD and Riverside County. Silt loading measurements used for this update are presented in Appendix A, Table 1. See Table 3 for more information on how silt loading values were derived.
2 The SJU District (San Joaquin Valley Air Pollution Control District) splits local roads into urban and rural classes and uses separate silt loading values. A higher silt loading value derived from AP-42 data is used to compute emissions for local rural roads due to anticipated higher loading levels.
3 SCAQMD provides ARB with only the total PM₁₀ emissions for paved roads at sand and gravel processing facilities.
4 Sacramento Area Council of Governments (SACOG) provided 2008 travel fractions for Sacramento County.

1 Average days per year that counties within air basin receive ≥ 0.01 inch precipitation over years of record, Western Regional Climate Center data, <http://www.wrcc.dri.edu/>

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A8 TRU Emissions Calculations Using OFFROAD-ORION

Conversions

Tons	Pounds	Grams
1	2000	907185

Mile	Feet
1	5280

Years	Days
1	365

TRUs

Number of TRUs	15 TRUs	(hotel & restaurant only)
Hours of Operation per day	0.25 hrs/day/TRU	
Days of Operation per year	365 days/year/TRU	
Hour of Operation per year	91.25 hrs/year/TRU	

NOTES: Assume that operational reefers fun 15 minutes per hour during the 8 hour required rest time.

Table 8: Freight Loading Demand for Proposed Project

Land Use	Amount (ksf)	Daily Freight Loading Rate (per ksf)	Daily Truck Trips	Peak Hour Freight Loading Demand¹ (spaces)
Hotel	147.9	0.09	13	0.75
Gym	36	0.22	8	0.46
Restaurant	10.1	0.22	2	0.12
Office	39.8	0.21	8	0.46
Total	233.8	-	31	1.79

--

Region	Calendar Year	Vehicle Catego	Model Year	Horsepower	Bi Fuel	hr/year	ROG_tpd	NOx_tpd	PM10_tpd	PM25_tpd	Fuel Consumpt	Total_Activity_	Total_Populati	Horsepower_Hours_hhpy	hr/day/TRU
San Francisco	2024	TRU - Instate T	Aggregate	Aggregate	Diesel		0.00210771	0.020454734	0.000815578	0.000750332	402.09	206613.56	151.81	2913251.24	3.73

--

Ton/day/TRU	ROG	NOx	PM10	PM2.5
TRU	0.000014	0.000135	0.000005	0.000005

Ton/Hour/TRU	ROG	NOx	PM10	PM2.5
TRU	0.000004	0.000036	0.000001	0.000001

TPY	ROG	NOx	PM10	PM2.5
TRU	0.0051	0.0495	0.0020	0.0018

PPD	ROG	NOx	PM10	PM2.5
TRU	0.0279	0.2710	0.0108	0.0099

OFFROAD2017 (v1.0.1) Emissions Inventory

Region Type: County

Region: San Francisco

Calendar Year: 2024

Scenario: All Adopted Rules - Exhaust

Vehicle Classification: OFFROAD2017 Equipment Types

Units: Emissions: tons/day, Fuel Consumption: gallons/year, Activity: hours/year, HP-Hours: HP-hours/year

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	PM10_tpd	PM2_5_tpd	PM_tpd	Fuel_gpy	Total_Activity_	Total_Populati	Horsepower_Hours_hhpy
San Francisco	2024	TRU - Instate T	Aggregated	Aggregated	Diesel	0.00210771	0.002508349	0.017097749	0.020454734	0.000815578	0.000750332	0.000815578	260.5164948	206613.5634	151.8101127	2913251.244

APPENDIX E

Wind Study

530 SANSOME STREET

SAN FRANCISCO, CA

PEDESTRIAN WIND STUDY

RWDI # 2001802

February 1, 2021

SUBMITTED TO

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EXECUTIVE SUMMARY

RWDI was retained to conduct a pedestrian wind assessment for the proposed 530 Sansome Street in San Francisco, CA (Image 1). The proposed project would demolish three existing buildings (425 and 439-445 Washington Street, San Francisco Fire Station 13 at 530 Sansome Street) and construct a 218-foot-tall (236 feet total, including rooftop mechanical equipment) building and a four-story replacement fire station. The 218-foot-tall building would provide retail/restaurant space, office space, fitness center space, and hotel rooms. The sponsor also proposes a residential variant, which would instead construct 256 residential units in the approximately 218-foot tall building. For purposes of this study, a model of the proposed project (project) was prepared and tested. A qualitative discussion of the residential variant is included as the overall massing of the project and residential variant are sufficiently similar that any effects from wind would not greatly vary from a pedestrian wind comfort or hazard perspective. As such, the wind effects associated with the residential variant are anticipated to be congruent with those reported for the project.

Based on our wind-tunnel testing for the proposed development under the Existing, Existing + Project, and Project + Cumulative configurations (Images 2A through 2C), the potential wind comfort and hazard conditions are predicted as shown on site plans in Figures 1A through 2C, while the associated wind speeds are listed in Tables 1 and 2, respectively. Nearby bike lane test locations are shown in Figure 3 and the associated mean wind speeds are listed in Table 3.

These results can be summarized as follows:

Wind Comfort

Existing wind speeds exceed the 11-mph wind comfort criterion at 53 of 77 test locations. This number is expected to increase to 55 of 77 locations with the addition of the proposed development to the site (i.e., Existing + Project) and 54 of 77 locations with the subsequent addition of future buildings to the surroundings (i.e., Project + Cumulative configuration).

Wind Hazard

Existing wind speeds do not comply with the 1-hour, 36-mph wind hazard criterion at 12 of 77 test locations. This number is anticipated to decrease to 10 of 77 locations with the addition of the proposed development to the site (i.e., Existing + Project) and increase to 14 of 77 locations with the subsequent addition of future buildings to the surroundings (i.e., Project + Cumulative configuration).

Bike Lane Wind Conditions

Bike lane wind conditions are provided for informational and reference purposes. The mean wind speed for the 15 bike lane test locations is 6 mph for all configurations assessed.



Summary Table

CONFIGURATION		WIND COMFORT			WIND HAZARD		
		Average Speed	Average (%)	Total Exceedances	Average Speed	Total Hours	Total Exceedances
A	Existing	14 mph	21%	$\frac{53}{77}$	28 mph	249	$\frac{12}{77}$
B	Existing + Project	14 mph	20%	$\frac{55}{77}$	28 mph	138	$\frac{10}{77}$
C	Project + Cumulative	14 mph	22%	$\frac{54}{77}$	28 mph	263	$\frac{14}{77}$



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Figure 1C:	Wind Comfort Conditions – Project + Cumulative
Figure 2A:	Wind Hazard Conditions – Existing
Figure 2B:	Wind Hazard Conditions – Existing + Project
Figure 2C:	Wind Hazard Conditions – Project + Cumulative
Figure 3:	Bike Lane Test Locations

LIST OF TABLES

Table 1:	Wind Comfort Results
Table 2:	Wind Hazard Results
Table 3:	Bike Lane Wind Conditions – Informational

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Appendix A:	San Francisco Planning Code Section 148
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1 INTRODUCTION

RWDI was retained to conduct a pedestrian wind assessment for the proposed 530 Sansome Street project in San Francisco, CA. This report presents the project objectives, background and approach, discusses the results from RWDI's assessment, and provides commentary on predicted wind conditions with the residential variant massing.

1.1 Project Description

The project site (shown in Image 1) is located at the southeast corner of Sansome Street and Washington Street. Under either the project or residential variant, the four story replacement fire station would be the same. The proposed project is the commercial version of the building and consists of 19 stories with a series of 2-story canopies along the ground floor. The residential variant would have the same total height (236 feet) as the project but would contain 21 stories due to the different floor to ceiling height for residential configuration. The potential impacts of the residential variant are discussed in Section 3.5 Residential Variant Commentary.

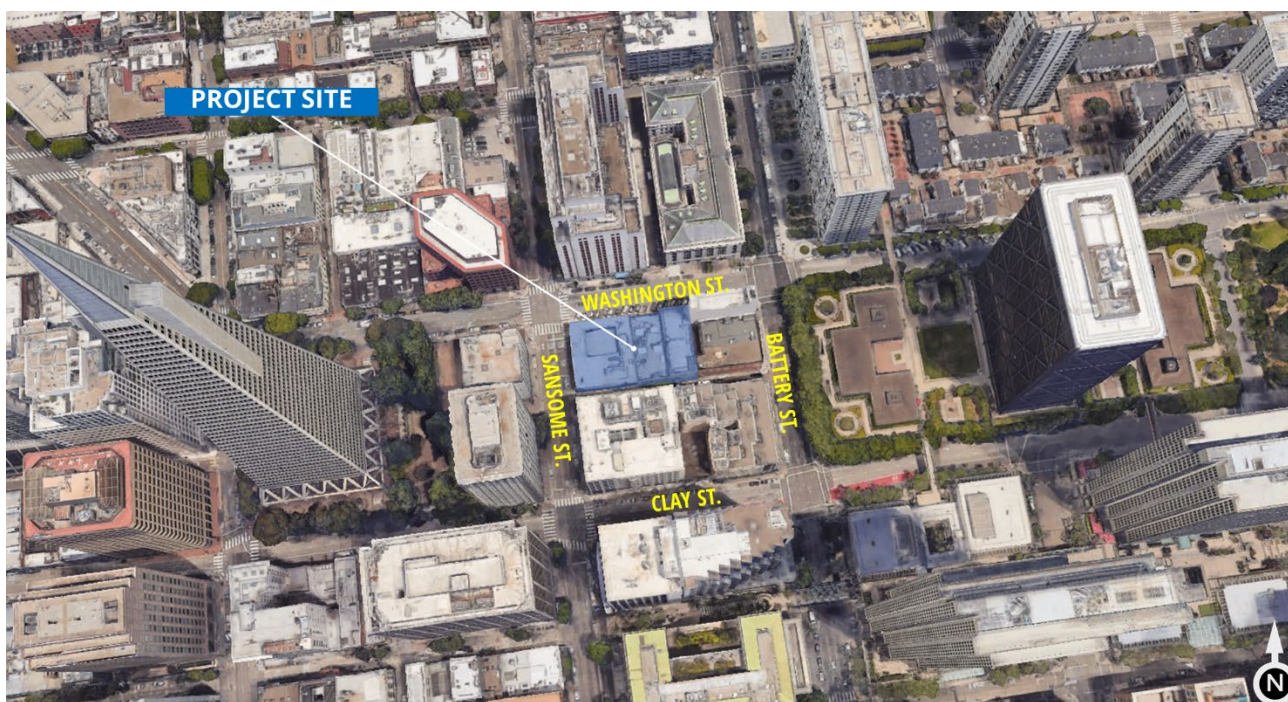


Image 1: Aerial View of the Existing Site and Surroundings (Photo Courtesy of Google™ Earth)

1.2 Objectives

The objective of the study was to assess the effect of the proposed development on local conditions in pedestrian areas on and around the study site and provide recommendations for minimizing adverse effects, if needed. This quantitative assessment was based on wind speed measurements on a scale model of the project and its surroundings in one of RWDI's boundary-layer wind tunnels. These measurements were combined with the local wind records and compared to appropriate criteria for gauging wind comfort and safety in pedestrian areas. The assessment focused on critical pedestrian areas, including main entrances and public sidewalks.



2 BACKGROUND AND APPROACH

2.1 Wind Tunnel Study Model

To assess the wind environment around the proposed project, a 1:300 scale model of the project site and surroundings was constructed for the wind tunnel tests of the following configurations:

- | | |
|---------------------------|---|
| A – Existing: | Existing site with existing surroundings, including all projects built or under construction as of December 7, 2020 (Image 2A). |
| B – Existing + Project: | Proposed project with existing surroundings (Image 2B). |
| C – Project + Cumulative: | Proposed project with existing and future surroundings (Image 2C). |

The wind tunnel model included all relevant surrounding buildings and topography within an approximate 1200-foot radius of the study site. No street trees or other landscaping was included in the wind tunnel model. The wind and turbulence profiles in the atmospheric boundary layer beyond the modelled area were also simulated in RWDI's wind tunnel. The wind tunnel model was instrumented with 80 wind speed sensors to measure mean and gust speeds at a full-scale height of approximately 5 feet above local grade in pedestrian areas throughout the study site. Wind speeds were measured for 16 directions in 22.5° increments. The measurements at each sensor location were recorded in the form of ratios of local mean and gust speeds to the mean wind speed at a reference height above the model. The placement of wind measurement locations was based on our experience and understanding of the pedestrian usage for this site and reviewed by the design team.

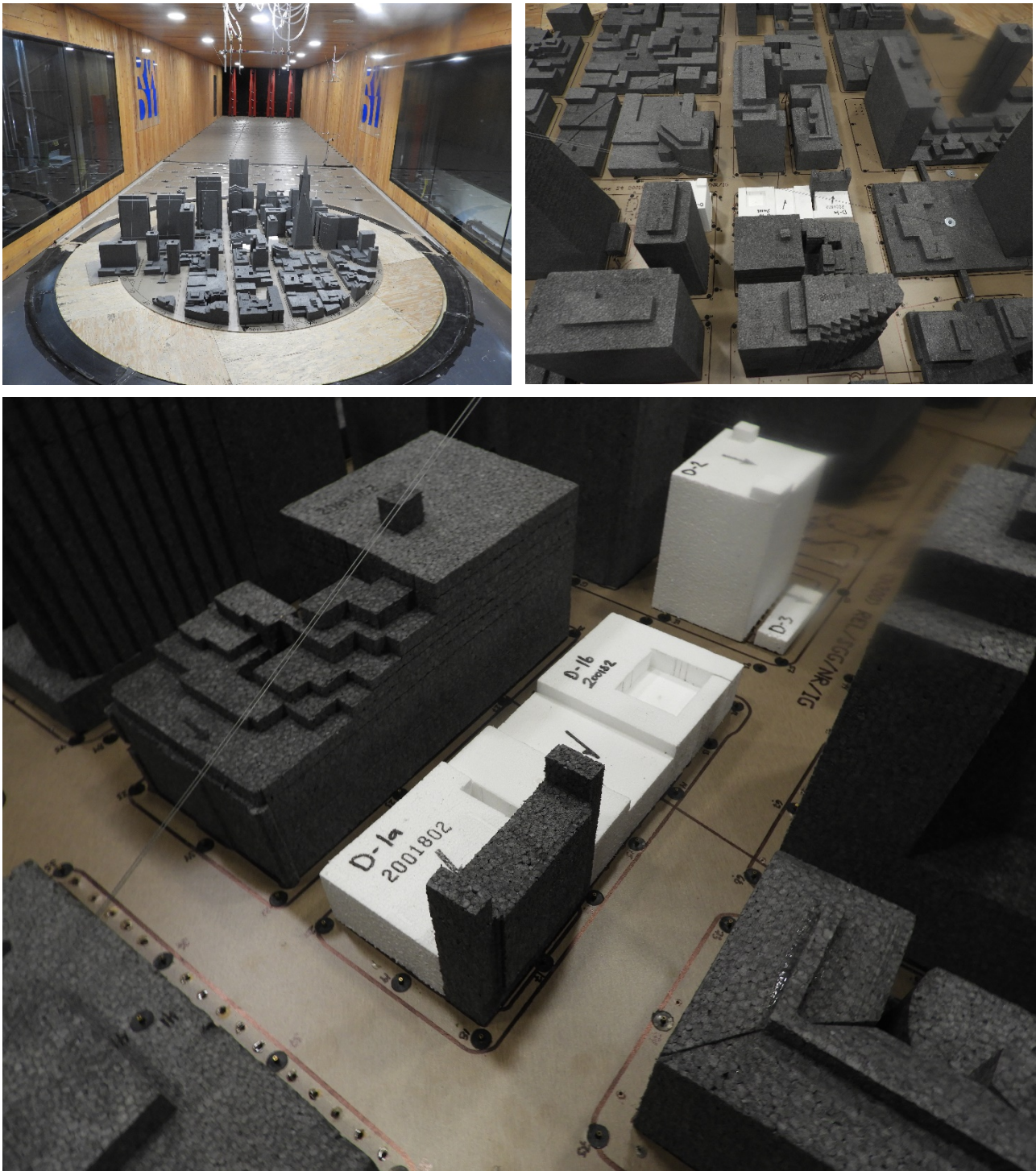


Image 2A: Wind Tunnel Study Model – Existing Configuration

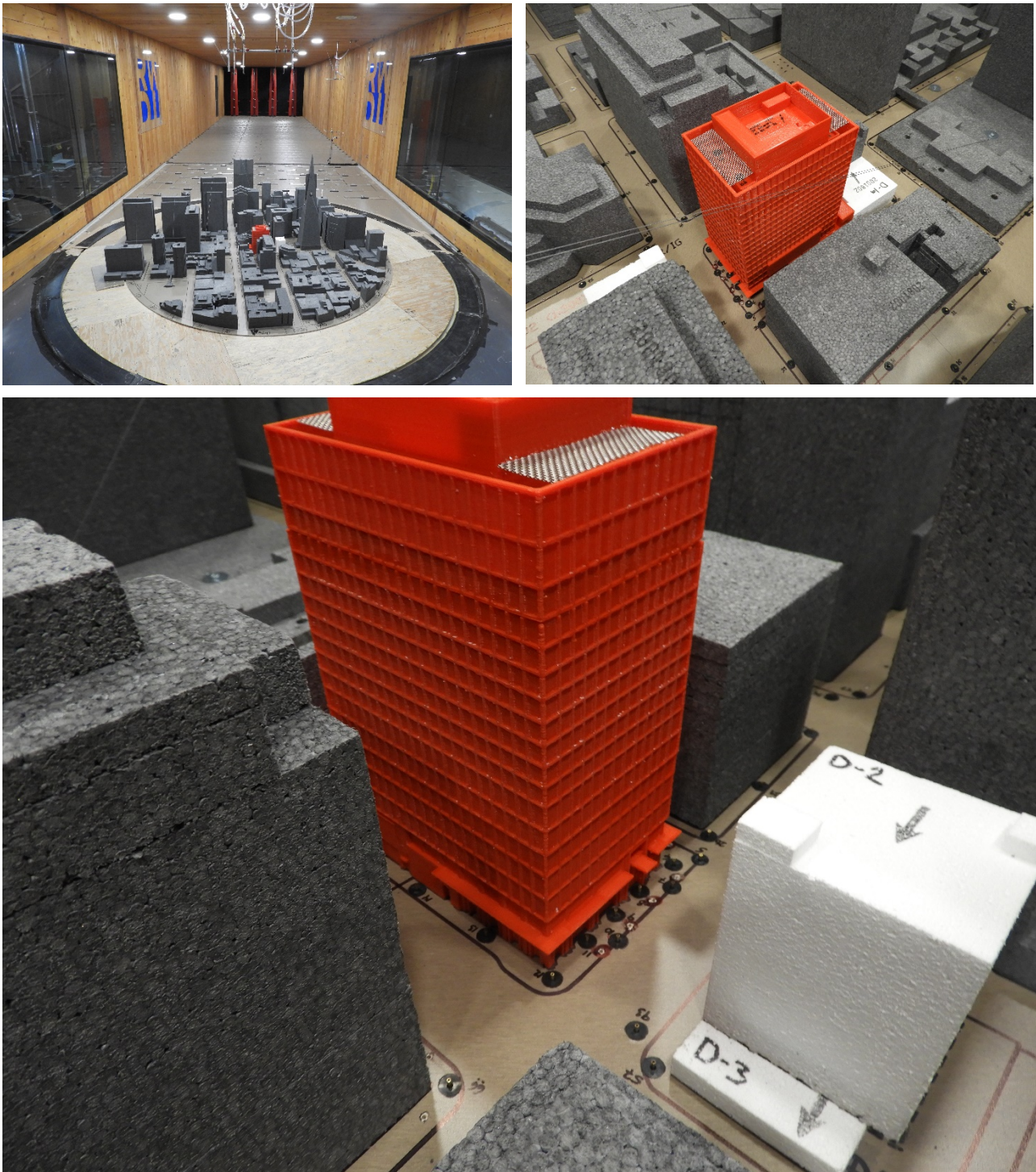


Image 2B: Wind Tunnel Study Model – Existing + Project Configuration

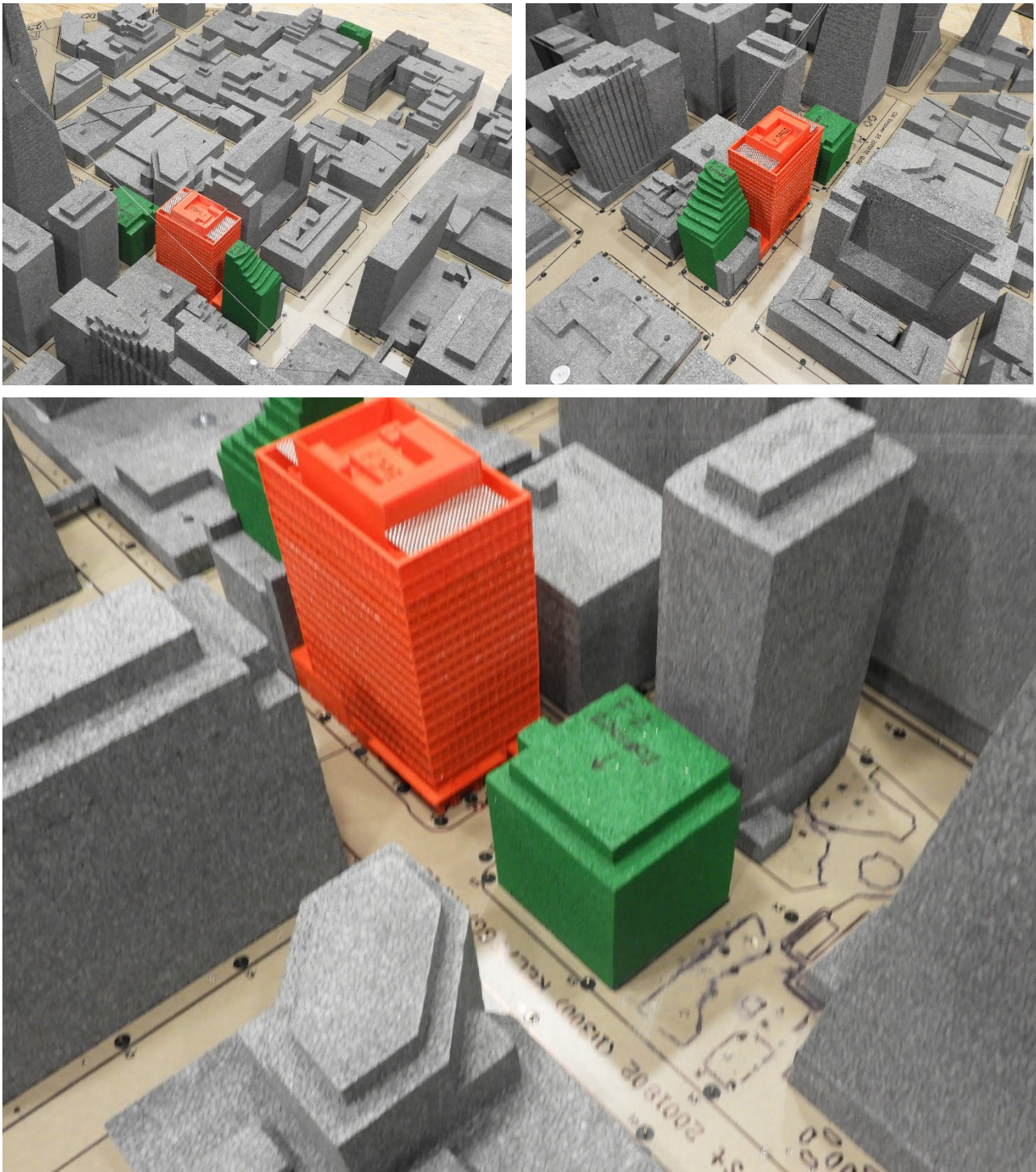


Image 2C: Wind Tunnel Study Model – Project + Cumulative Configuration

2.2 Cumulative Developments

Cumulative developments within 1,200 feet of the project site, as of December 7, 2020, were included in the Project + Cumulative configuration. These are shown in Image 3 and listed in the table below.

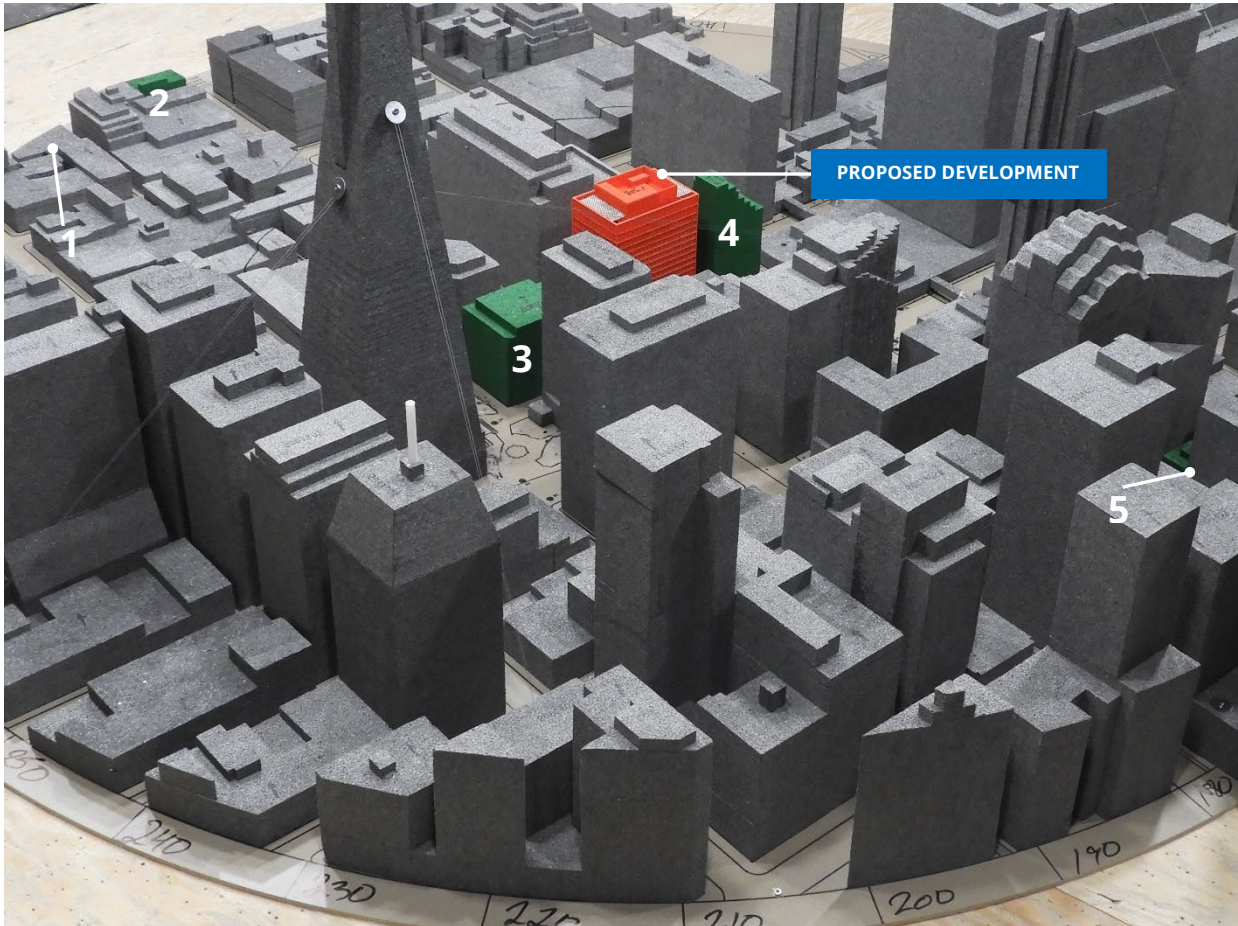


Image 3: Cumulative Developments

LIST OF CUMULATIVE DEVELOPMENTS AND HEIGHTS		
#	Address	Height
1	17 OSGOOD PLACE	36 ft
2	875 SANSOME STREET	65 ft
3	545 SANSOME STREET	124 ft 6 in
4	447 BATTERY STREET	220 ft
5	220 BATTERY STREET	68 ft 7 in

2.3 Meteorological Data

Data describing the speed, direction and frequency of occurrence of winds were gathered at the old San Francisco Federal Building at 50 United Nations Plaza (at a height of 132 feet) during the six-year period, 1945 to 1951. Average wind speeds in San Francisco are the highest in the summer and lowest in winter. However, the strongest peak winds occur in winter. Throughout the year the highest wind speeds occur in mid-afternoon and the lowest in the early morning. Westerly to northwesterly winds are the most frequent and strongest winds during all seasons. Of the primary wind directions, four have the greatest frequency of occurrence and make up the majority of the strong winds that occur. These winds include the northwest, west-northwest, west and west-southwest.

Wind statistics were combined with the wind tunnel data to predict the frequency of occurrence of full-scale wind speeds. The full-scale wind predictions were then compared against the criteria for wind comfort and hazard as started in the San Francisco Planning Code Section 148 (see *Appendix A*).

2.4 Planning Code Requirements

This project is located in an area that is subject to the San Francisco Planning Code Section 148, Reduction of Ground-level Wind Currents in C-3 Districts. The Planning Code specifically outlines wind reduction criteria for the C-3 District. This analysis is performed using the wind testing analysis and evaluation methods to determine conformity with the Code. These requirements are described in Planning Code Section 148 (see *Appendix A*).

Section 148 includes comfort and hazard criteria for wind speeds. The comfort criteria are that equivalent wind speeds (see Notes) will not exceed, more than 10% of the time, 11 mph in substantial pedestrian use areas, and 7 mph in public seating areas. Similarly, the hazard criterion of the Code requires that buildings not cause equivalent wind speeds to reach or exceed the hazard level of 26 mph as averaged from a single full hour of the year.

NOTES:

1. The Planning Code defines wind speeds in terms of equivalent wind speeds, and they are calculated according to the specifications in the San Francisco Planning Code Section 148, whereby the mean hourly wind speed is increased when the turbulence intensity is greater than 15% according to the following formula:

$$EWS = V_m \times (2 \times TI + 0.7)$$

Where: EWS = equivalent wind speed

V_m = mean pedestrian – level wind speed

TI = turbulence intensity.

2. The threshold wind speeds in the Planning Code were established by assuming wind speeds were all averaged for one hour, while the local wind data available from the old San Francisco Federal Building at 50 United Nations Plaza were recorded for one minute on each hour. Therefore, an equivalent wind speed of 36 mph (based on the actual one-minute averaged meteorological data), instead of the Planning Code value of 26 mph (based on the assumed one-hour averaged meteorological data), is commonly used in San Francisco for the assessment against the hazard criteria. The wind tunnel test results presented in this report use the one-minute average of 36 mph as the wind hazard criterion.

3 RESULTS AND DISCUSSION

This section presents the results of the wind tunnel measurements analyzed in terms of equivalent wind speeds as defined by the equation in Section 2.4. The text of the report simply refers to the data as wind speeds.

The comfort and hazard results for the configurations tested are graphically depicted on site plans in Figures 1A through 2C, located in the “*Figures*” sections of this report, where locations have been color-coded according to the applicable comfort and hazard criteria explained in the Planning Code (*Appendix A*). These same data are also numerically depicted in Table 1 for wind comfort and Table 2 for wind hazard, located in the “*Tables*” section of this report.

For wind comfort at each measurement point, the measured 10% exceeded (90th percentile) equivalent wind speed and the percentage of time that the wind speed exceeds 11 mph are listed. The point is marked as a comfort exceedance if the 11-mph threshold is exceeded. A letter “e” in the last column of each configuration shown in Table 1 indicates a wind comfort exceedance. For wind hazard, the predicted wind speed to be exceeded one hour per year is listed. The predicted number of hours per year that the Section 148 wind hazard criterion (one-minute wind speed of 36 mph) is exceeded is also provided. A letter “e” in the last column of each configuration shown in Table 2 indicates a wind hazard exceedance.

3.1 Existing Configuration

Existing wind speeds exceed the 11-mph comfort criterion at 53 of 77 test locations (Table 1 and Figure 1A). The average 90th percentile wind speed for the 77 test locations is 14 mph, exceeding the applicable criterion on average 21 percent of the time (Table 1).

Wind speeds do not comply with the wind hazard criterion at 12 of 77 test locations (Table 2 and Figure 2A). The average wind speed which is exceeded for 1 hour per year is 28 mph, occurring for a total of 249 hours (Table 2).

3.2 Existing + Project Configuration

With the addition of the proposed project to the site in the Existing + Project configuration, wind speeds at 55 of 77 test locations are expected to exceed the 11-mph comfort criterion (Table 1 and Figure 1B), an increase of two test locations when compared with the Existing configuration. The average 90th percentile wind speed for the 77 test locations is predicted to be 14 mph, exceeding the applicable criterion on average 20 percent of the time (Table 1).

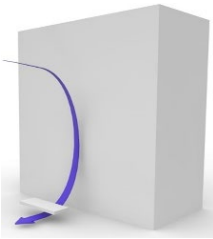
In the presence of the proposed project, wind speeds are not expected to comply with the wind hazard criterion at 10 of 77 test locations (Table 2 and Figure 2B), a reduction of two test locations when compared with the Existing configuration. The average wind speed which is expected to be exceeded for 1 hour per year is 28 mph, occurring for a total of 138 hours (Table 2).

3.3 Project + Cumulative Configuration

With the addition of the cumulative developments to the nearby surroundings in the Project + Cumulative configuration, wind speeds at 54 of 77 test locations are expected to exceed the 11-mph comfort criterion (Table 1 and Figure 1C), a decrease of one location when compared with the Existing + Project configuration. The average 90th percentile wind speed for the 77 test locations is predicted to be 14 mph, exceeding the applicable criterion on average 22 percent of the time (Table 1).

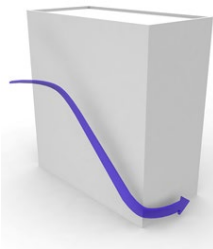
In the presence of the cumulative developments, wind speeds are not predicted to comply with the wind hazard criterion at 14 of 77 locations (Table 2 and Figure 2C), an increase of four test locations when compared with the Existing + Project configuration. The average wind speed which is expected to be exceeded for 1 hour per year is 28 mph, occurring for a total of 263 hours (Table 2).

Note that the expected increase in wind activity in the Project + Cumulative configuration would stem primarily from the presence of the proposed 545 Sansome Street project which lies upwind (i.e. directly to the west) of the proposed project. West-northwesterly prevailing winds would downwash from the north façade of proposed 545 Sansome Street project, accelerate around its northeast corner, and subsequently accelerate further as these winds channel between that proposed building and the 530 Sansome Street proposed project or residential variant (see generalized conceptual wind flows in Image 4 and more project-specific wind flows in Image 5). In addition, prevailing winds flowing over the proposed 545 Sansome Street, toward the 530 Sansome Street proposed project or residential variant, would be redirected down toward Sansome Street by the west façade of the 530 Sansome Street proposed project or residential variant (see Image 5). These wind flow phenomena would increase wind speeds along Sansome Street.



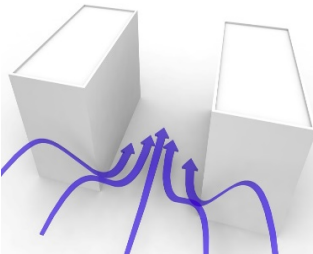
DOWNWASHING

Tall buildings tend to intercept the stronger winds at higher elevations and redirect them to the ground level. This is often the main cause for wind accelerations around large buildings at the pedestrian level.



CORNER ACCELERATION

When winds approach at an oblique angle to a tall façade and are deflected down, a localized increase in the wind activity or corner acceleration can be expected around the exposed building corners at pedestrian level.



CHANNELLING EFFECT

When two buildings are situated side by side, wind flow tends to accelerate through the space between the buildings due to channelling effect caused by the narrow gap.

Image 4: Generalized Wind Flows

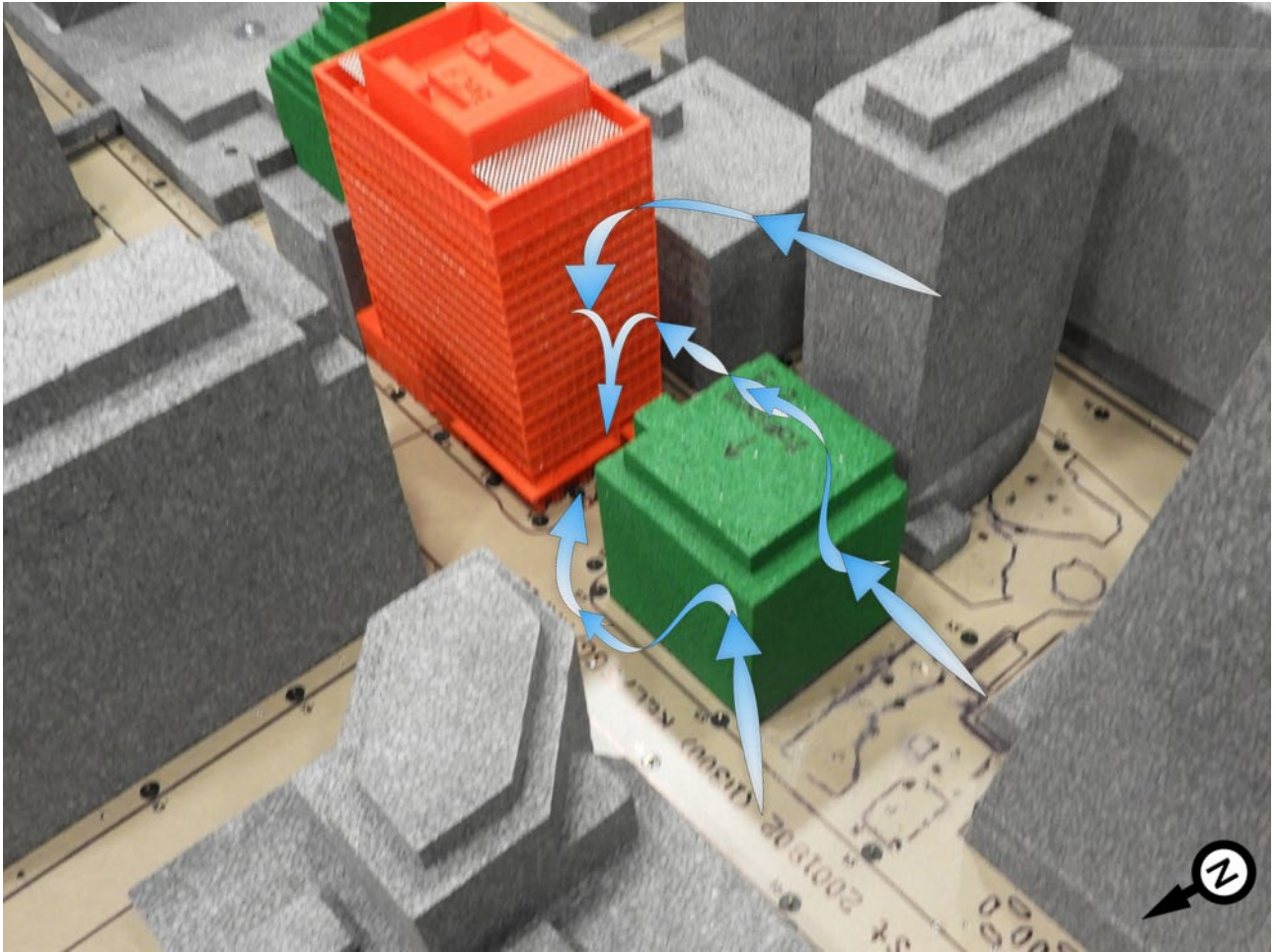


Image 5: Predicted Wind Flows Around the Proposed 530 Sansome Street (Red) and Future 545 Sansome Street (Green) Buildings

3.4 Residential Variant Commentary

The wind-tunnel testing was conducted for the project massing). RWDI has also reviewed the massing and details for the proposed residential variant massing based on the architectural drawings in the combined application received on September 23, 2020 (see details in Section 4). The proposed heights for the project and residential variant are the same (236 ft) and that the two massings are sufficiently similar (see Image 6) that any effects to wind would not vary from a pedestrian wind comfort or hazard perspective. As such, the wind impacts associated with the residential variant are anticipated to be congruent with those reported for the project herein.

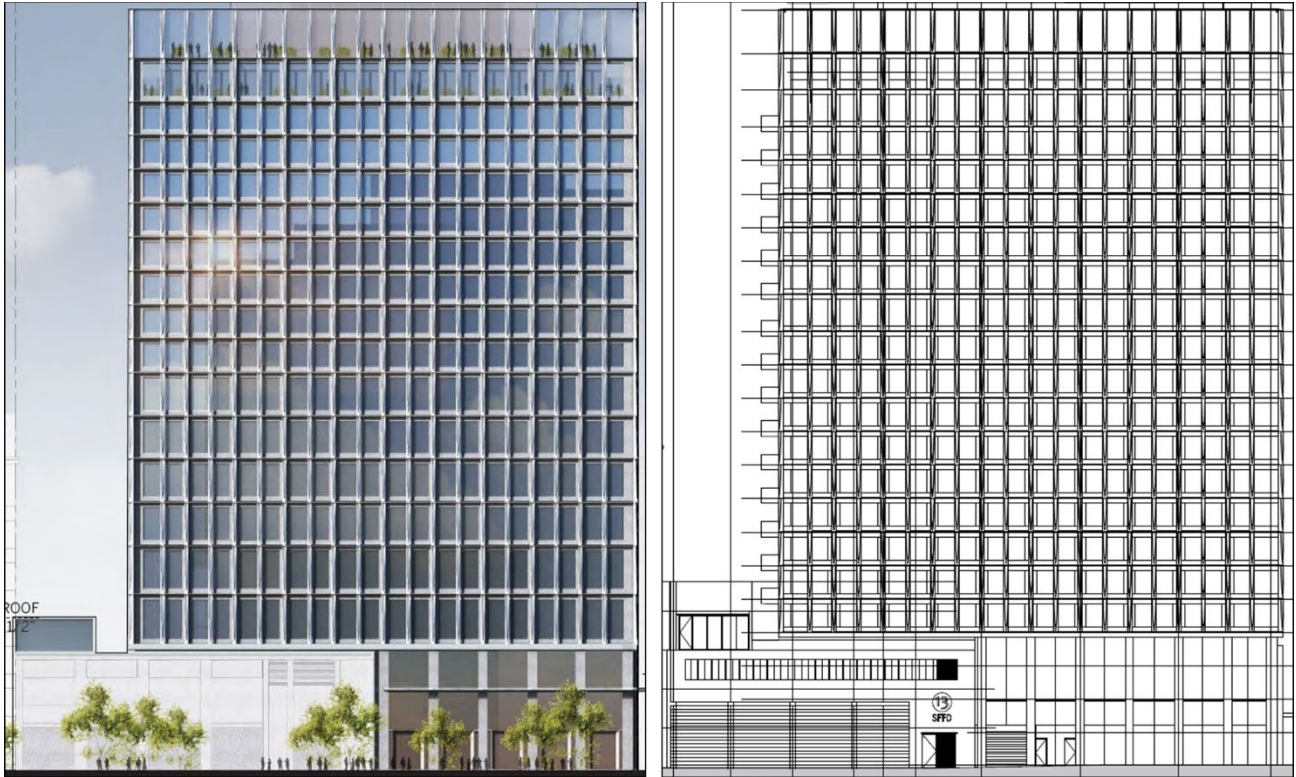


Image 6: North Elevation – Massing Comparison of Proposed Project (Left) and Residential Variant (Right)

3.5 Bike Lane Wind Conditions (Locations 81 to 95)

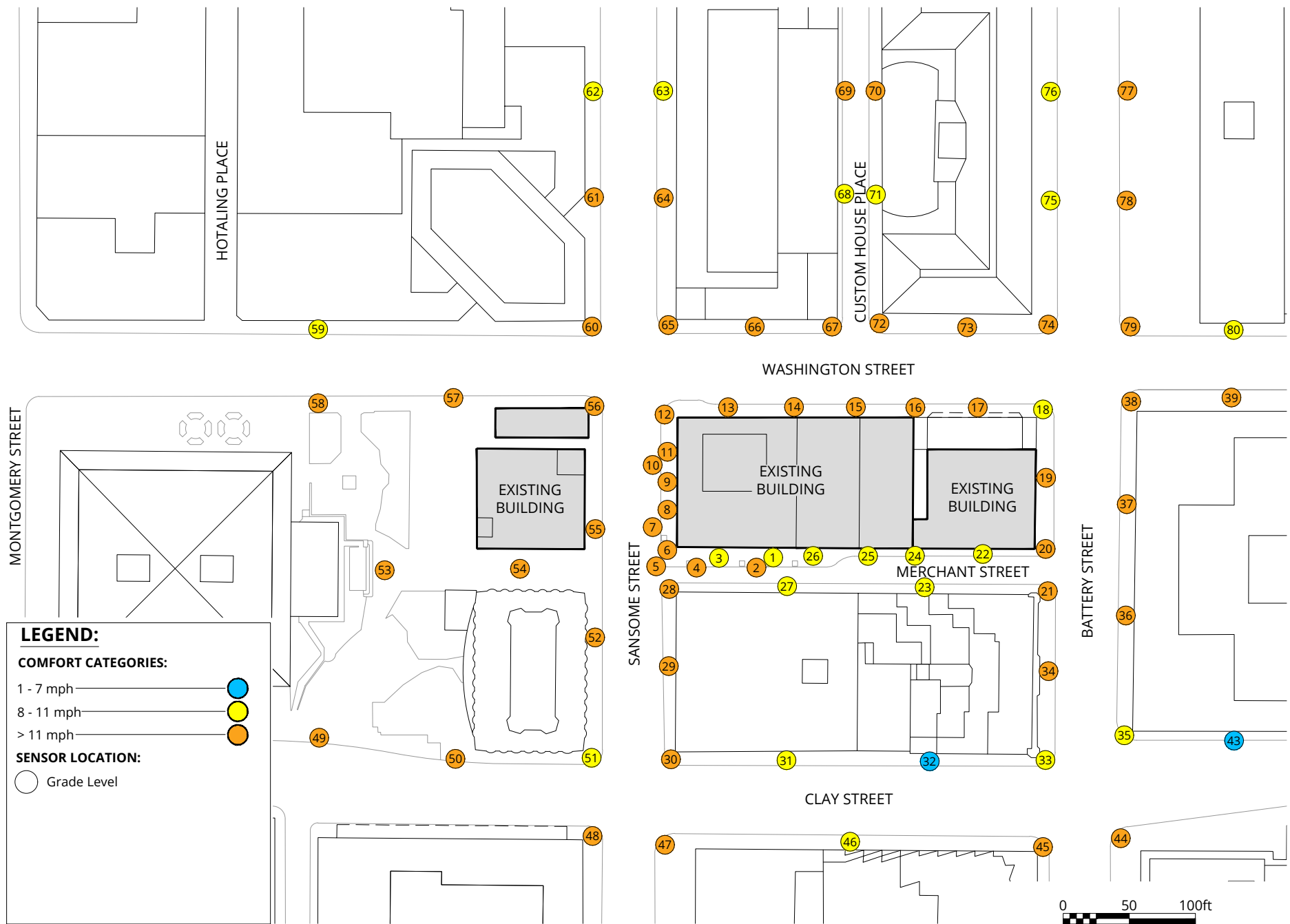
Bike lane wind conditions are provided for informational and reference purposes. The mean wind speed for the 15 bike lane test locations (Figure 3) is 6 mph for each of the Existing, Existing + Project, and Project + Cumulative configurations tested (Table 3).

4 APPLICABILITY OF RESULTS

The wind conditions presented in this report pertain to the model of the proposed 530 Sansome Street, constructed using the drawings and information listed below. Should there be any design changes that deviate from this list of drawings, the predicted wind conditions may change. Therefore, if changes in the design are made, it is recommended that RWDI be contacted and requested to review their potential effects on wind conditions.

File Name	File Type	Date Received (mm/dd/yyyy)
20200922_530 SANSOME COMBINED APPLICATION.pdf	Adobe PDF	09/23/2020
530 S_Commercial Project Model.3dm	Rhinoceros	09/30/2020

FIGURES



Pedestrian Wind Comfort Conditions

Existing
Annual

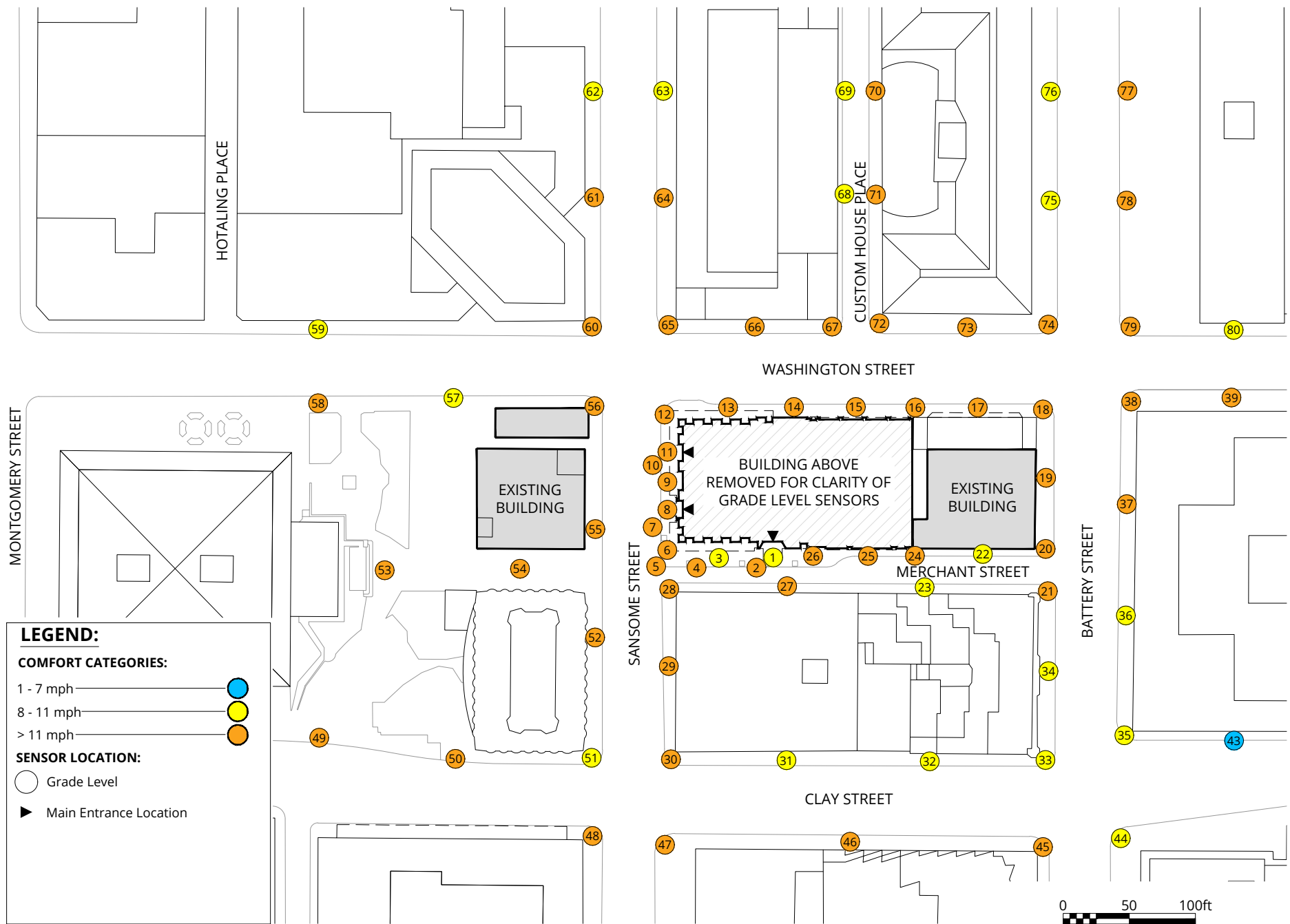
530 Sansome Street - San Francisco, CA



Project #2001802

Drawn by: DF	Figure: <input type="checkbox"/>
Approx. Scale: 1"=100'	
Date Revised: Oct. 27, 2020	





Pedestrian Wind Comfort Conditions

Existing + Project
Annual

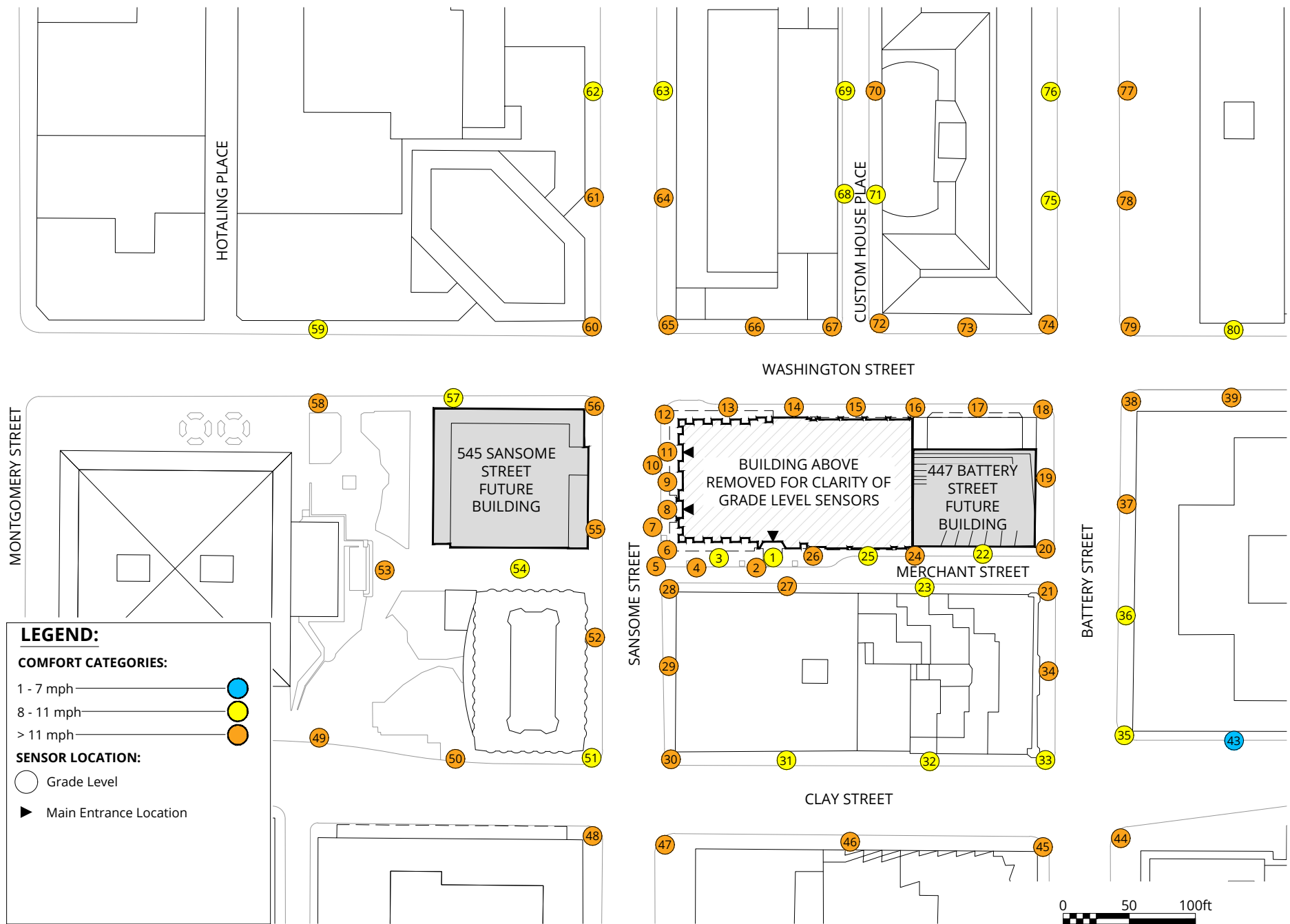
530 Sansome Street - San Francisco, CA



Project #2001802

Drawn by: DF	Figure: □□
Approx. Scale: 1"=100'	
Date Revised: Oct. 27, 2020	





Pedestrian Wind Comfort Conditions

Project + Cumulative
Annual

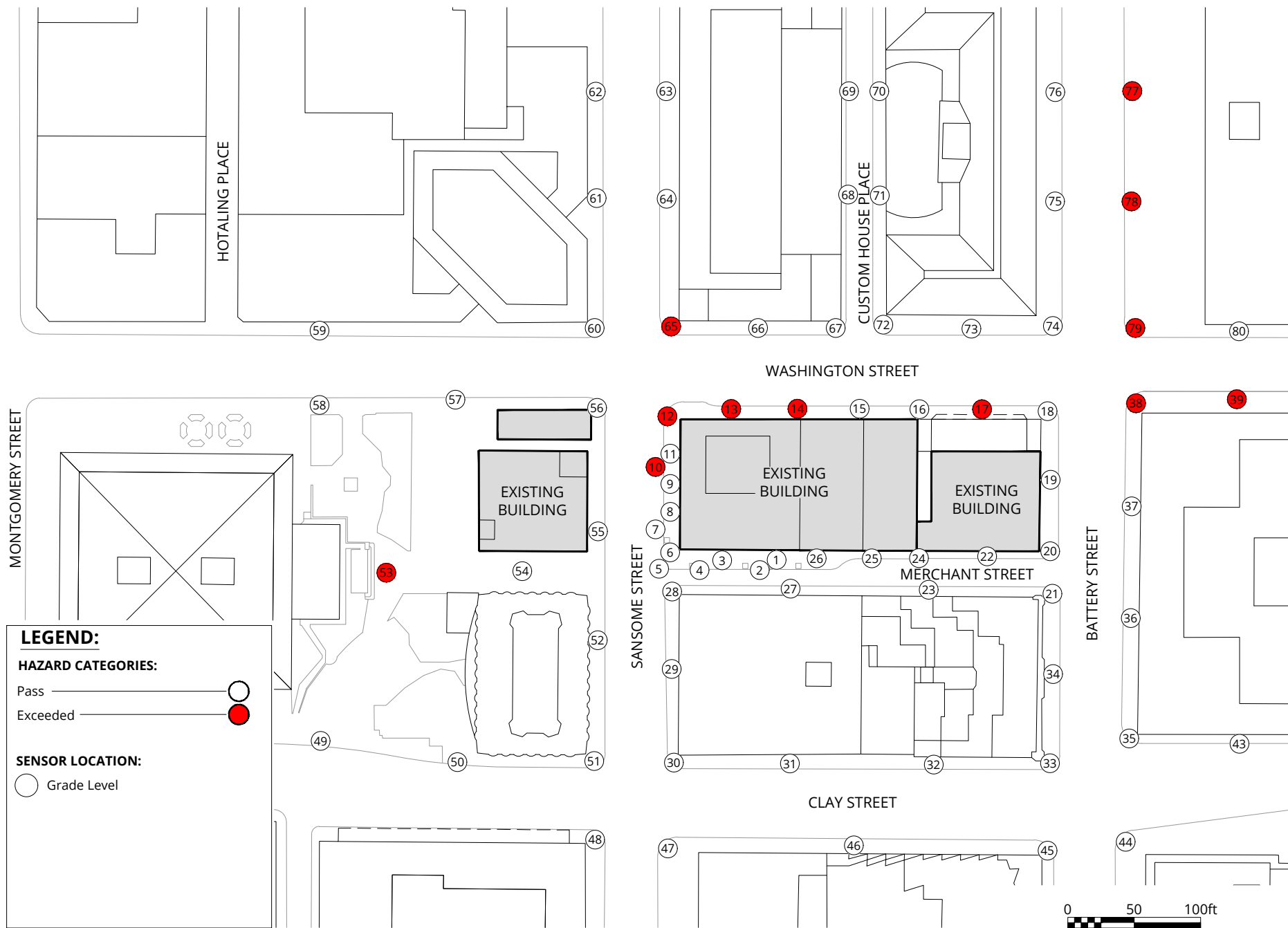
530 Sansome Street - San Francisco, CA



Project #2001802

Drawn by: DF	Figure: <input type="checkbox"/>
Approx. Scale: 1"=100'	
Date Revised: Oct. 29, 2020	





Pedestrian Wind Hazard Conditions

Existing
Annual

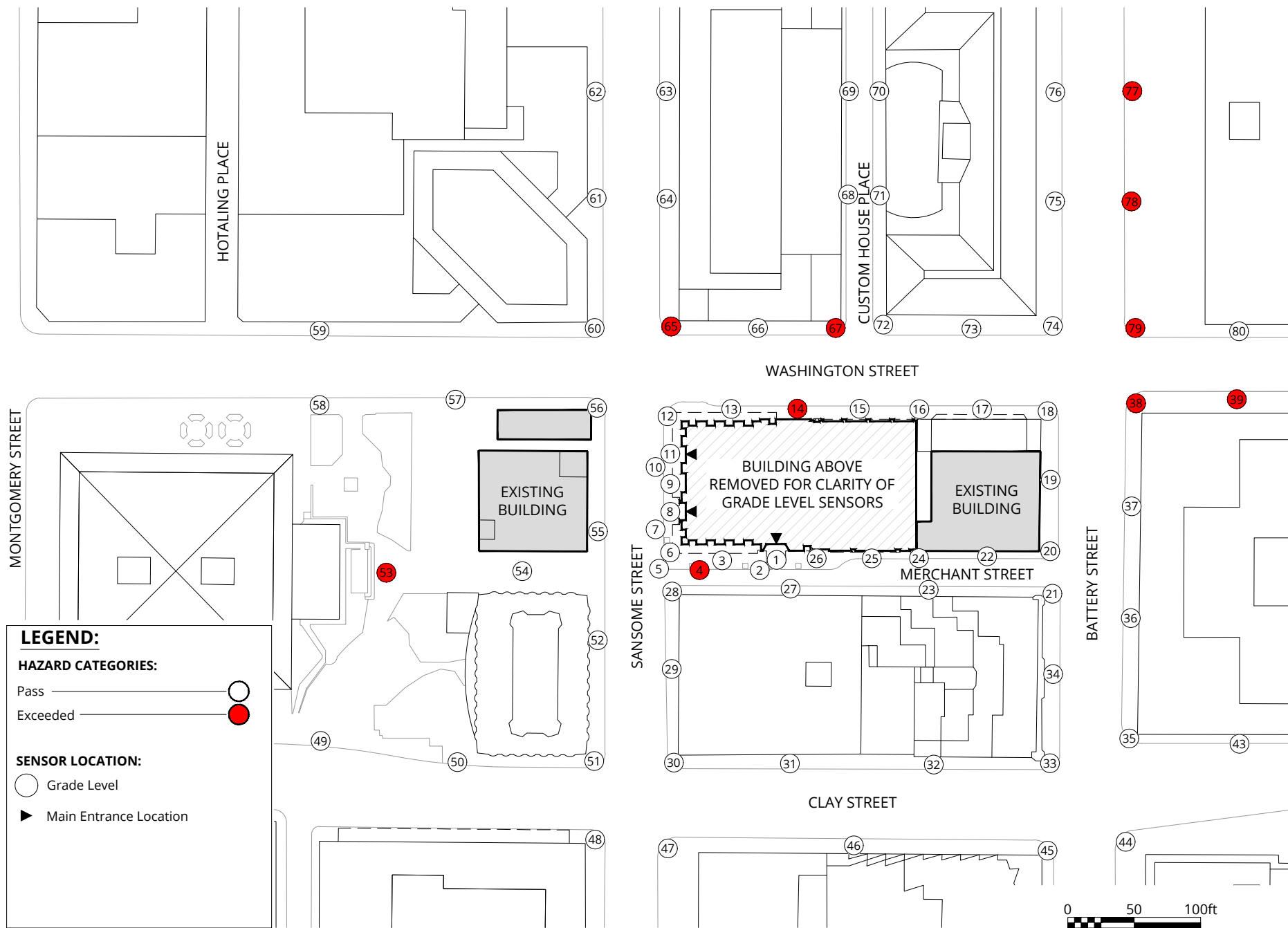
530 Sansome Street - San Francisco, CA



Project #2001802

Drawn by: DF	Figure: <input type="checkbox"/>
Approx. Scale: 1"=100'	
Date Revised: Oct. 27, 2020	





Pedestrian Wind Hazard Conditions

Existing + Project
Annual

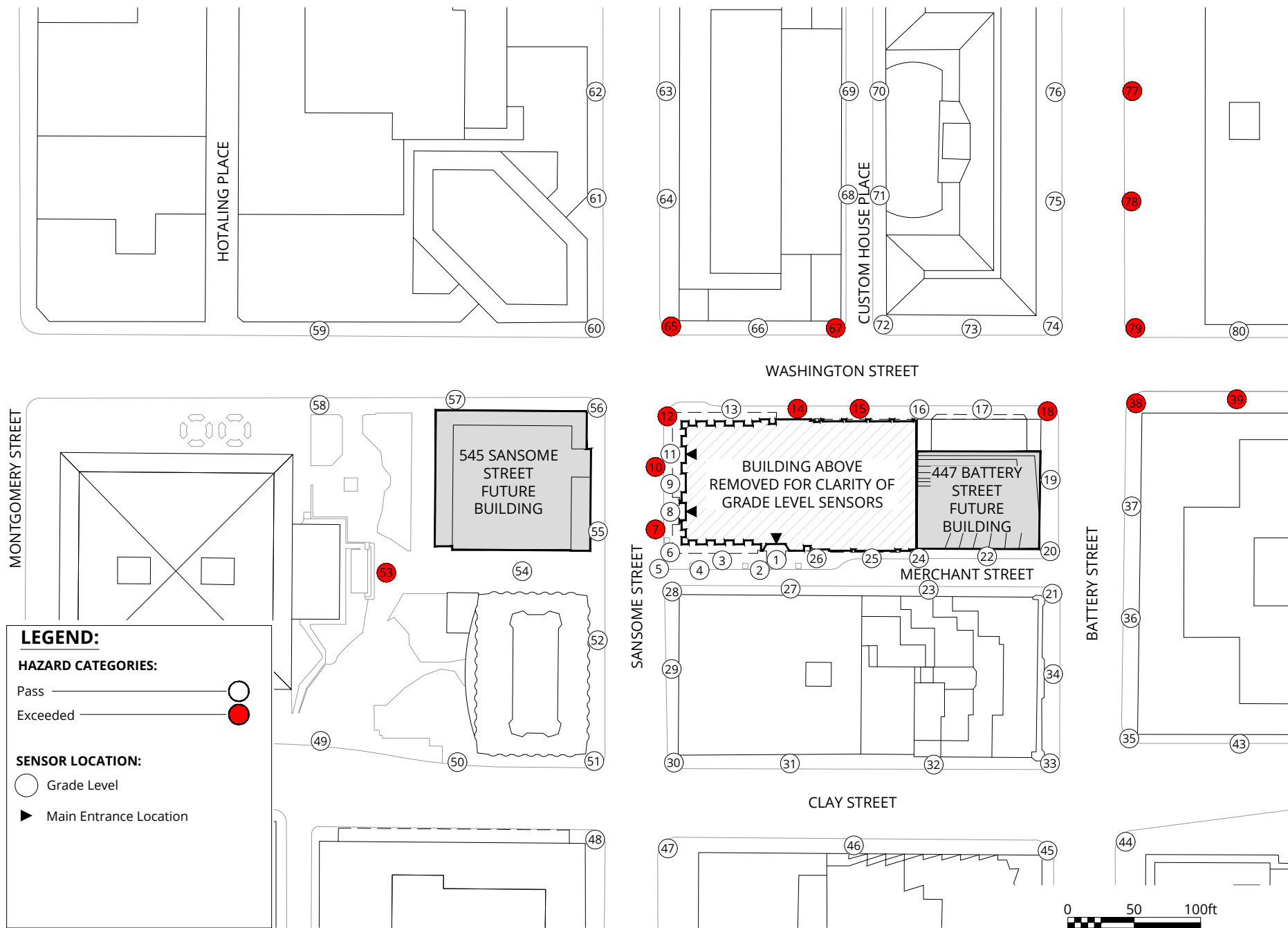
530 Sansome Street - San Francisco, CA



Project #2001802

Drawn by: DF	Figure: <input type="checkbox"/>
Approx. Scale: 1"=100'	
Date Revised: Oct. 27, 2020	





Pedestrian Wind Hazard Conditions

Project + Cumulative
Annual

530 Sansome Street - San Francisco, CA



Project #2001802

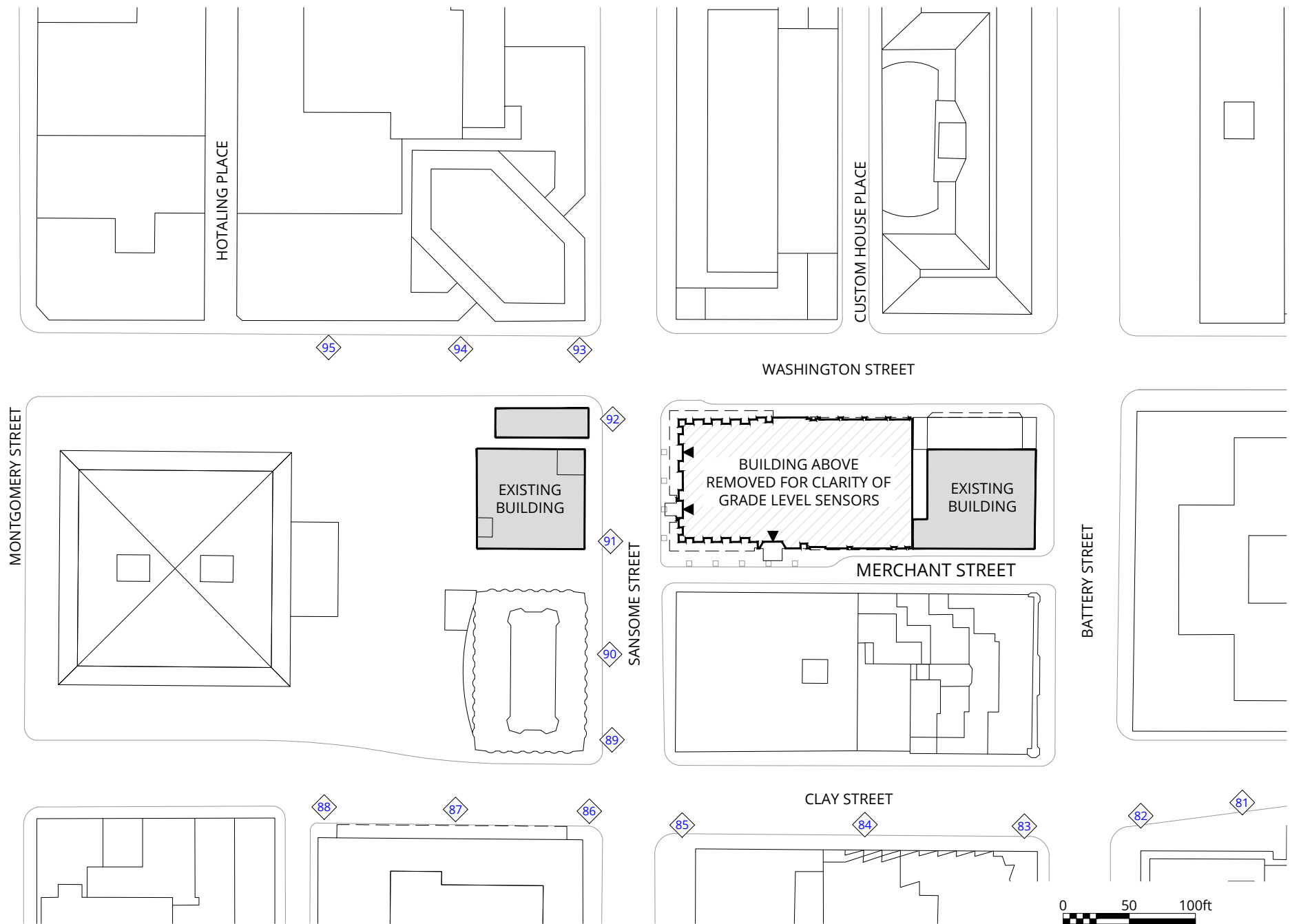
Drawn by: DF

Figure: ☐

Approx. Scale: 1"=100'

Date Revised: Oct. 29, 2020





Bike Lane Test Locations

530 Sansome Street - San Francisco, CA

True North



Project #2001802

Drawn by: DF Figure: 3

Approx. Scale: 1"=100'

Date Revised: Oct. 27, 2020



TABLES

Table 1: Wind Comfort Conditions

Location	Existing			Existing + Project				Project + Cumulative			
	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Exceeds	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Speed Change Relative to Existing (mph)	Exceeds	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Speed Change Relative to Existing (mph)	Exceeds
1	8	3		10	7	2		9	3	1	
2	12	15	e	16	31	4	e	15	26	3	e
3	8	1		10	7	2		8	2	0	
4	12	12	e	18	36	6	e	18	35	6	e
5	16	32	e	15	27	-1	e	17	34	1	e
6	14	22	e	17	35	3	e	18	39	4	e
7	18	38	e	18	39	0	e	20	46	2	e
8	12	15	e	14	22	2	e	15	24	3	e
9	14	22	e	14	22	0	e	15	25	1	e
10	22	50	e	19	44	-3	e	20	48	-2	e
11	17	35	e	16	31	-1	e	17	36	0	e
12	21	49	e	19	42	-2	e	20	47	-1	e
13	22	52	e	18	38	-4	e	19	43	-3	e
14	19	42	e	21	49	2	e	23	53	4	e
15	15	26	e	18	38	3	e	19	44	4	e
16	16	30	e	14	24	-2	e	15	28	-1	e
17	20	38	e	13	19	-7	e	14	23	-6	e
18	11	10		16	28	5	e	17	33	6	e
19	15	23	e	12	11	-3	e	13	15	-2	e
20	16	23	e	12	12	-4	e	13	16	-3	e
21	16	26	e	13	13	-3	e	12	12	-4	e
22	9	5		10	7	1		10	5	1	
23	9	4		11	10	2		11	10	2	
24	11	10		12	14	1	e	12	13	1	e
25	11	10		12	12	1	e	11	10	0	
26	11	10		13	17	2	e	12	15	1	e
27	9	6		14	21	5	e	14	22	5	e
28	13	20	e	12	14	-1	e	13	18	0	e
29	13	17	e	16	29	3	e	16	30	3	e
30	12	16	e	15	26	3	e	15	27	3	e
31	9	4		10	8	1		10	6	1	
32	7	1		9	4	2		9	4	2	
33	11	10		11	10	0		11	10	0	
34	13	15	e	10	8	-3		12	11	-1	e
35	10	8		8	4	-2		9	5	-1	
36	12	11	e	10	7	-2		11	10	-1	
37	12	11	e	12	13	0	e	13	20	1	e
38	21	46	e	19	32	-2	e	20	38	-1	e
39	22	50	e	19	35	-3	e	21	45	-1	e
40	-	-	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-	-	-	-
43	7	2		7	1	0		7	2	0	
44	13	15	e	11	10	-2		12	12	-1	e
45	13	15	e	12	12	-1	e	12	13	-1	e
46	9	4		13	19	4	e	13	18	4	e
47	13	15	e	15	20	2	e	14	19	1	e

Table 1: Wind Comfort Conditions

Location	Existing			Existing + Project				Project + Cumulative			
	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Exceeds	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Speed Change Relative to Existing (mph)	Exceeds	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Speed Change Relative to Existing (mph)	Exceeds
48	15	19	e	16	21	1	e	15	26	0	e
49	14	25	e	14	24	0	e	13	20	-1	e
50	15	25	e	16	28	1	e	14	23	-1	e
51	9	3		8	3	-1		8	2	-1	
52	12	16	e	14	22	2	e	12	15	0	e
53	17	30	e	17	25	0	e	18	35	1	e
54	16	30	e	14	24	-2	e	11	10	-5	
55	13	18	e	12	17	-1	e	12	12	-1	e
56	17	35	e	15	26	-2	e	17	33	0	e
57	12	13	e	11	10	-1		9	6	-3	
58	14	19	e	14	18	0	e	13	17	-1	e
59	10	8		9	6	-1		9	5	-1	
60	18	38	e	16	32	-2	e	16	33	-2	e
61	15	25	e	13	20	-2	e	14	24	-1	e
62	10	7		10	5	0		10	7	0	
63	10	5		9	2	-1		10	5	0	
64	17	34	e	15	27	-2	e	16	33	-1	e
65	25	56	e	24	55	-1	e	26	58	1	e
66	12	13	e	14	22	2	e	13	19	1	e
67	14	24	e	18	37	4	e	18	35	4	e
68	9	5		8	3	-1		9	5	0	
69	12	12	e	9	6	-3		11	10	-1	
70	15	24	e	13	15	-2	e	14	19	-1	e
71	9	5		12	12	3	e	11	10	2	
72	15	24	e	14	21	-1	e	14	22	-1	e
73	15	24	e	14	22	-1	e	14	21	-1	e
74	16	27	e	12	15	-4	e	12	14	-4	e
75	11	10		10	7	-1		11	10	0	
76	11	10		10	6	-1		11	10	0	
77	21	48	e	18	38	-3	e	21	47	0	e
78	21	47	e	18	34	-3	e	20	43	-1	e
79	19	40	e	17	29	-2	e	18	35	-1	e
80	8	2		8	1	0		9	2	1	
Summary	Average (mph)	Average (%)	Total	Average (mph)	Average (%)	Speed Change (mph)	Total	Average (mph)	Average (%)	Speed Change (mph)	Total
	14	21	53 ---- 77	14	20	0	55 ---- 77	14	22	0	54 ---- 77

Table 2: Wind Hazard Conditions

Location	Existing			Existing + Project				Project + Cumulative			
	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Exceeds
1	21	0		21	0	0		18	0	0	
2	27	0		34	0	0		31	0	0	
3	15	0		21	0	0		16	0	0	
4	25	0		36	1	1	e	35	0	0	
5	31	0		28	0	0		32	0	0	
6	28	0		34	0	0		35	0	0	
7	34	0		34	0	0		37	2	2	e
8	24	0		26	0	0		27	0	0	
9	27	0		26	0	0		28	0	0	
10	41	10	e	35	0	-10		38	3	-7	e
11	32	0		31	0	0		32	0	0	
12	40	6	e	35	0	-6		39	4	-2	e
13	40	7	e	33	0	-7		35	0	-7	
14	39	4	e	40	10	6	e	43	24	20	e
15	25	0		34	0	0		36	1	1	e
16	35	0		27	0	0		29	0	0	
17	46	36	e	23	0	-36		28	0	-36	
18	22	0		34	0	0		39	4	4	e
19	33	0		27	0	0		30	0	0	
20	35	0		24	0	0		30	0	0	
21	35	0		30	0	0		30	0	0	
22	20	0		20	0	0		19	0	0	
23	18	0		22	0	0		22	0	0	
24	22	0		26	0	0		25	0	0	
25	22	0		24	0	0		24	0	0	
26	24	0		27	0	0		25	0	0	
27	24	0		31	0	0		31	0	0	
28	26	0		23	0	0		23	0	0	
29	29	0		32	0	0		31	0	0	
30	25	0		31	0	0		31	0	0	
31	20	0		23	0	0		22	0	0	
32	16	0		19	0	0		18	0	0	
33	24	0		22	0	0		26	0	0	
34	32	0		21	0	0		27	0	0	
35	21	0		19	0	0		21	0	0	
36	26	0		21	0	0		22	0	0	
37	26	0		23	0	0		24	0	0	
38	44	33	e	44	28	-5	e	46	48	15	e
39	47	56	e	43	22	-34	e	45	35	-21	e
40	-	-	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-	-	-	-
43	16	0		14	0	0		18	0	0	
44	31	0		25	0	0		27	0	0	
45	31	0		26	0	0		28	0	0	
46	17	0		23	0	0		22	0	0	
47	28	0		30	0	0		29	0	0	

Table 2: Wind Hazard Conditions

Location	Existing			Existing + Project				Project + Cumulative			
	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Exceeds
48	35	0		35	0	0		33	0	0	
49	28	0		26	0	0		24	0	0	
50	28	0		31	0	0		28	0	0	
51	18	0		17	0	0		16	0	0	
52	26	0		29	0	0		23	0	0	
53	36	1	e	38	3	2	e	39	5	4	e
54	35	0		34	0	0		24	0	0	
55	23	0		22	0	0		20	0	0	
56	30	0		27	0	0		31	0	0	
57	23	0		22	0	0		21	0	0	
58	31	0		31	0	0		29	0	0	
59	23	0		22	0	0		21	0	0	
60	32	0		30	0	0		30	0	0	
61	27	0		24	0	0		26	0	0	
62	19	0		18	0	0		19	0	0	
63	17	0		16	0	0		18	0	0	
64	30	0		27	0	0		30	0	0	
65	46	60	e	47	60	0	e	50	101	41	e
66	21	0		27	0	0		24	0	0	
67	27	0		37	1	1	e	36	1	1	e
68	22	0		20	0	0		23	0	0	
69	32	0		29	0	0		32	0	0	
70	32	0		29	0	0		31	0	0	
71	22	0		20	0	0		22	0	0	
72	32	0		28	0	0		28	0	0	
73	35	0		26	0	0		25	0	0	
74	35	0		20	0	0		23	0	0	
75	23	0		21	0	0		22	0	0	
76	22	0		21	0	0		22	0	0	
77	42	20	e	40	7	-13	e	43	21	1	e
78	41	12	e	39	4	-8	e	40	10	-2	e
79	39	4	e	37	2	-2	e	39	4	0	e
80	15	0		13	0	0		15	0	0	
Summary	Average (mph)	Total Hours	Total	Average (mph)	Total Hours	Hours Change	Total	Average (mph)	Total Hours	Hours Change	Total
	28	249	12 ---- 77	28	138	-111	10 ---- 77	28	263	14	14 ---- 77



Table 3: Bike Lane Wind Conditions - Informational

	Existing	Existing + Project	Project + Cumulative
Location	Mean Wind Speed (mph)	Mean Wind Speed (mph)	Mean Wind Speed (mph)
81	5	4	5
82	5	5	5
83	4	6	6
84	5	6	6
85	6	7	7
86	7	6	7
87	6	6	6
88	7	7	7
89	5	6	6
90	7	7	7
91	8	8	8
92	10	9	9
93	7	7	7
94	5	4	5
95	6	5	5
SUMMARY	Average (mph)	Average (mph)	Average (mph)
	6	6	6

The background of the page features a large, light grey circle on the right side. On the left, there is a blue triangle pointing towards the top right corner, with a white curved line separating it from the grey circle.

APPENDICES

APPENDIX A:

San Francisco Planning Code Section 148

Reduction of Ground-Level Wind Currents In C-3 Districts

- a) Requirement and Exception. In C-3 Districts, buildings and additions to existing buildings shall be shaped, or other wind-baffling measures shall be adopted, so that the developments will not cause ground-level wind currents to exceed, more than 10 percent of the time year round, between 7:00 a.m. and 6:00 p.m., the comfort level of 11 m.p.h. equivalent wind speed in areas of substantial pedestrian use and seven m.p.h. equivalent wind speed in public seating areas.

When preexisting ambient wind speeds exceed the comfort level, or when a proposed building or addition may cause ambient wind speeds to exceed the comfort level, the building shall be designed to reduce the ambient wind speeds to meet the requirements. An exception may be granted, in accordance with the provisions of Section 309, allowing the building or addition to add to the amount of time that the comfort level is exceeded by the least practical amount if (1) it can be shown that a building or addition cannot be shaped and other wind-baffling measures cannot be adopted to meet the foregoing requirements without creating an unattractive and ungainly building form and without unduly restricting the development potential of the building site in question, and (2) it is concluded that, because of the limited amount by which the comfort level is exceeded, the limited location in which the comfort level is exceeded, or the limited time during which the comfort level is exceeded, the addition is insubstantial.

No exception shall be granted and no building or addition shall be permitted that causes equivalent wind speeds to reach or exceed the hazard level of 26 miles per hour for a single hour of the year.

- b) Definition. The term "equivalent wind speed" shall mean an hourly mean wind speed adjusted to incorporate the effects of gustiness or turbulence on pedestrians.
- c) Guidelines. Procedures and Methodologies for implementing this section shall be specified by the Office of Environmental Review of the Department of City Planning. (added by Ord. 414-85, App. 9/17/85)

APPENDIX F

Shadow Report



FEBRUARY 5, 2021
FINAL

SHADOW ANALYSIS REPORT FOR THE PROPOSED 530 SANSOME STREET PROJECT PER CEQA AND SAN FRANCISCO PLANNING CODE SECTION 295 STANDARDS

Planning Case Number 2019-017481



FROM:
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PRINCIPAL
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TO:
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I. INTRODUCTION AND OVERVIEW

This report details the results of an analysis conducted by Prevision Design to identify the shadow effects that would be caused by the proposed construction of an approximately 217'-7" tall (236' total height with parapet), mixed-use project located at 530 Sansome Street ("the proposed project") and a residential variant (similar design with altered massing on the top two floors referred to as the "residential variant") on Maritime Plaza and Sue Bierman Park, publicly-accessible open spaces under the jurisdiction of the San Francisco Recreation and Parks Department (RPD) and subject to review under San Francisco Planning Code section 295, and Transamerica Redwood Park, a privately owned public open space (POPOS) subject to review for shadow impacts under the California Environmental Quality Act (CEQA).

The analysis was conducted according to criteria and methodology as described in (1) the February 3, 1989 memorandum titled "Proposition K – The Sunlight Ordinance" ("the 1989 memorandum") prepared by RPD and the San Francisco Planning Department ("Planning"), (2) the July 2014 memorandum titled "Shadow Analysis Procedures and Scope Requirements" ("the 2014 memorandum") prepared by Planning, and (3) direction from Planning and RPD staff regarding the appropriate approach, deliverables, and scope of analysis appropriate in consideration of the open spaces affected.

This report includes the results and discussion of all criteria factored into the analysis, including discussion of the analysis approach and methodology, a description and depictions of the project as proposed, description of the affected publicly accessible open space, and the results of the study, including: quantitative and qualitative reporting of net new shadow generated by the project, graphical simulations of the location and extent of the project's net new shadow.

This report does not present opinions nor conclusions on the part of Prevision Design about whether the shadows cast by the proposed project could or should be considered significant/less than significant under CEQA. That determination would be made by the San Francisco Planning Department. This report does not present opinions or conclusions about whether the proposed project or residential variant would have an adverse impact on the use or enjoyment of the property under the jurisdiction of the Recreation and Park Commission under Planning Code Section 295. These determinations shall be made by the San Francisco Planning Commission with input from RPD. ■

II. REGULATORY FRAMEWORK AND SIGNIFICANCE CRITERIA

While there are no specific federal nor state regulations which deal with solar access or shadow effects on publicly accessible open spaces, San Francisco has established several provisions, policies, and procedures that provide the framework by which shadow cast by proposed projects is evaluated.

San Francisco General Plan

The Recreation and Open Space Element of the City of San Francisco General Plan (2014) includes Policy 1.9 applicable to potential solar access or shading impacts of new development on public open spaces, excerpted below:

Solar access to public open space should be protected. In San Francisco, presence of the sun's warming rays is essential to enjoying open space. Climatic factors, including ambient temperature, humidity, and wind, generally combine to create a comfortable climate only when direct sunlight is present. Therefore, the shadows created by new development nearby can critically diminish the utility and comfort of the open space.

Shadows are particularly a problem in downtown districts and in neighborhoods immediately adjacent to the downtown core, where there is a limited amount of open space, where there is pressure for new development, and where zoning controls allow tall buildings. But the problem potentially exists wherever tall buildings near open space are permitted.

The City should support more specific protections elsewhere to maintain sunlight in these spaces during the hours of their most intensive use while balancing this with the need for new development to accommodate a growing population in the City.

The project would be subject to evaluation of potential shadow effects on public spaces under the general plan.

San Francisco Planning Code

San Francisco Planning Code section 295, adopted in 1984 pursuant to voter approval of Proposition K (The Sunlight Ordinance), prohibits the issuance of building permits

for structures over 40 feet in height that would cast net new shadow on property under the jurisdiction of, or designated to be acquired by, the Recreation and Park Commission between one hour after sunrise to one hour before sunset at any time of year, unless the Planning Commission determines that the net new shadow (1) would not have an adverse impact on the use of the property or (2) the impact would not be significant. Code section 295 provides that:

The City Planning Commission shall conduct a hearing and shall disapprove the issuance of any building permit governed by the provisions of this Section if it finds that the proposed project will have any adverse impact on the use of the property under the jurisdiction of, or designated for acquisition by, the Recreation and Park Commission because of the shading or shadowing that it will cause, unless it is determined that the impact would be insignificant. The City Planning Commission shall not make the determination required by the provisions of this Subsection until the general manager of the Recreation and Park Department in consultation with the Recreation and Park Commission has had an opportunity to review and comment to the City Planning Commission upon the proposed project.

Net new shadow cast by the proposed project and residential variant would affect two open spaces under the jurisdiction of the RPD; therefore provisions of section 295 apply.

Other Local Regulations

Planning Code Section 146:

Added in 1985, this section establishes additional design guidelines for buildings along certain streets in C-3 Downtown Commercial Districts for the purpose of maintaining direct sunlight on public sidewalks during critical periods of use.

The project site is located within the C-3 Downtown Commercial District, however it is not located along a street frontage that is regulated by section 146. Section 146 would not apply to the proposed project or residential variant.

Planning Code Section 147:

Added in 1985, this section establishes additional design guidelines for buildings in C-3 Downtown Commercial, South of Market Mixed Use, and Eastern Neighborhoods Mixed Use districts such that buildings taller than 50 feet be shaped, consistent with the dictates of good design and without unduly restricting the development potential of the site in question, to reduce substantial shadow impacts on public plazas and other publicly accessible spaces other than those protected under section 295.

The project site is located within the C-3 Downtown Commercial District and is taller than 50 feet, so the provisions of Section 147 would apply. However, net new shadow from this project would not reach any public plazas or other publicly accessible spaces other than those reviewed by this report, so additional separate review pursuant to this section is not necessary.

Environmental Impacts under CEQA

A project that adds new shadow to sidewalks or a public open space (whether subject to section 295 or not) does not necessarily result in a significant impact under CEQA. The shadow impact analysis described in the city's Initial Study CEQA Checklist examines whether a project would "create new shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces. The significance determination involves both quantitative and qualitative assessment of a project's net new shadow effects (*i.e.*, not only if the project would result in net new shadow and how much, but also what the actual effect of that shadowing is on the use and enjoyment of the area in question). As stated previously, this report does not present opinions nor conclusions as to whether shadow impacts from the proposed project or residential variant could or should be considered significant/less than significant under CEQA. ■

III. ANALYSIS METHODOLOGY

Technical Standards

The technical standards for evaluation of shadow effects follow the criteria adopted in 1987 and 1989 by the Recreation and Parks Commission and the Planning Commission, as stated below:

Shadow is quantitatively measured by multiplying the area of the shadow by the amount of time the shadow is present on the open space, in units called square foot-hours (sfh). Determining the annual net new shadow load generated by a project begins with a calculation of the number of square foot-hours that would theoretically fall on a qualifying publicly accessible open space each day from an hour after sunrise to an hour before sunset summed over the course of a year, ignoring all shadow from any source. This total is referred to as the Theoretical Annual Available Sunlight (TAAS) for that park. The second step is the calculation of the baseline (or current) shading conditions, which factors in the square foot-hours of shadow cast by existing buildings and other structures on the open space. Lastly, the shadow effects of the project are calculated, with the difference between the baseline shadow condition and project shadow condition considered being net new project shadow. The amount of shadow is defined as the shadow in square foot-hours cast by the project divided by the TAAS, expressed as a percentage.

Further, in addition to quantitative criteria, the adopted criteria set forth qualitative criteria for evaluation of shadow. Those criteria for assessing net new shadow are based on existing shadow profiles [graphics], important times of day, important seasons in the year, location of the net new shadow, size, and duration of net new shadows and the public good served by buildings casting net new shadow.

There are no broadly established or accepted methodologies for technical evaluation of shadow effects under CEQA, so for review of shadow impacts on open spaces not subject to section 295, Planning typically adapts these technical standards for use in evaluation of potential CEQA impacts. For this analysis, the San Francisco Planning Department directed Prevision Design to use many of the standards for review of shadow under section 295, as described in Section IV below.

3D Modeling Assumptions

For the purposes of this analysis, Prevision Design built a 3D computer model reflecting representation of the local San Francisco urban context and landform surrounding the project generated by Light Intensity Distance and Ranging [or Laser Imaging Detection and Ranging] (LIDAR). This model reflects actual building massing and articulation from circa 2010, therefore, to show buildings built¹ after that date, Prevision Design generated individual building models using available architectural plans and records. Prevision Design also obtained or generated 3D models of reasonably foreseeable future projects² that would have the potential to generate additional net new shadow on the same publicly accessible open spaces that were shown to be affected by the project (cumulative condition projects).

Precise locations, boundaries, and sizes of the affected open spaces were generated using GIS data provided by Planning with input and boundary verification by RPD.

The model for the proposed project was provided to Prevision Design by the project architect on 12/19/2019 and reflects the project design as shown in the drawing set dated December 2019, which has been confirmed by the project sponsor as the most up-to-date project massing. The model for the residential variant was provided to Prevision Design by the project architect on 9/25/2020. ■

¹ The final form of buildings currently under construction are included as if they are complete for the purposes of this study.

² Qualifying cumulative projects are those that are currently in some stage of the planning or permitting process or have been approved but are not yet under construction.

IV. SCOPE OF WORK AND STUDIES PERFORMED

Initial Scoping Study

To establish the scope of review and approach to analysis and deliverables, Prevision Design followed the guidelines as encoded in the 1989 and 2014 memoranda and modified for project-specific considerations via input and direction from Planning and RPD staff.

To determine the area and features that would be affected by net new project or residential variant shadow, Prevision Design used the 3D context model to generate a full-year shadow fan diagram, which depicts all areas that would receive net new shadow (factoring in the presence of current, intervening shadow from existing buildings) between one hour after sunrise through one hour before sunset (“the daily analysis period”) throughout the year. These graphics appear as Exhibit A and show the net new shadow for the proposed project and the residential variant.

Prevision Design additionally received and verified a list of qualifying cumulative projects in the vicinity of this project that have the potential to generate net new shadow on one or more of the open spaces affected by the proposed project and residential variant, as listed below in Table 1.

CUMULATIVE PROJECT ADDRESS	PROJECT HEIGHT	DATE OF DESIGN DATA	PROJECT DESCRIPTION
220 Battery Street	Approx. 78’	08/23/2019	Four-story vertical addition to existing building
447 Battery Street	Approx. 220’	03/01/2019	18-story hotel/residential building
545 Sansome Street	Approx. 125’	01/30/2020	Horizontal/penthouse addition to existing 9-story building
425 Broadway	Approx. 86’	08/25/2020	New 6-story mixed-use building with 34 dwelling units

TABLE 1: Cumulative Projects List

Prevision Design generated a draft the scope of work and analysis methodology, which was approved by Planning on 9/22/2020. The approved scope of work for this analysis is discussed below:

Quantitative Calculations

Using the 3D project, residential variant, and urban context model developed as part of the scoping study, Prevision Design performed snapshot shadow measurements for Maritime Plaza and Sue Bierman Park at 15-minute intervals within the daily analysis period, repeating these daily measurements every seven days between the Summer Solstice (June 21st) and Winter Solstice (December 20th), with interim times and dates extrapolated to approximate shadow conditions on other days and times. This half-year

period (between the Summer and Winter solstices) is referred to as a “solar year.” As the path of the sun is roughly mirrored over the second half of the year (December 21st through June 20th), analysis of this half-year period allows for a reasonable extrapolation to arrive at a full year estimated calculation of the areas and durations of existing (baseline) shadow that currently falls on the affected open spaces.

In addition to the quantitative analysis of existing shadow conditions, calculations were generated to reflect the addition of the proposed project and the residential variant, with the difference between the baseline conditions and those with the project and residential variant representing the net new shadow effect.

Lastly, 3D models of the approved cumulative projects were added to the model to generate the baseline + project and residential variant + cumulative scenario, depicting the reasonably foreseeable combined shadow effect of all projects in the current development pipeline.

Shadow Profile Graphics

To provide a spatial and contextual understanding of the location, size, and features affected by net new shadow, Prevision Design prepared graphics showing “snapshot” shadow profiles at hourly intervals over the entire area affected by the proposed project and residential variant. Graphics differentiate between existing shadow, net new project and residential variant shadow, and cumulative condition shadow (for both the project and residential variant scenarios) within the daily analysis period on the Summer Solstice (June 21st), the approximate equinoxes (March 22nd / September 20th), and the Winter Solstice (December 20th) and the dates with the greatest quantitative net new shadow for each affected open space and dates with the largest shadow areas (when different from above). These graphics appear as Exhibits B-F.

NOTE: The overall size and location of shadow cast by the project vs. the residential variant are similar. While both shadow profiles have been overlayed on the same graphics using different colors in order to indicate areas where minor shadow profile differences occur, the very subtle shift in shadow profiles may be nearly imperceptible in most cases.

Qualitative Analysis

To gain an understanding of how net new shadow may affect existing patterns of use, Prevision Design conducted six 30-minute site visits to Maritime Plaza and Sue Bierman Park (western portion only) to observe the nature and intensity of uses. Two

site visits (one on a weekday and one on a weekend) were performed in the morning, two at midday, and two late in the day.

The qualitative effects of net new shadow on the affected open spaces are discussed based on the size, location, timing, and duration of net new shadow and how such shadow might potentially affect observed existing patterns of use in Maritime Plaza and Sue Bierman Park. ■

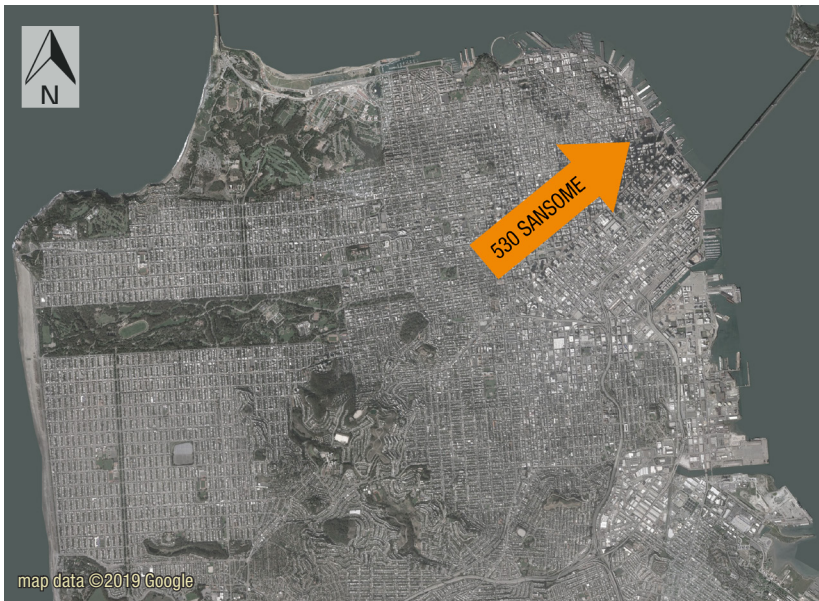


FIGURE 1: Proposed project rendering

V. PROPOSED PROJECT AND RESIDENTIAL VARIANT

This analysis evaluates both a project as well as a residential variant. The description below details both and identifies, where applicable, the differences between these two proposals. Both the project and the residential variant are substantially similar with respect to height and massing, save for slightly different configurations in the penthouse design.

The proposed project (Figure 1) and residential variant would be located on a 17,773-sf site in the Financial District neighborhood of San Francisco on Assessor's Block 0206, Lots 13, 14, and 17. The site is located within the Downtown Area Plan, C-3-O zoning and a 200-S Height and Bulk District. Figure 2 shows a vicinity map.



- 530 Sansome Street (Project)
- Open Spaces (Jurisdiction)
 - 1 Transamerica Redwood Park (POPOS)
 - 2 Maritime Plaza (RPD)
 - 3 Sue Bierman Park (RPD)
 - 4 Sydney G. Walton Square (RPD)
 - 5 Commercial Street OS (DPW)
- Cumulative Projects
 - 1 425 Broadway
 - 2 545 Sansome Street
 - 3 447 Battery Street



FIGURE 2: Vicinity Map

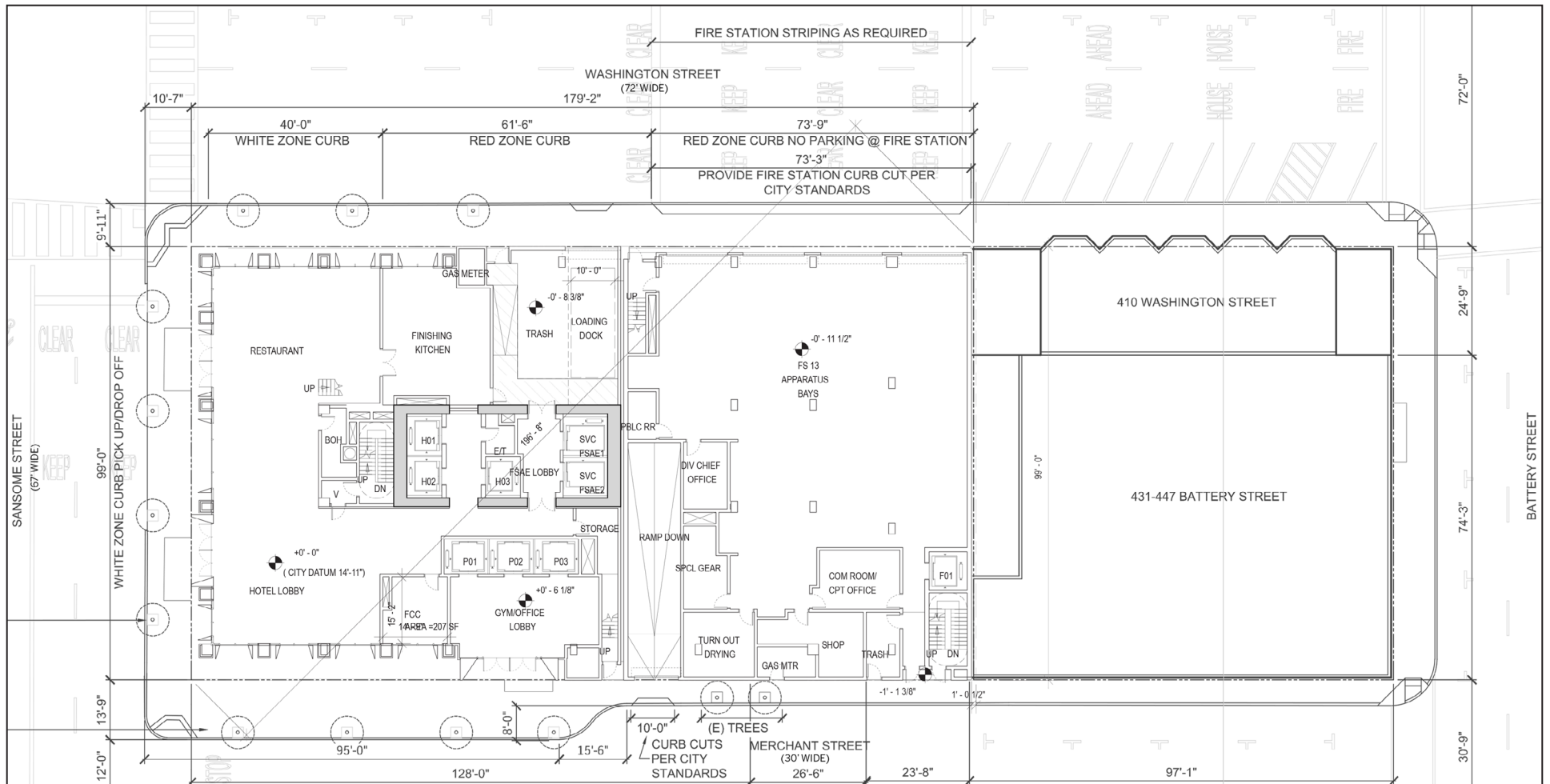


FIGURE 3: Project Site Plan (Residential Variant similar)

The proposed project and residential variant would be located at the intersection of Sansome Street with both Washington and Merchant streets. One lot on the site contains the existing San Francisco Fire Department Station 13, owned by the City and County of San Francisco. The two remaining lots east of the Station 13 are owned by the project co-sponsor, EQX Jackson SQ Holdco LLC (together with San Francisco Fire Department (SFFD) and the City and the County of San Francisco acting in its proprietary capacity through the San Francisco Bureau of Real Estate, the “project sponsors”).



FIGURE 4: Project West Elevation

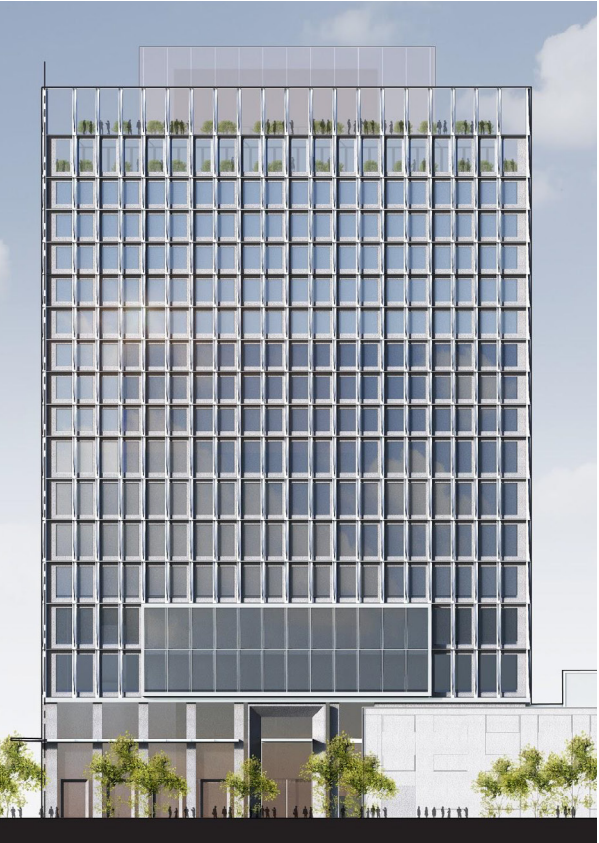


FIGURE 5: Project South Elevation



FIGURE 6: Project North Elevation

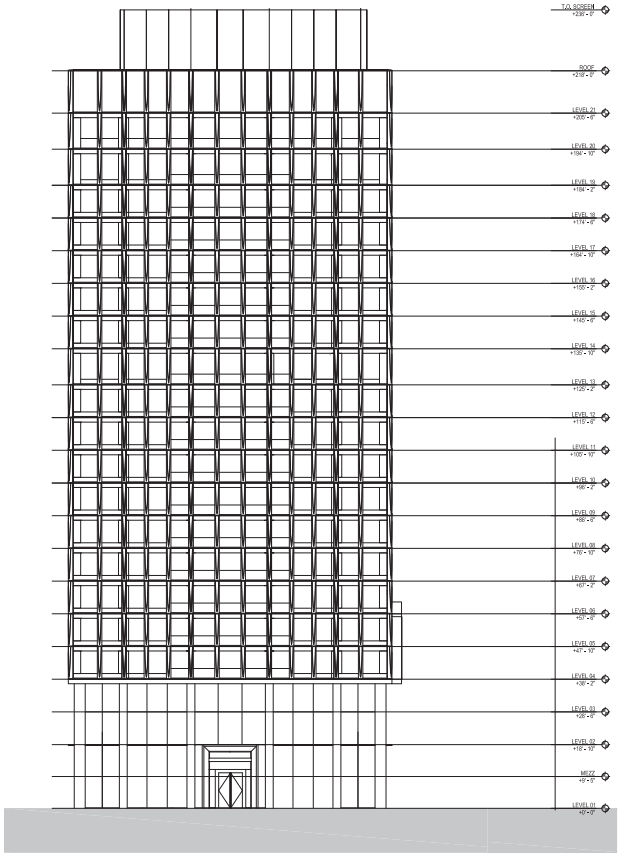


FIGURE 7: Residential Variant West Elevation

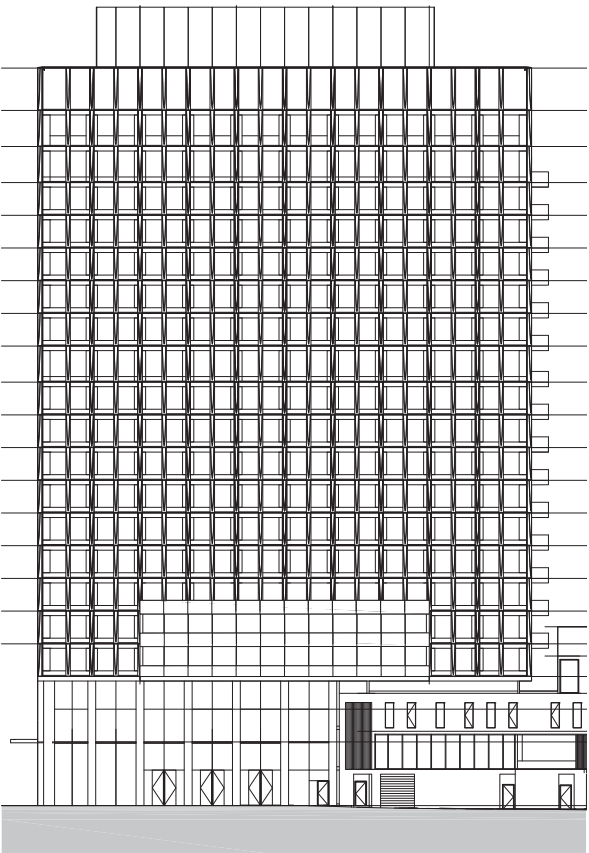


FIGURE 8: Residential Variant South Elevation

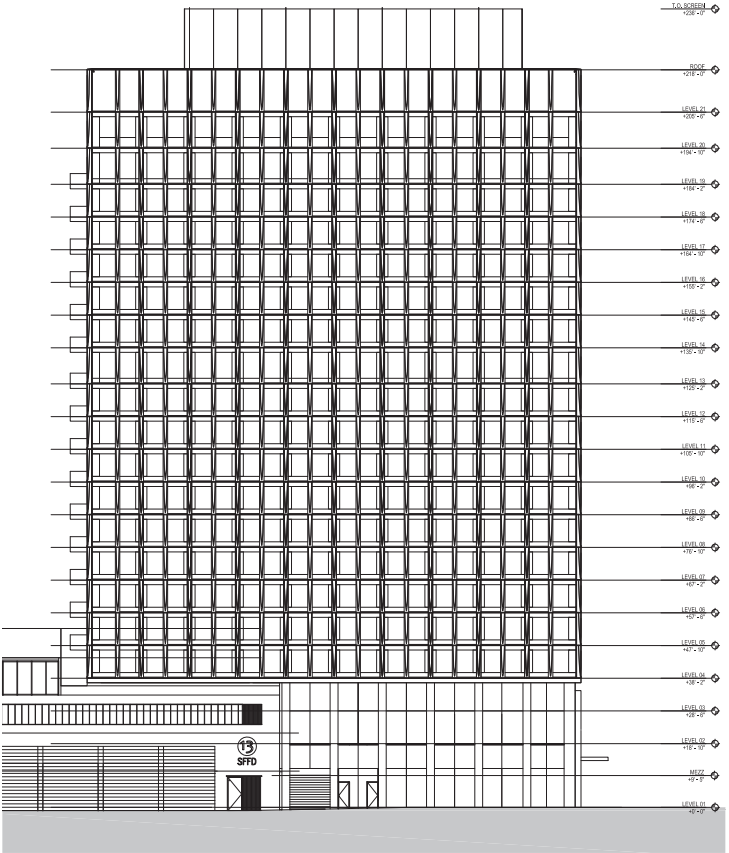


FIGURE 9: Residential Variant North Elevation

In addition to Station 13, the existing site contains two existing 2 to 3 story office buildings.

Development of both the proposed project and residential variant would involve demolishing all existing structures on the site and developing a new four-story Station 13 and approximately 218-foot tower (236 feet with parapet). In the approximately 218-foot-tower, the proposed project would contain ground-floor retail uses, an approximately 36,350 square foot gym, an approximately 39,830 square foot of office space, a 200-key hotel, and approximately 4,830 square feet of POPOS space along Merchant Street. The residential variant would substitute the proposed project's commercial uses (retail, gym, office, and hotel) with residential uses (256 units).

For both the proposed project and residential variant, parking, various back of house operations for the uses in the tower and building utility and service space (including Class 1 bicycle parking, showers and lockers, and various maintenance and mechanical areas) would be provided in three below-grade basement levels. To meet the operational needs of Station 13, the proposed project and residential variant would include a parking garage, with non-accessory SFFD private parking uses located on the third basement level and accessory parking for the other uses in the building provided on the first and second basement levels.

Figure 3 shows the location of the proposed project / residential variant site and Figures 4 through 6 show proposed project elevations, and Figures 7 through 9 show residential variant elevations. ■



FIGURE 10: Maritime Plaza (East Courtyard)

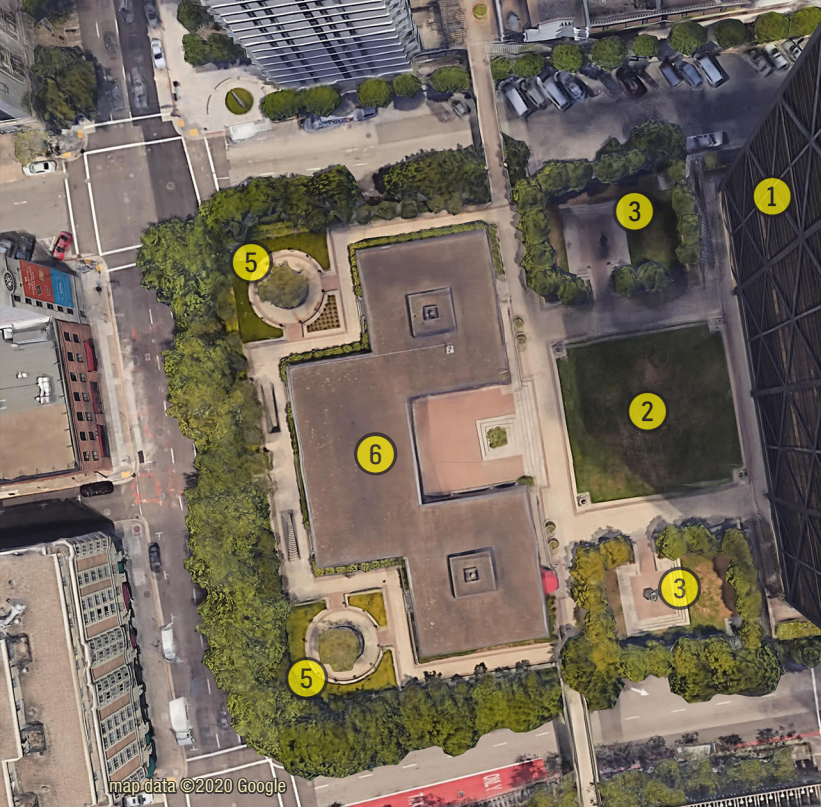
VI. AFFECTED PARKS AND OPEN SPACES

Maritime Plaza

Maritime Plaza is a 1.99 acre (86,676 sf) urban plaza located in the Financial District of San Francisco on Assessor's Block 0204 / Lots 020 and 022 and is under the jurisdiction of RPD. The plaza is elevated above street level above a parking structure and consists of two separated sections of the double-block between Washington and Clay, the west section bordering Battery Street and east section bordering Davis Street. Public access to Maritime Plaza is via public stairwells located at Washington and Clay streets as well as elevated walkways that connect to across Washington and Clay streets to adjacent properties to the north and south. Connection between the two portions of the plaza is via breezeway through the Alcoa building (One Maritime Plaza). The official hours of operation are from 5 a.m. to 12 a.m. (midnight). The official park website is <https://sfrecpark.org/facilities/facility/details/maritimeplaza-350>.



FIGURE 11: West Courtyard



< MARITIME PLAZA WEST (BATTERY BLOCK)

- ① Alcoa Building (One Maritime Plaza)
- ② Lawn
- ③ Sculpture Garden
- ④ Fountain
- ⑤ Landscape/Seating Areas
- ⑥ Punchline San Francisco (private)
- ⑦ Private Offices

MARITIME PLAZA EAST (DAVIS BLOCK) >

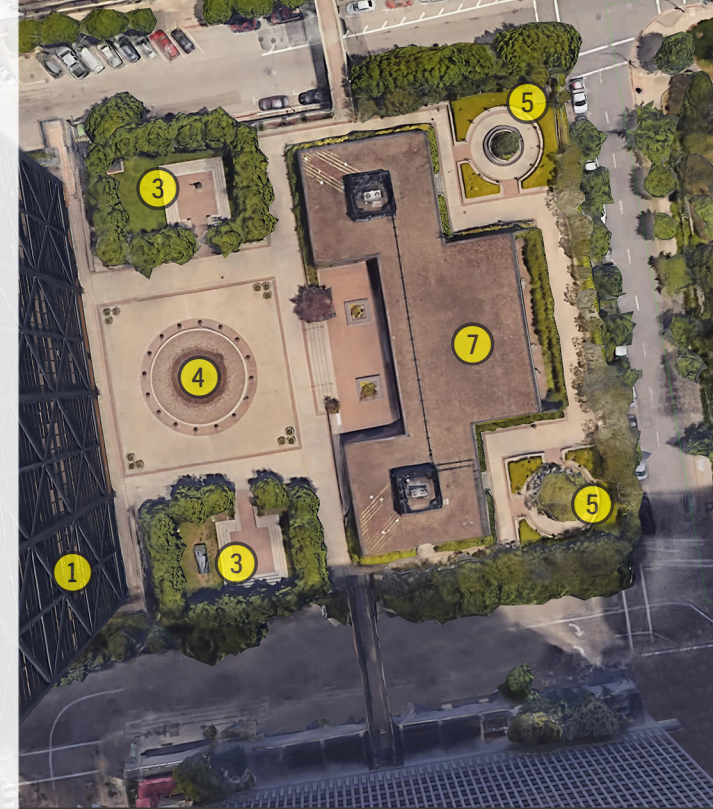


FIGURE 12: Maritime Plaza Map

As shown in Figures 10 and 11, the park contains a large fountain on the eastern side and a wide plaza area with a square lawn on the western portion. Flanking these plaza areas are fenced rectangular sculpture areas with seating which are ringed by small trees. Each side of the plaza includes a one-story building, with the Punchline Comedy club on the western side and private offices in the building on the eastern side. Behind each of these buildings, connected to the main plaza area by walkways are two other landscaped seating areas. Figure 12 shows a diagram of Maritime Plaza.



FIGURE 13: Sue Bierman Park (West)

Sue Bierman Park (West)

Sue Bierman Park is a 4.09 acre (178,200 sf) urban park located in the Financial District of San Francisco on Assessor's Block 0203 / Lot 014 and Block 0202 / Lots 006, 015, 018, and 020, and is under RPD jurisdiction. The park is physically divided by Drumm Street into two parts, the western portion is bounded by Washington Street to the north, Clay Street to the south, Drumm Street to the east, and Davis Street to the west, while the eastern portion is bounded by Washington Street to the north, Clay Street to the south, the Embarcadero to the east, and Drumm Street to the west. The park is not fenced, and the official hours of operation are from 5 am to 12 am (midnight). The official park website is <https://sfrecpark.org/facilities/facility/details/suebiermanpark-378>.

As shadow from project and residential variant only affect the 1.5 acre (65,131 sf) western portion (Block 0203 / Lot 014) of Sue Bierman Park, therefore project description below (and ensuing analysis) only discuss this portion of the park.

As shown by Figure 13, Sue Bierman Park (West) contains grassy and heavily vegetated landscaped areas, divided by three paved walkways connecting the northwest,

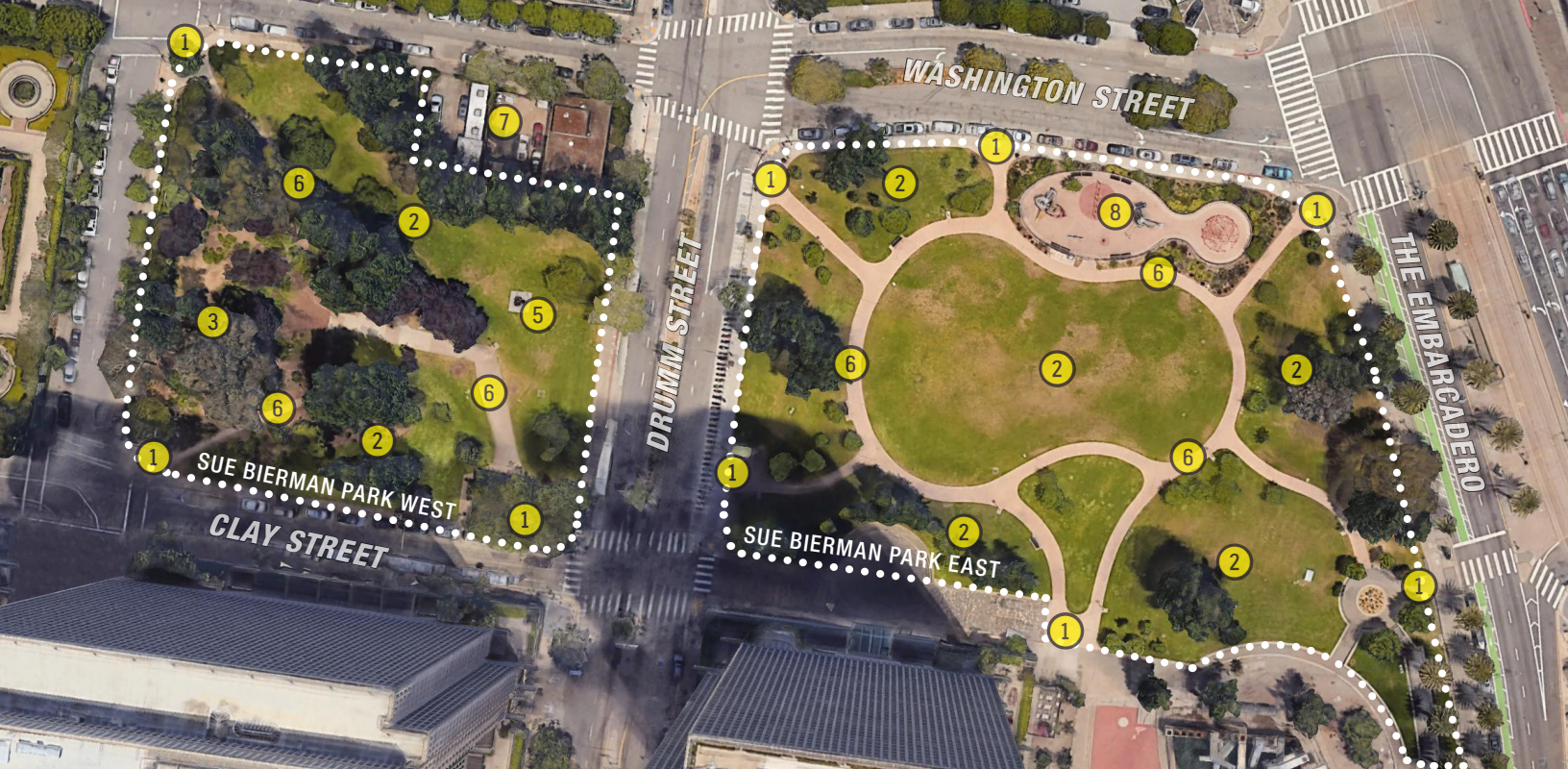


FIGURE 14: Sue Bierman Park Map

- ① Park Entries
- ② Lawn/Grassy Areas
- ③ Natural Area
- ④ Landscape/Grassy Areas
- ⑤ Sculpture
- ⑥ Pedestrian Pathway
- ⑦ SFPUC Property (not part of park)
- ⑧ Children's Play Area

southwest, and southeast corners of the park. A large sculpture is located in the center of the larger grass area on the eastern side of the park. The southwestern half of the park area is heavily wooded with unpaved trails through this natural area. To the northeast, the park's border features a stand of tall trees surrounding a small utility building complex owned by the San Francisco Public Utilities Commission (SFPUC). Figure 14 above shows a diagram of Sue Bierman Park (including both Sue Bierman Park West as well as Sue Bierman Park East for visual reference and orientation).



FIGURE 15: Transamerica Redwood Park

Transamerica Redwood Park

The Transamerica Redwood Park (Figure 15) is an approximately 1.25 acre (55,880 sf) mid-block privately owned public open space located on Assessor's Block 0207 / Lot 033 between the Transamerica Building (600 Montgomery) to the west, Washington Street to the North, the 500-block of Sansome Street to the east and Clay Street to the south. Public entrances are located on the north and south street frontages along with an east-west pedestrian walkway between buildings connecting to Sansome street. The park is comprised of several dozen mature redwood and other trees along with other landscape plantings, a fountain, numerous fixed benches and points of access to the surrounding buildings.

Other Nearby Parks and Open Spaces

The proposed project would not affect any other public parks or privately owned open spaces in the project vicinity. ■

VII. MARITIME PLAZA ANALYSIS FINDINGS

Table 2 summarizes the existing condition data and quantitative shadow effects of the proposed project on Maritime Plaza. The full quantitative calculations for shadow conditions on all 27 analysis dates are included as Exhibit F.

Existing Conditions

The plaza area is 86,676 square feet and currently experiences 218,954,785 annual square-foot-hours (sfh) of shadow. Based on a theoretical annual available sunlight (TAAS) of 322,556,066 sfh, the plaza's current annual shadow load is 67.88%. Under existing conditions, the plaza is substantially shaded in the mornings and afternoons with some increased areas of sun around midday during the spring, summer, and early fall. The plaza is almost entirely shaded throughout the day during late fall and winter months.

Increase in Annual Shadow from Proposed Project and Residential Variant

The proposed project would result in net new shadow falling on the plaza, adding approximately 2,275,914 net new annual sfh of shadow and increasing the annual shadow load by 0.71% above current levels, which would result in a new annual total shadow load of 68.59%.

The residential variant would result in a similar but slightly lesser amount of net new shadow falling on the plaza, adding approximately 2,219,243 net new annual sfh of shadow and increasing the annual shadow load by 0.69% above current levels, which would result in a new annual total shadow load of 68.57%.

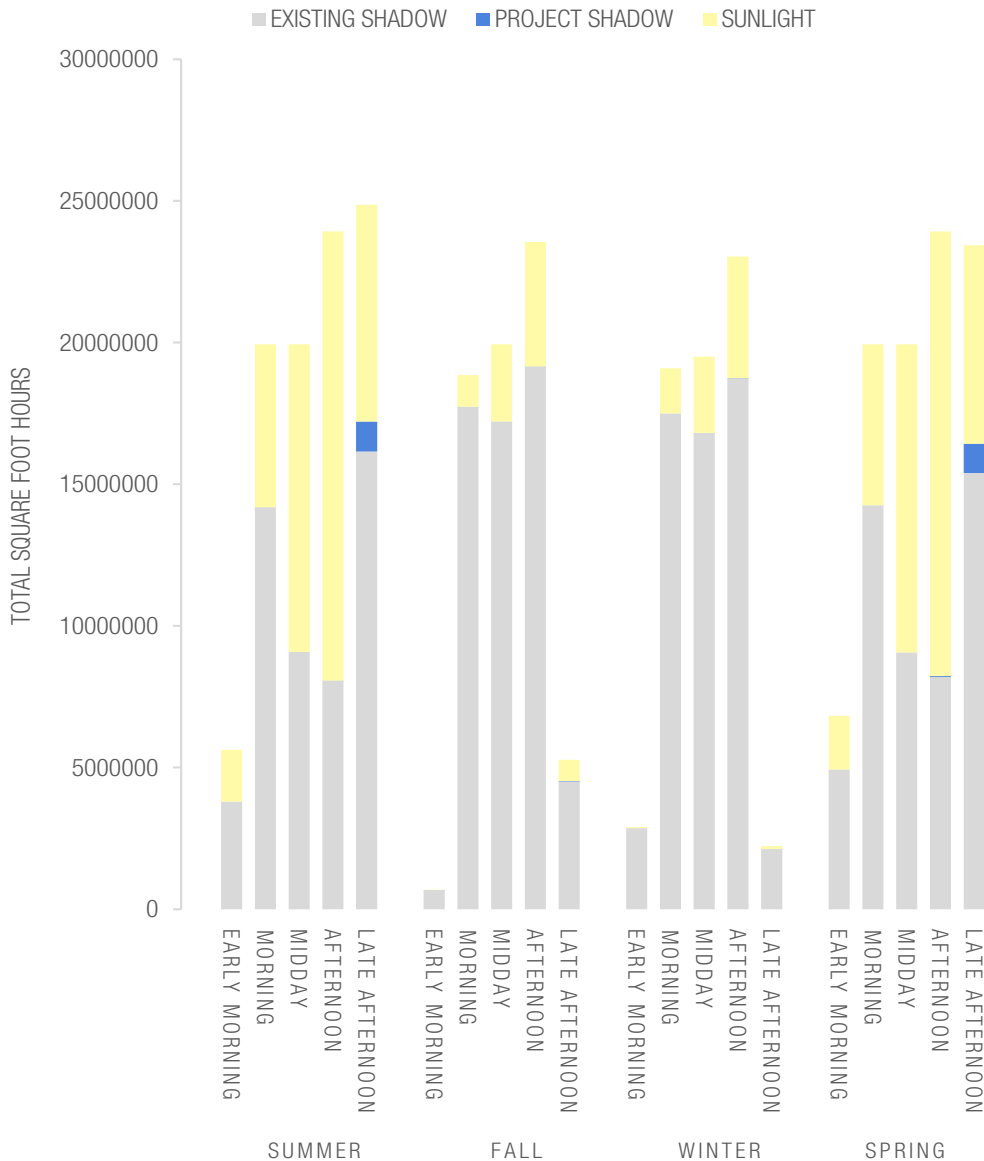
Timing and Location of Shadow from Proposed Project and Residential Variant

Net new shadow from both the proposed project and residential variant would occur for approximately 223 days a year between approximately March 2nd and October 10th. Shadow would fall primarily on the western portion of Maritime Plaza, with only a small band along the northern edge of the eastern portion of the plaza receiving any

THEORETICAL ANNUAL AVAILABLE SUNLIGHT (TAAS) CALCULATION	MARITIME PLAZA
Total plan area of Maritime Plaza	1.99 acres (86,676 sf)
Total hours of annual sunlight from 1-hr after sunrise through 1-hr before sunset	3721.4 hrs
Theoretical Annual Available Sunlight (plan area x hours of annual sunlight)	322,556,066 sfh
EXISTING SHADOW CONDITIONS SUMMARY	MARITIME PLAZA
Total annual existing shadow load (existing shadow sfh ÷ TAAS sfh)	67.88%
Total annual existing shadow in square-foot-hours (sfh)	218,954,785 sfh
Range in existing shadow area coverage throughout the year	Between 6% - 100%
Time of year / time of day most affected by existing shadow	Fall / Early Morning (before 8:00 AM)
530 SANSOME PROJECT NET NEW SHADOW SCENARIO SUMMARY	MARITIME PLAZA
Annual net new project-only shadow load / total existing + project shadow load	0.71% / 68.59%
Annual net new sfh project shadow / total existing + project sfh	2,275,914 sfh / 221,230,699 sfh
Number of days annually when new shading from project would occur	Up to 223 days a year
Dates when net new shadow from project would be cast annually	March 2 - October 10
Date(s) with most annual sfh net new project shadow (shadow load / net new sfh)	August 16 & April 26
Time of year / time of day most affected by project net new shadow overall	Spring / Late Afternoon (after 4:00 PM)
Date(s) with largest shadow area from the project (area and time shadow occurs)	Aug 23/Apr 19 (11,524 sf @ 6:00 PM)
Range in project net new shadow percentage coverage (area range)	Between 0% - 10% (0 - 11,524 sf)
Average project net new shadow coverage on affected dates (shadow area)	4.88% (4,229 sf)
Date(s) with the longest duration of net new shadow (duration)	Aug 2/May 10 (2 hr 56 min +/- 7 min)
Range in daily project net new shadow duration (margin of error)	Between zero minutes up to 2 hr 56 min (+/- 7 min)
Average daily project net new shadow duration on affected dates	2 hr 31 min
530 SANSOME VARIANT NET NEW SHADOW SCENARIO SUMMARY	MARITIME PLAZA
Annual net new variant-only shadow load / total existing + variant shadow load	0.69% / 68.57%
Annual net new sfh variant shadow / total existing + variant sfh	2,219,243 sfh / 221,174,027 sfh
Number of days annually when new shading from variant would occur	Up to 223 days a year
Dates when net new shadow from variant would be cast annually	March 2 - October 10
Date(s) with most annual sfh net new variant shadow (shadow load / net new sfh)	August 16 & April 26
Time of year / time of day most affected by variant net new shadow overall	Spring / Late Afternoon (after 4:00 PM)
Date(s) with largest shadow area from the variant (area and time shadow occurs)	Aug 23/Apr 19 (11,489 sf @ 6:00 PM)
Range in variant net new shadow percentage coverage (area range)	Between 0% - 10% (0 - 11,489 sf)
Average variant net new shadow coverage on affected dates (shadow area)	4.76% (4,124 sf)
Date(s) with the longest duration of net new shadow (duration)	Aug 2/May 10 (2 hr 56 min +/- 7 min)
Range in daily variant net new shadow duration (margin of error)	Between zero minutes up to 2 hr 56 min (+/- 7 min)
Average daily variant net new shadow duration on affected dates	2 hr 31 min

TABLE 2: Quantitative project shadow summary for Maritime Plaza

EXISTING/PROJECT SHADOW VS SUN CHART



SUMMER: Jun 21-Sep 20

FALL: Sep 21-Dec 20

WINTER: Dec 21-Mar 20

SPRING: Mar 21-Jun 20

EARLY MORNING: Before 8 a.m.

MORNING: 8 a.m. to 10:30 a.m.

MIDDAY: 10:30 a.m. to 1:30 p.m.

AFTERNOON: 1:30 p.m. to 4 p.m.

LATE AFTERNOON: After 4 p.m.

net new shadow. Net new shadow would be cast only during afternoon hours, no earlier than 3:30 p.m. As shown in Figure 16, spring and summer after 4 pm would be the times that would experience most net new shadow from the project or residential variant.

The days of maximum net new sfh on the plaza due to the proposed project or variant would occur on or around April 26th and August 16th. During those two dates, the proposed project would shade the northwestern corner of Maritime Plaza starting just after 4 p.m. and expand across the western side affecting landscaped and grassy areas as well as walkways over the course of approximately 3 hours until the end of the daily analysis period at 7:02 p.m.

The dates with the single largest net new project shadow area would occur on April 19th and August 23rd, when a 11,524-sf new shadow would be cast at 6 p.m. (see Figure 17³), covering 10% of the total plaza area. The largest shadow from the residential variant would also occur at that date and time and cover nearly the same area as the project (11,489 sf.).

The duration of proposed project/variant-generated net new shadow would also vary throughout the year, with net new shadow lasting between zero minutes up to approximately 2 hours and 31 minutes (occurring on May 10th and August 2nd).

³ Due to similarity of shadow profiles between the project and residential variant, the small differences in shadow profiles may not be visible at the scale of this graphic.

FIGURE 16: Maritime Plaza Sun/Shadow Levels by Time of Day/Season



- ① One Maritime Plaza
- ② Lawn
- ③ Sculpture Garden
- ④ Fountain
- ⑤ Landscape/Seating Areas
- ⑥ Punchline San Francisco (private)
- ⑦ Private Offices

FIGURE 17: Max net new shadow on Maritime Plaza (4/19 and 8/23 at 6:00 pm)

Increase in Shadow under Cumulative Scenarios

The cumulative scenario net new shadow with the project would result in an increase of 3,786,977 sfh of shadow on Maritime Plaza, or an additional 1,559,662 sfh of shadow as compared to the annual shadow increase from the proposed project alone. This increase in sfh would result in total net new cumulative shadow load of 69.05%, an increase of 0.48% more than the project-only shadow.

The cumulative scenario net new shadow with the residential variant would result in an increase of 3,778,905 sfh of shadow on Maritime Plaza, or an additional 1,559,662 sfh of shadow as compared to the annual shadow increase from the residential variant alone. This increase in sfh would result in total net new cumulative shadow load of 69.05%, an increase of 0.48% more than the residential variant-only shadow load.

Table 3 includes a breakdown of net new shadow for the cumulative shadow scenario for both the project and the residential variant.

Timing and Location of New Shadow Under Cumulative Scenarios

Net new shadow under both proposed project and residential variant plus cumulative conditions would occur for approximately 307 days a year between approximately January 19th and November 21st, an increase of 84 days a year than under the project or residential variant-only scenarios. Net new cumulative shadow would be cast only during afternoon hours, no earlier than 2:15 p.m. Spring and summer after 4 p.m. would be the times that would experience most net new shadow under the project/variant plus cumulative scenario.

PROJECT CUMULATIVE NET NEW SHADOW SCENARIO SUMMARY	MARITIME PLAZA
Annual net new project cumulative condition shadow load / total existing + project cumulative shadow load	1.17% / 69.05%
Annual net new sfh project cumulative shadow / total existing + project cumulative sfh	3,786,977 sfh / 222,741,761 sfh
Number of days annually when new shading from project cumulative would occur	Up to 307 days a year
Dates when net new shadow from project cumulative would be cast annually	January 19 - November 21
Date(s) with most annual sfh net new project cumulative shadow (shadow load / net new sfh)	August 2 & May 10
Time of year / time of day most affected by project cumulative net new shadow overall	Spring / Late Afternoon (after 4:00 PM)
Date(s) with largest shadow area from the project cumulative (area and time shadow occurs)	Jul 12/May 31 (14,285 sf @ 6:15 PM)
Range in project cumulative net new shadow percentage coverage (area range)	Between 0% - 16% (0 - 14,285 sf)
Average project cumulative net new shadow coverage on affected dates (shadow area)	4.61% (3,992 sf)
Date(s) with the longest duration of net new shadow (duration)	Jul 26/May 17 (4 hr 17 min +/- 7 min)
Range in daily project cumulative net new shadow duration (margin of error)	Between zero minutes up to 4 hr 17 min (+/- 7 min)
Average daily project cumulative net new shadow duration on affected dates	3 hr 12 min

VARIANT CUMULATIVE NET NEW SHADOW SCENARIO SUMMARY	MARITIME PLAZA
Annual net new variant cumulative shadow load / total existing + variant cumulative shadow load	1.17% / 69.05%
Annual net new sfh variant cumulative shadow / total existing + variant cumulative sfh	3,778,905 sfh / 222,733,690 sfh
Number of days annually when new shading from variant cumulative would occur	Up to 307 days a year
Dates when net new shadow from variant cumulative would be cast annually	January 19 - November 21
Date(s) with most annual sfh net new variant cumulative shadow (shadow load / net new sfh)	August 2 & May 10
Time of year / time of day most affected by variant cumulative net new shadow overall	Spring / Late Afternoon (after 4:00 PM)
Date(s) with largest shadow area from the variant cumulative (area and time shadow occurs)	Jul 12/May 31 (14,310 sf @ 6:15 PM)
Range in variant cumulative net new shadow percentage coverage (area range)	Between 0% - 17% (0 - 14,310 sf)
Average variant cumulative net new shadow coverage on affected dates (shadow area)	4.60% (3,983 sf)
Date(s) with the longest duration of net new shadow (duration)	Jul 26/May 17 (4 hr 17 min +/- 7 min)
Range in daily variant cumulative net new shadow duration (margin of error)	Between zero minutes up to 4 hr 17 min (+/- 7 min)
Average daily variant cumulative net new shadow duration on affected dates	3 hr 12 min

TABLE 3: Cumulative quantitative project shadow summary for Maritime Plaza

The days of maximum net new square foot hours of shadow on the plaza due to the proposed project would occur on May 10th and August 2nd, when the cumulative shadow reach the western portion of Maritime Plaza starting just prior to 3:15 p.m., expanding eastward across that portion of the park, affecting landscaped and grassy areas as well as walkways over the course of approximately four hours until the end of the daily analysis period at 7:18 p.m.

The dates with the single largest net new shadow area in the cumulative scenarios would occur on or around May 31st and July 12th, when, at 6:15 p.m., a 14,285-sf new shadow would be cast under the project cumulative scenario and a 14,310-sf shadow would be cast under the residential variant cumulative scenario.

The duration of cumulative net new shadow under either the project or residential variant would vary throughout the year, with net new shadow lasting between zero and up to approximately 4 hours and 17 minutes (occurring on May 17th and July 26th).

Observed Uses

Within the six 30-minute observation periods conducted by Prevision Design on October 21st and 24th, 2020, the number of users present in the plaza over the course of half an hour ranged from 14 to 35 people. Many of the observed users of the plaza passed through without stopping, and of those who remained many were observed dog walking (a majority of midday visitors) while other users occupied the seating or grassy areas for eating or socializing. See Table 4 for an observation summary.

OBSERVATION TIME	DATE OF VISIT	PLAZA USERS	TEMP - WEATHER
Weekday Morning	10/21/2020	26	65° F – Sunny
Weekday Midday	10/21/2020	32	72° F – Sunny
Weekday Afternoon	10/21/2020	35	78° F – Sunny
Weekend Morning	10/24/2020	14	58° F – Mostly Cloudy
Weekend Midday	10/24/2020	28	66° F – Partly Cloudy
Weekend Afternoon	10/24/2020	12	67° F – Sunny

TABLE 4: Maritime Plaza Use Observations

Overall, observed peak use at Maritime Plaza occurred during weekday midday and afternoon hours. The observed intensity of use varied between the observation times but could be characterized as low to moderate. Observed peak use on October 21st corresponded to a ratio of 3,353 sf of plaza area per user.

It should be noted that due to the global Covid-19 pandemic, patterns of use observed by Prevision Design during this period may not be representative of typical use conditions at Maritime Plaza. A prior field analysis conducted in 2019 suggested that the weekday midday and afternoon observations done by Prevision Design in 2020 reflect an approximate 50% reduction in levels of activity relative to observations performed prior to the pandemic.⁴ The 2019 use observation data is included as Exhibit J.

⁴ The observations performed by Fastcast for the 447 Battery Street shadow study in 2019 (Exhibit J) recorded weekday usage only after midday and additionally looked at use patterns over the course of several hours instead of 30 minutes. The characterization comparing the relative change in use levels represents factoring in and interpolating between these different observation methodologies.

The Value of Sunlight

The portions of Maritime Plaza that would likely be the most sensitive to the addition of new shadow would be those elements that are fixed in location, conducive to more stationary activities (i.e., users remain in one area rather than pass through) and are observed to be well used by the public. Based on the use observations performed landscape/seating areas would likely qualify as the most sensitive areas per the criteria established above. These features would receive additional new shadow from the project as further discussed below.

Project Shadow Characteristics

Throughout the year, net new shadow due to the proposed project or residential variant would occur primarily on the western portion of Maritime Plaza (see Exhibit A), with net new shadow (when occurring) present for approximately 2 hours and 32 minutes on average, up to a maximum duration of 2 hours and 56 minutes. The largest net new shadow profile would cover approximately 10% of the total Maritime Plaza area.

The landscape/seating areas would receive shadow from the project or residential variant only within the last three hours of the daily analysis period⁵ (i.e., one to four hours before sunset). While many of the observed uses of Maritime Plaza were transitory in nature for those whom Maritime Plaza is a destination would find fewer unshaded areas at these times.

Exhibits B through F graphically illustrate shadow conditions at hourly intervals within the daily analysis period on the summer solstice (June 21st), approximate vernal and autumnal equinoxes (March 22nd / September 20th), the winter solstice (December 20th), the day(s) of maximum net new SFH of shadow (April 26th / August 16th), and dates where the largest shadows are cast (April 19th / August 23rd).

Cumulative Scenario Shadow Characteristics

Throughout the year, net new shadow under the cumulative scenarios for either the proposed project or residential variant would also occur primarily on the western portion of Maritime Plaza, with net new shadow (when occurring) being present for approximately 3 hours and 14 minutes on average, up to a maximum duration of 4 hours and 17 minutes. The largest net new shadow profile under the cumulative scenarios for either the proposed project or residential variant would cover approximately 11% of Maritime Plaza's area, affecting substantially similar areas of Maritime Plaza.

⁵ The daily analysis period is between one hour after sunrise through one hour before sunset.

As with the proposed project or residential variant, under the cumulative scenarios landscape/seating areas would receive shadow within the last four hours of the daily analysis periods. The overall effect and pattern of shading would be similar to the proposed project or residential variant scenarios except that shadows would arrive on these features approximately 30 minutes earlier relative to the project and residential variant scenarios.

Other Factors Affecting Sunlight

Per Planning Department direction, shadow cast by trees is considered “impermanant” and was not accounted for in the quantitative shadow analysis. On a practical basis, the dense planting of small trees along the western edge of the plaza does contribute to the user experience of the plaza and its shadow conditions. As these trees are located between the project and the affected areas of the plaza, the shadows cast by the proposed project would likely have a diminished net new shading effect in particular on affected plaza features near the planting as these areas would already be cast in (at least partial) shadow due to vegetation shading during the affected periods. ■

VIII. SUE BIERMAN PARK ANALYSIS FINDINGS

Table 5 summarizes the existing condition data and quantitative shadow effects of the proposed project on Sue Bierman Park. The full quantitative calculations for shadow conditions on all 27 analysis dates are included as Exhibit G.

Existing Conditions

The park area is 117,577 square feet and currently experiences 2,281,550,861 annual square-foot-hours (sfh) of shadow. Based on a theoretical annual available sunlight (TAAS) of 660,834,406 sfh, the park's current annual shadow load is 42.6054%. Under existing conditions, the park is predominantly unshaded during the morning hours, with shadow levels generally growing toward the afternoon. The park is almost entirely shaded throughout the afternoon during late fall and winter months.

Increase in Annual Shadow from Proposed Project and Residential Variant

The proposed project would result in net new shadow falling on the park, adding approximately 976 net new annual sfh of shadow and increasing the annual shadow load by 0.0001%, which would result in a new annual total shadow load of 42.6055%.

The residential variant would result in a similar but slightly lesser amount of net new shadow, adding approximately 892 net new annual sfh of shadow to also increase the annual shadow load by 0.0001% for a new annual total shadow load of 42.6055%.

Timing and Location of Shadow from Proposed Project and Residential Variant

Net new shadow from both the proposed project and residential variant would occur for approximately 26 days a year between approximately March 16th-28th and again between September 14th-26th. Shadow would fall a small area of the western portion of Sue Bierman Park. Net new shadow would be cast between 5:45 and 6:09 p.m.

The days of maximum net new sfh on the park due to the proposed project or variant would occur on or around September 20th and March 22nd. During those two dates, the proposed project would shade a small area close to the northern edge of Sue Bierman

THEORETICAL ANNUAL AVAILABLE SUNLIGHT (TAAS) CALCULATION	SUE BIERMAN PARK (WEST)
Total plan area of Sue Bierman Park (West)	4.08 acres (177,577 sf)
Total hours of annual sunlight from 1-hr after sunrise through 1-hr before sunset	3721.4 hrs
Theoretical Annual Available Sunlight (plan area x hours of annual sunlight)	660,834,406 sfh
EXISTING SHADOW CONDITIONS SUMMARY	SUE BIERMAN PARK (WEST)
Total annual existing shadow load (existing shadow sfh ÷ TAAS sfh)	42.6054%
Total annual existing shadow in square-foot-hours (sfh)	281,550,861 sfh
Range in existing shadow area coverage throughout the year	Between 0% - 100%
Time of year / time of day most affected by existing shadow	Winter / Afternoon (1:00-4:00 PM)
530 SANSOME PROJECT NET NEW SHADOW SCENARIO SUMMARY	SUE BIERMAN PARK (WEST)
Annual net new project-only shadow load / total existing + project shadow load	0.0001% / 42.6055%
Annual net new sfh project shadow / total existing + project sfh	976 sfh / 281,551,837 sfh
Number of days annually when new shading from project would occur	Up to 26 days a year
Dates when net new shadow from project would be cast annually	3/16 - 3/28 & 9/14 - 9/26
Date(s) with most annual sfh net new project shadow (shadow load / net new sfh)	September 20 & March 22
Time of year / time of day most affected by project net new shadow overall	Spring / Late Afternoon (after 4:00 PM)
Date(s) with largest shadow area from the project (area and time shadow occurs)	Sep 20/Mar 22 (344 sf @ 6:00 PM)
Range in project net new shadow percentage coverage (area range)	Between 0.0% - 0.2% (0 - 344 sf)
Average project net new shadow coverage on affected dates (shadow area)	0.23% (410 sf)
Date(s) with the longest duration of net new shadow (duration)	Sep 20/Mar 22 (12 min +/- 11 min)
Range in daily project net new shadow duration (margin of error)	Between zero minutes up to 12 min (+/- 11 min)
Average daily project net new shadow duration on affected dates	12.3 minutes
530 SANSOME VARIANT NET NEW SHADOW SCENARIO SUMMARY	SUE BIERMAN PARK (WEST)
Annual net new variant-only shadow load / total existing + variant shadow load	0.0001% / 42.6055%
Annual net new sfh variant shadow / total existing + variant sfh	892 sfh / 281,551,753 sfh
Number of days annually when new shading from variant would occur	Up to 26 days a year
Dates when net new shadow from variant would be cast annually	3/16 - 3/28 & 9/14 - 9/26
Date(s) with most annual sfh net new variant shadow (shadow load / net new sfh)	September 20 & March 22
Time of year / time of day most affected by variant net new shadow overall	Spring / Late Afternoon (after 4:00 PM)
Date(s) with largest shadow area from the variant (area and time shadow occurs)	Sep 20/Mar 22 (315 sf @ 6:00 PM)
Range in variant net new shadow percentage coverage (area range)	Between 0.0% - 0.2% (0 - 315 sf)
Average variant net new shadow coverage on affected dates (shadow area)	0.21% (375 sf)
Date(s) with the longest duration of net new shadow (duration)	Sep 20/Mar 22 (12 min +/- 11 min)
Range in daily variant net new shadow duration (margin of error)	Between zero minutes up to 12 min (+/- 11 min)
Average daily variant net new shadow duration on affected dates	12.3 minutes

TABLE 5: Quantitative project shadow summary for Sue Bierman Park

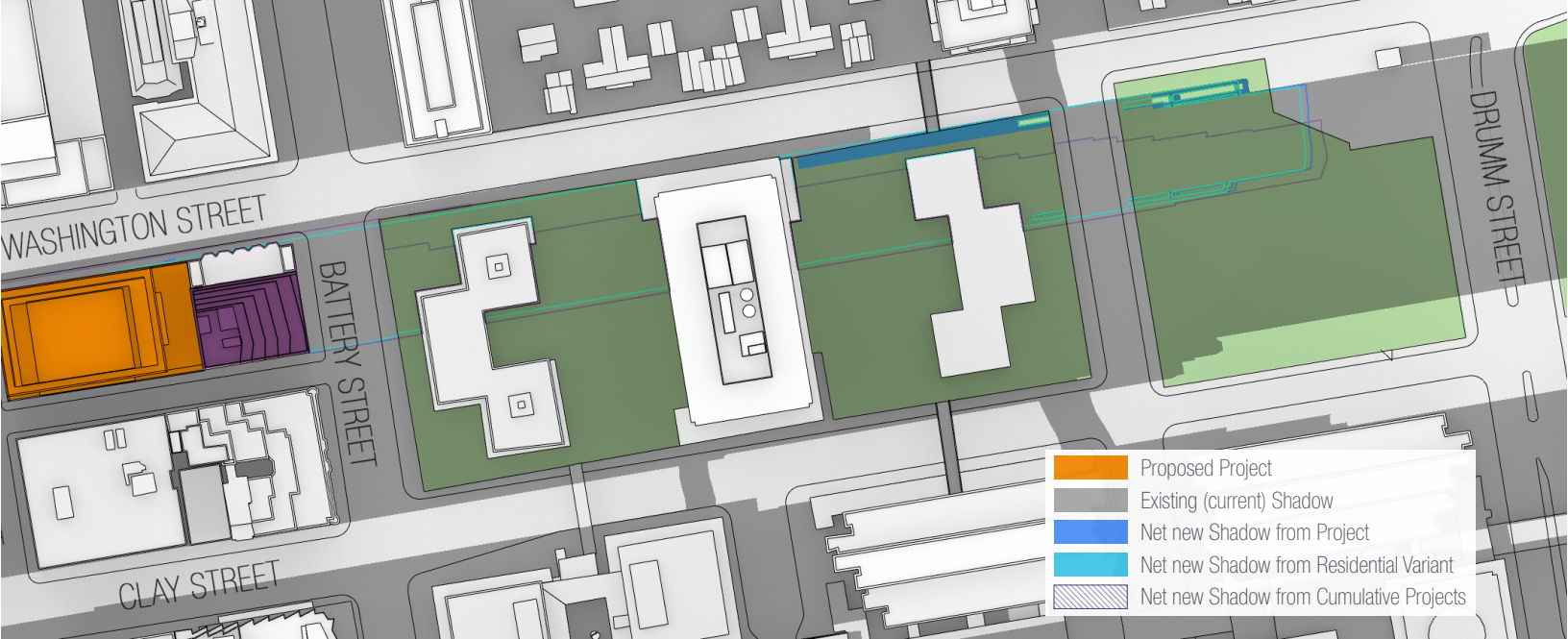


FIGURE 18: Max net new shadow on Sue Bierman Plaza (3/22 and 9/20 at 6:00 pm)

Park starting just after 5:45 p.m. and be present for approximately 15 minutes until shortly after 6 p.m.

The dates with the single largest net new project shadow area would also occur on September 20th and March 22nd, when a 344-sf new shadow would be cast at 6 p.m. (see Figure 18) and would cover 0.02% of the total park area. The largest shadow from the residential variant would also occur at that date and time, but be slightly smaller at 315 sf.

The duration of proposed project/variant-generated net new shadow would also vary throughout the year, with net new shadow lasting between zero minutes up to approximately 20 minutes (occurring on September 20th and March 22nd).

Increase in Shadow in Cumulative Scenarios

Cumulative net new shadow would be identical to the conditions under the project/variant as none of the other cumulative scenario projects would cast any net new shadow on Sue Bierman Park.

Observed Uses

Within the six 30-minute observation periods conducted by Prevision Design on October 21st and 24th, 2020, the number of users present in the park over the course of half an hour ranged from 19 to 37 people⁶. Most of the observed users of the park

⁶ These observations took place during the Covid-19 pandemic which may have altered typical patterns of park use, however no prior use observation data was available.

passed through without stopping, and those who remained occupied the landscaped/ grassy areas for resting or conversation. See Table 6 for an observation summary.

OBSERVATION TIME	DATE OF VISIT	PARK USERS	TEMP - WEATHER
Weekday Morning	10/21/2020	21	65° F – Sunny
Weekday Midday	10/21/2020	19	72° F – Sunny
Weekday Afternoon	10/21/2020	27	78° F – Sunny
Weekend Morning	10/24/2020	22	58° F – Mostly Cloudy
Weekend Midday	10/24/2020	30	66° F – Partly Cloudy
Weekend Afternoon	10/24/2020	37	67° F – Sunny

TABLE 6: Sue Bierman Park Use Observations

Overall, observed peak use at the park occurred during weekend midday and afternoon hours. The observed intensity of use varied between the observation times but could be characterized as low to moderate due to the fact a high percentage of park users were transitory in nature. Observed peak use on October 24th during the afternoon corresponded to a ratio of 4,799 sf of park area per user.

The Value of Sunlight

The portions of Sue Bierman Park that would likely be sensitive to the addition of new shadow would be those elements that are fixed in location, conducive to more stationary activities (users remain in one area rather than pass through) and are observed to be well used by the public. Based on the use observations performed the landscaped/ grassy areas would likely qualify as the most sensitive areas. This feature would receive additional new shadow from the project and residential variant as further discussed below.

Project Shadow Characteristics

Throughout the year, net new shadow due to the proposed project/variant would occur only over a small area of the northern portion of the park (see Exhibit A), with net new shadow (when occurring) present for about 20 minutes. The largest net new shadow profile would be very small and cover approximately 0.2% of the total park area. The new shadow would fall on grassy areas adjacent the public sidewalk.

As many of the observed uses of the park were transitory in nature and would not likely be affected by the presence of new shadow, and even for those for whom the park is a destination would likely not find the small additional area of shadow noticeable and even if it were it would be relatively easy to relocate to a similar nearby unshaded area.

Exhibits B through D graphically illustrate shadow conditions at hourly intervals within the daily analysis period (one hour after sunrise through one hour before sunset) on the summer solstice (June 21st), approximate vernal and autumnal equinoxes (March 22nd / September 20th, also the date of max shadow on Sue Bierman Park West), the winter solstice (December 20th)

Other Factors Affecting Sunlight

Per Planning Department direction, shadow cast by trees is considered “impermanent” and was not accounted for in the quantitative shadow analysis. On a practical basis, the dense planting of many large trees along the western half of the park contributes to the user experience of the park and its shadow conditions. As these trees are located between the project and the affected area of the park, the shadows cast by the proposed project and residential variant would likely have a diminished net new shading effect as these areas would already be cast in (at least partial) shadow due to tree shading during the affected periods. ■

IX. TRANSAMERICA REDWOOD PARK ANALYSIS FINDINGS

Existing Conditions

Under existing conditions, the park is predominantly shaded throughout the day due to shadows cast by existing buildings as well as substantial tree canopy cover.

Increase in Annual Shadow from Proposed Project and Residential Variant

Setting aside presence of shadow from existing trees, the project and residential variant would generate small amounts net new shadow on Redwood Park from approximately early April through early September, with the largest amount of shadow occurring on or near the summer solstice (June 21st).

Increase in Annual Shadow from Cumulative Scenarios

In addition to the shadow cast by the project, the cumulative condition project at 545 Sansome street would generate net new shadow on the northern portion of Redwood Park during morning hours from spring through fall, with the largest amount of shadow occurring mid-morning on or near the summer solstice (June 21st).

Timing and Location of Shadow from Proposed Project and Residential Variant

Net new shadow from the project/variant would be cast in the morning lasting from between a few minutes in the spring and fall up to about 4 hours on the summer solstice. The amount of area affected by such shadow would cover 5% or less of the park area (under 3,000 sf) at any given time. The portions of the park that would be affected include the northern quarter of the park along Washington Street and a narrow section in the middle of the space.

The Value of Sunlight

Features of the open space that would be considered to be more sensitive to the addition of new shadow would be some areas of fixed seating, some of which are in areas

affected by net new project shadow, however while shadow analysis methodology does not take into account the presence of trees, the dense redwood canopy is both a defining feature of this open space and would also serve to capture a substantial amount of the shadow cast by the project, making the change in shading conditions less noticeable by users of this open space and therefore reducing the importance of sunlight on these affected features. ■

EXHIBIT A: NET NEW SHADOWFAN DIAGRAMS

A1.1 - Annual net new shadow locations from the proposed project

A1.2 - Annual net new shadow locations from the residential variant

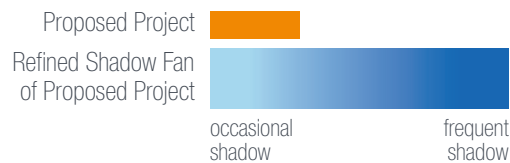
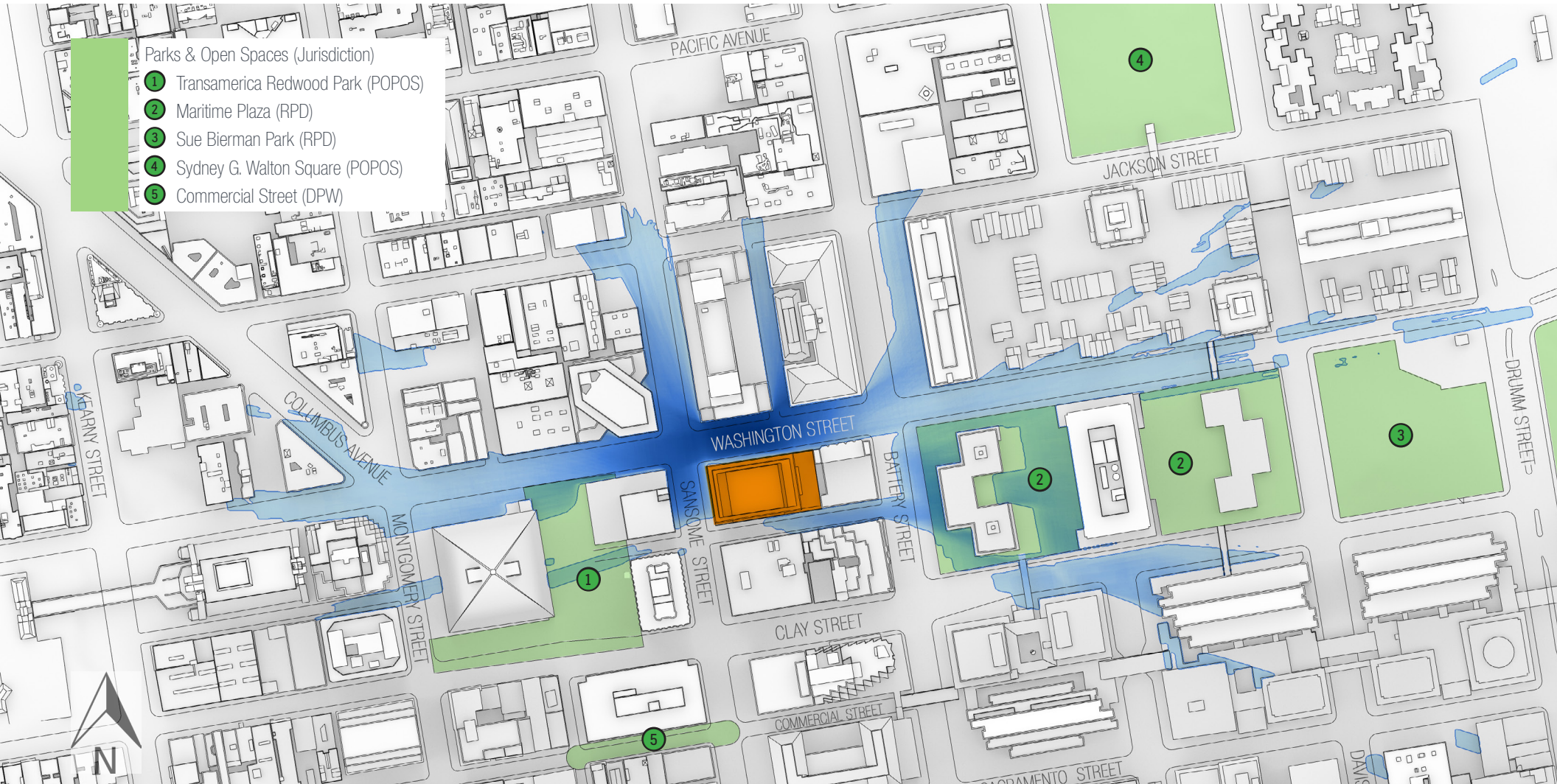
Diagrams showing extents of all areas receiving net new shadow from the proposed project/project variant at *some* point during the year.

NOTE: Due to the similarity in massing between the project and the residential variant, the differences in the shadowfans for these two proposals are very slight.

A1.1

530 SANSOME STREET PROJECT SHADOW FAN

Full year net new shadow fan diagram factoring in the presence of existing shadows



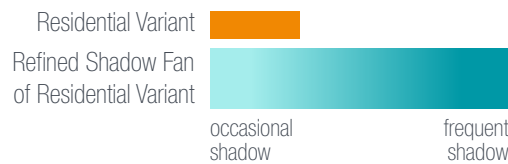
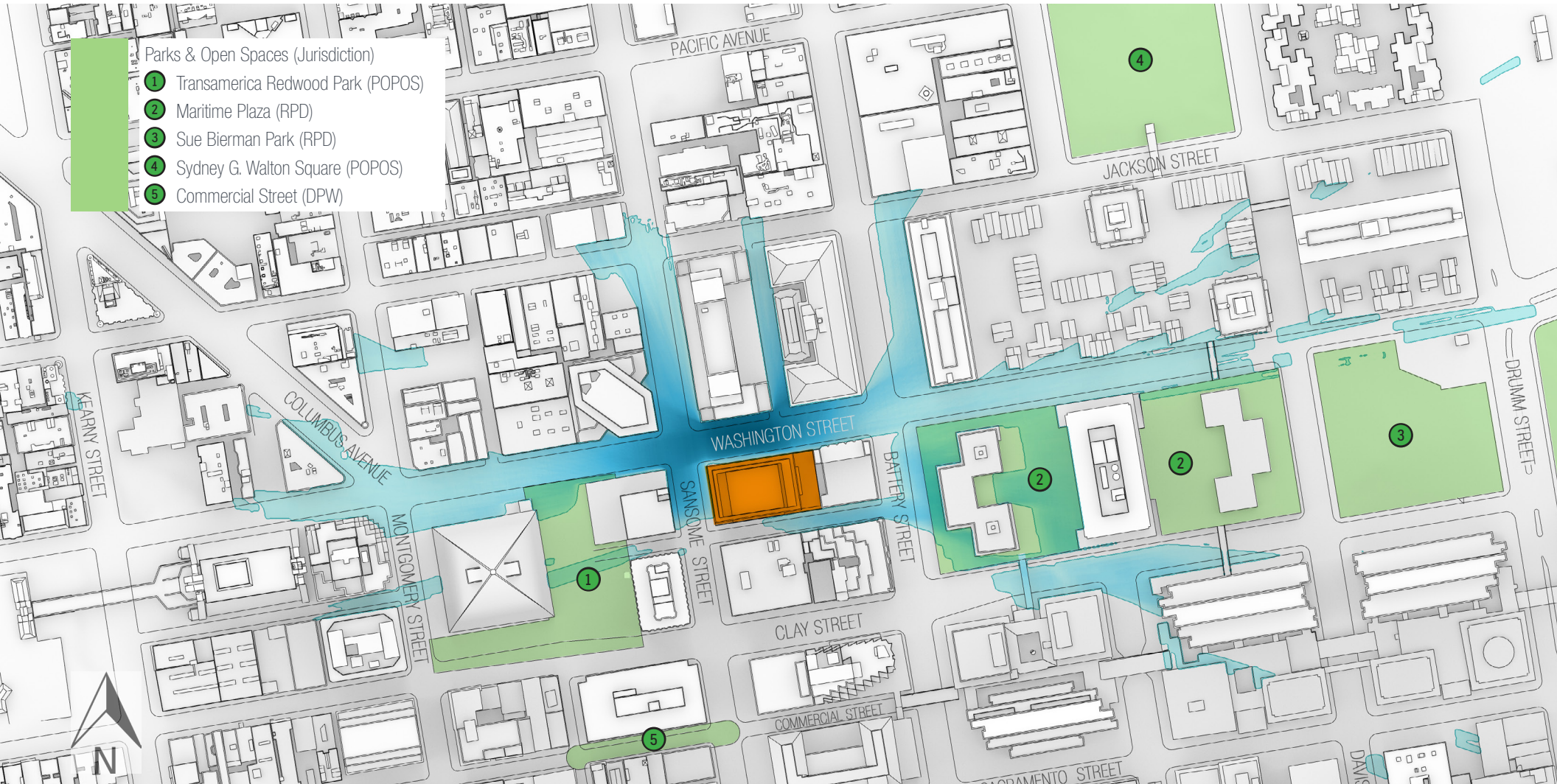
SHADOW FAN DIAGRAM
AFFECTED AREAS DURING SECTION 295 TIMES

FULL YEAR

A1.2

530 SANSOME STREET RESIDENTIAL VARIANT SHADOW FAN

Full year net new shadow fan diagram factoring in the presence of existing shadows



SHADOW FAN DIAGRAM
AFFECTED AREAS DURING SECTION 295 TIMES

FULL YEAR

EXHIBIT B: SHADOW DIAGRAMS ON SUMMER SOLSTICE

B1 - June 21st

Diagrams at one hour intervals starting one hour after sunrise to one hour prior to sunset.

Shadow diagrams on the Summer Solstice



6:46 AM

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
 - ② Maritime Plaza (RPD)
 - ③ Sue Bierman Park West (RPD)
 - ④ Sydney G. Walton Square (POPOS)
 - ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- 1 425 Broadway
 - 2 545 Sansome Street
 - 3 447 Battery Street

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B1.2






530 SANSOME STREET

Shadow diagrams on the Summer Solstice







**SUMMER SOLSTICE
JUNE 21**

7:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

B1.3

530 SANSOME STREET

Shadow diagrams on the Summer Solstice



**SUMMER SOLSTICE
JUNE 21**

8:00 AM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

B1.4






530 SANSOME STREET

Shadow diagrams on the Summer Solstice







**SUMMER SOLSTICE
JUNE 21**

9:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

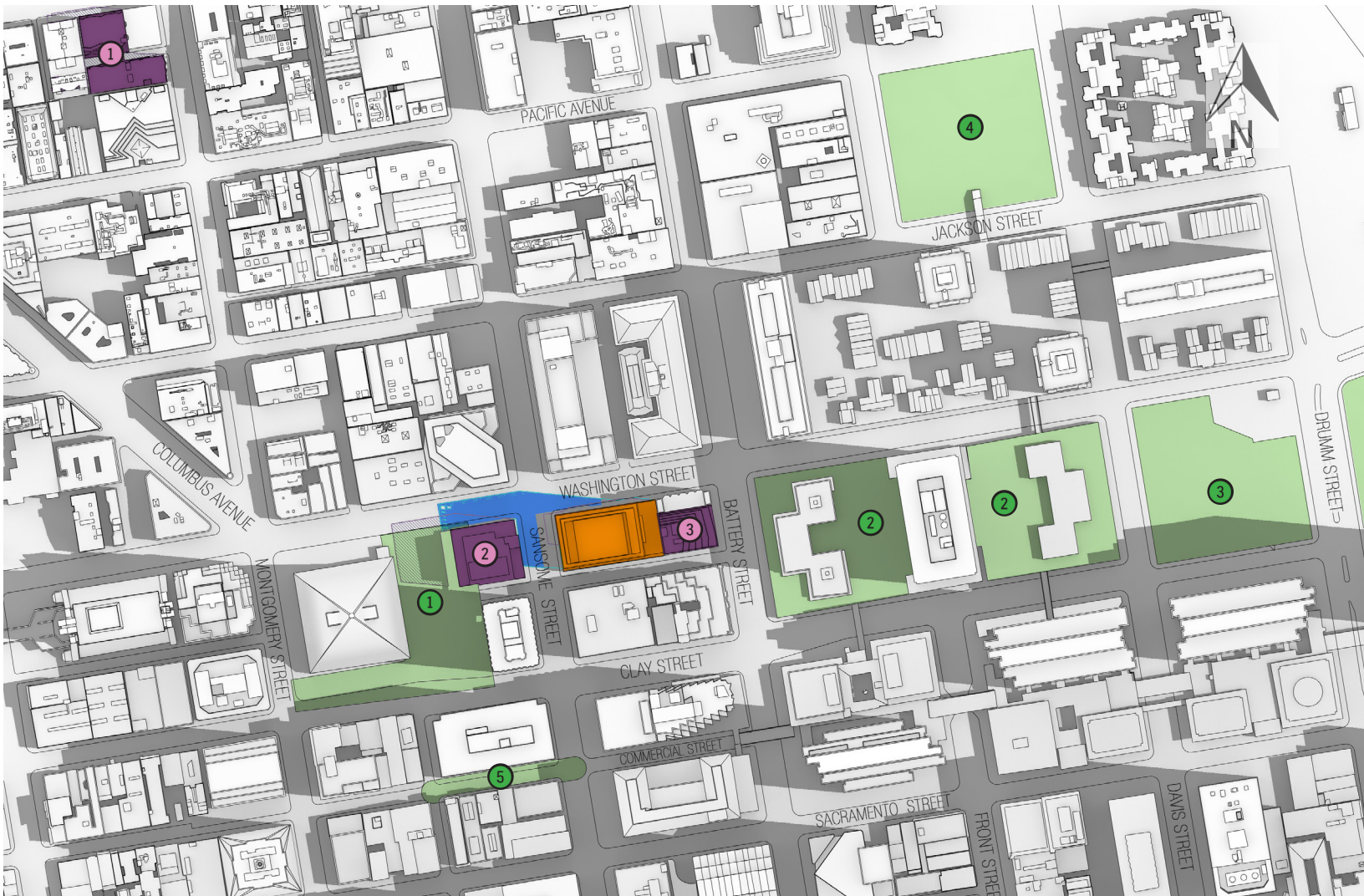
-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

B1.5

530 SANSOME STREET

Shadow diagrams on the Summer Solstice



**SUMMER SOLSTICE
JUNE 21**

10:00 AM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

B1.6

530 SANSOME STREET

Shadow diagrams on the Summer Solstice



**SUMMER SOLSTICE
JUNE 21**

11:00 AM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

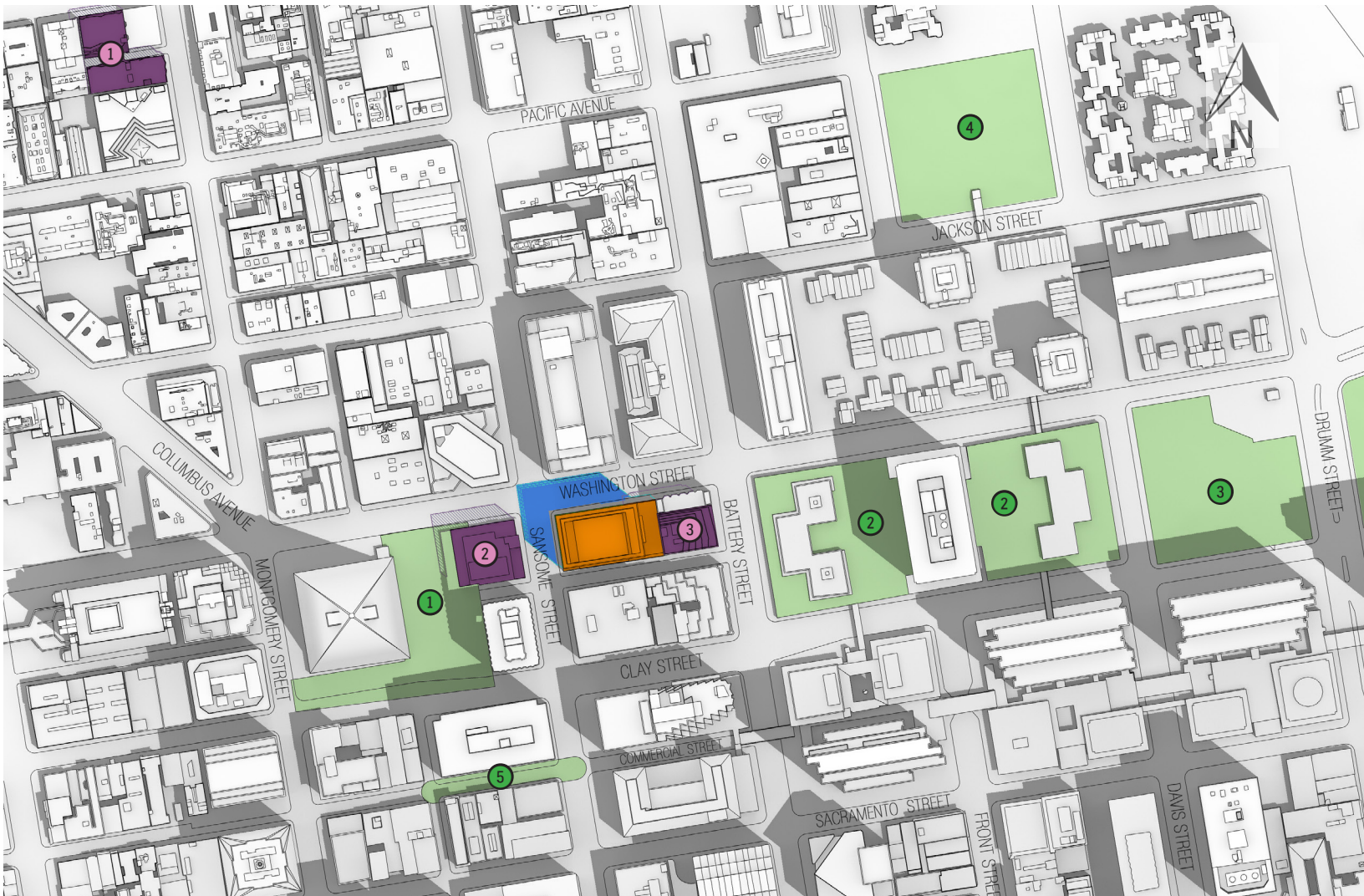
- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

B1.7

530 SANSOME STREET

Shadow diagrams on the Summer Solstice



**SUMMER SOLSTICE
JUNE 21**

12:00 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

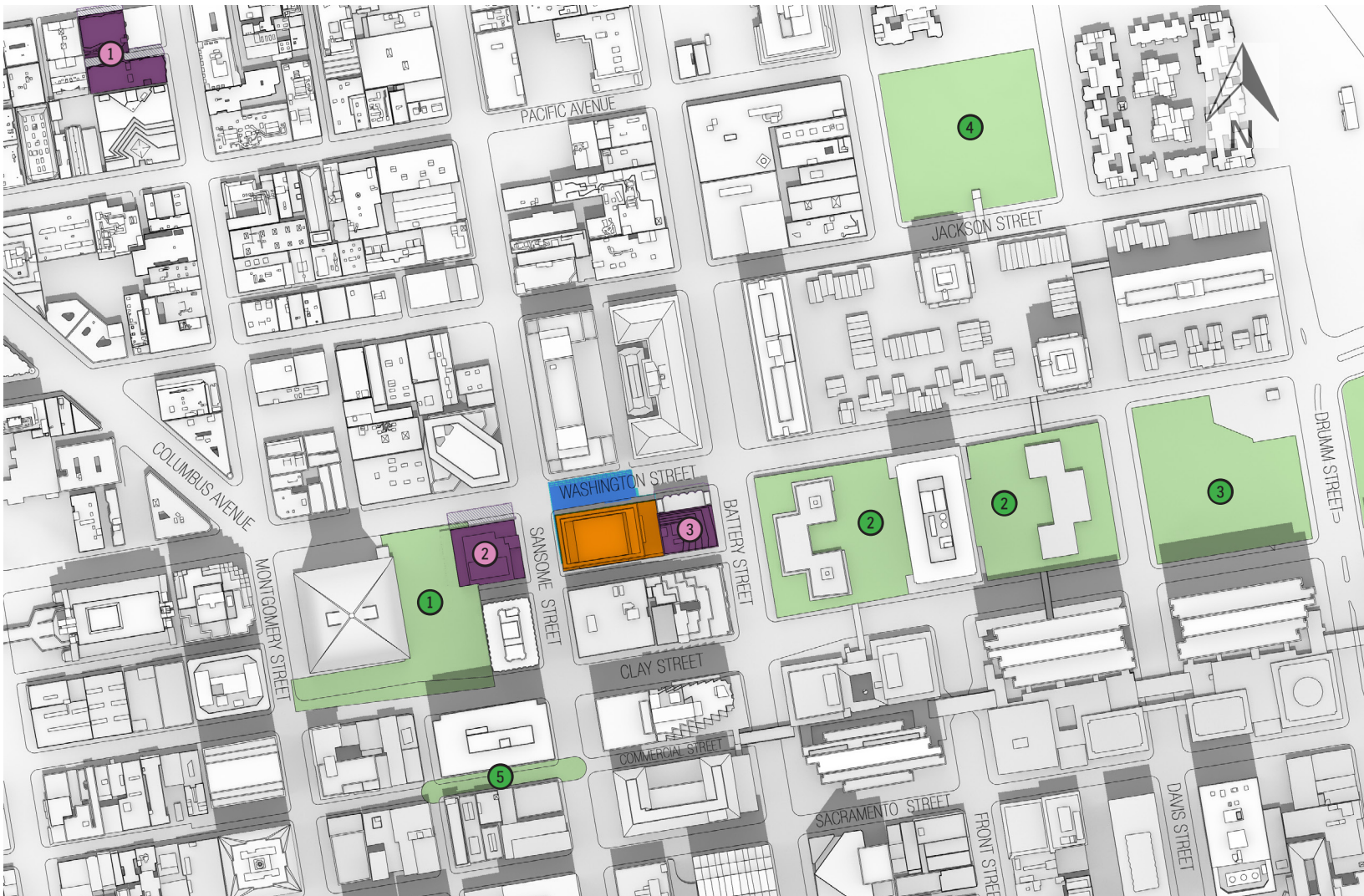
- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

B1.8

530 SANSOME STREET

Shadow diagrams on the Summer Solstice



**SUMMER SOLSTICE
JUNE 21**

1:00 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

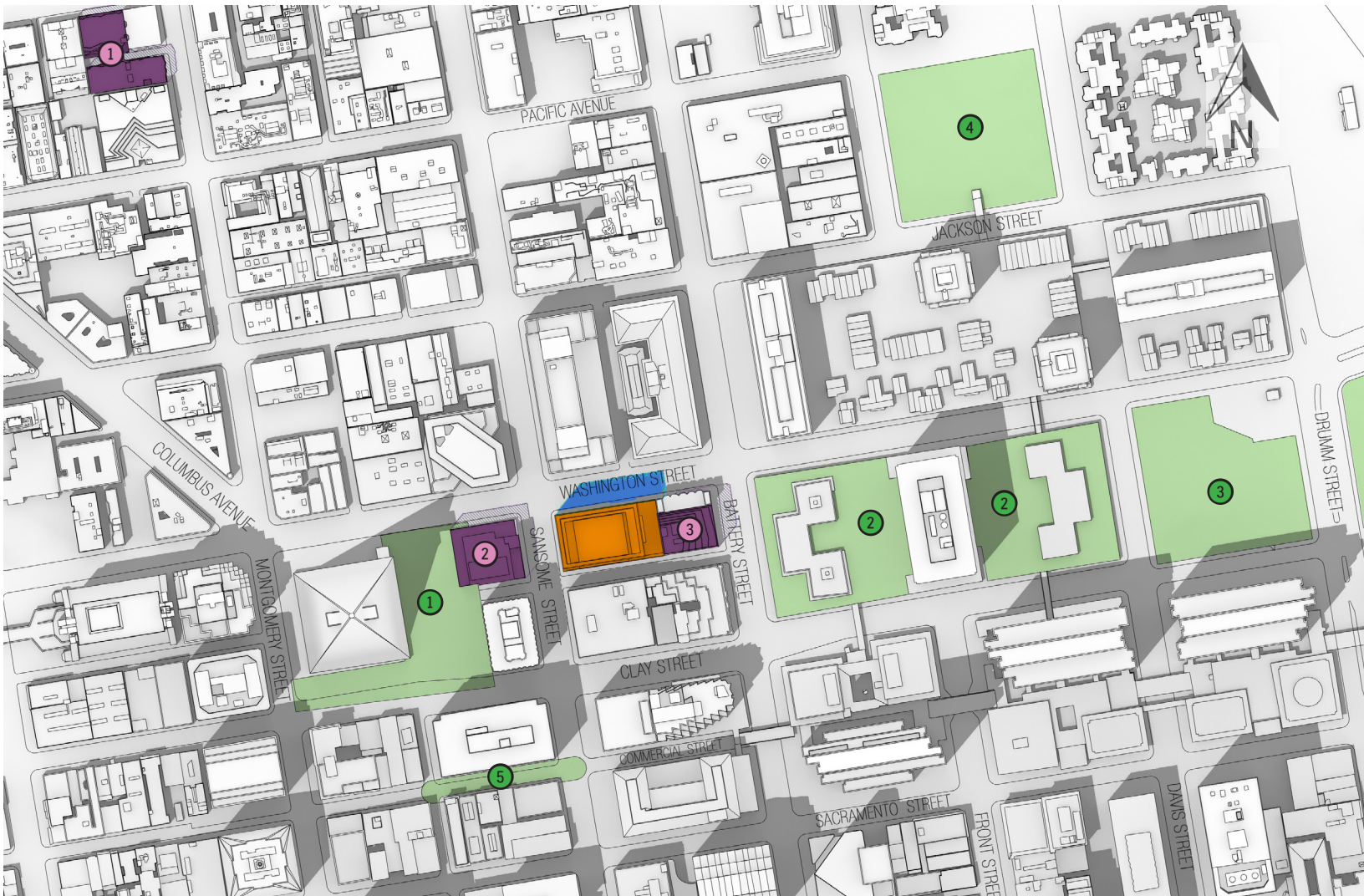
- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

B1.9






530 SANSOME STREET

Shadow diagrams on the Summer Solstice







**SUMMER SOLSTICE
JUNE 21**

2:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

B1.10 530 SANSOME STREET

Shadow diagrams on the Summer Solstice



**SUMMER SOLSTICE
JUNE 21**

3:00 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street



B1.11 530 SANSOME STREET

Shadow diagrams on the Summer Solstice







**SUMMER SOLSTICE
JUNE 21**

4:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

B1.12 530 SANSOME STREET

Shadow diagrams on the Summer Solstice



**SUMMER SOLSTICE
JUNE 21**

5:00 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

B1.13 530 SANSOME STREET

Shadow diagrams on the Summer Solstice



**SUMMER SOLSTICE
JUNE 21**

6:00 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- 1 Transamerica Redwood Park (POPOS)
- 2 Maritime Plaza (RPD)
- 3 Sue Bierman Park West (RPD)
- 4 Sydney G. Walton Square (POPOS)
- 5 Commercial Street OS (DPW)

- Cumulative Projects
- 1 425 Broadway
- 2 545 Sansome Street
- 3 447 Battery Street

B1.14






530 SANSOME STREET

Shadow diagrams on the Summer Solstice







**SUMMER SOLSTICE
JUNE 21**

7:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

B1.15

530 SANSOME STREET

Shadow diagrams on the Summer Solstice



**SUMMER SOLSTICE
JUNE 21**

7:15 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

EXHIBIT C: SHADOW DIAGRAMS NEAR EQUINOXES

C1 - September 20th (Autumnal), March 22nd (Vernal) similar

Diagrams at one hour intervals starting one hour after sunrise to one hour prior to sunset.

B1.16






530 SANSOME STREET

Shadow diagrams on the Summer Solstice







**SUMMER SOLSTICE
JUNE 21**

7:36 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

Shadow diagrams on the Fall Equinox (Spring sim)



7:57 AM

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
 - ② Maritime Plaza (RPD)
 - ③ Sue Bierman Park West (RPD)
 - ④ Sydney G. Walton Square (POPOS)
 - ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- 1 425 Broadway
 - 2 545 Sansome Street
 - 3 447 Battery Street

PREVISION DESIGN | 530 SANSOME STREET SHADOW ANALYSIS REPORT | FINAL | FEBRUARY 5, 2021

C1.2






530 SANSOME STREET

Shadow diagrams on the Fall Equinox (Spring sim)







**FALL EQUINOX (SPRING SIM)
SEPTEMBER 20 & MARCH 22**

8:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)






-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

Shadow diagrams on the Fall Equinox (Spring sim)



**FALL EQUINOX (SPRING SIM)
SEPTEMBER 20 & MARCH 22**

9:00 AM

-  Proposed Project
 Existing (current) Shadow
 Net new Shadow from Project
 Net new Shadow from Residential Variant
 Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

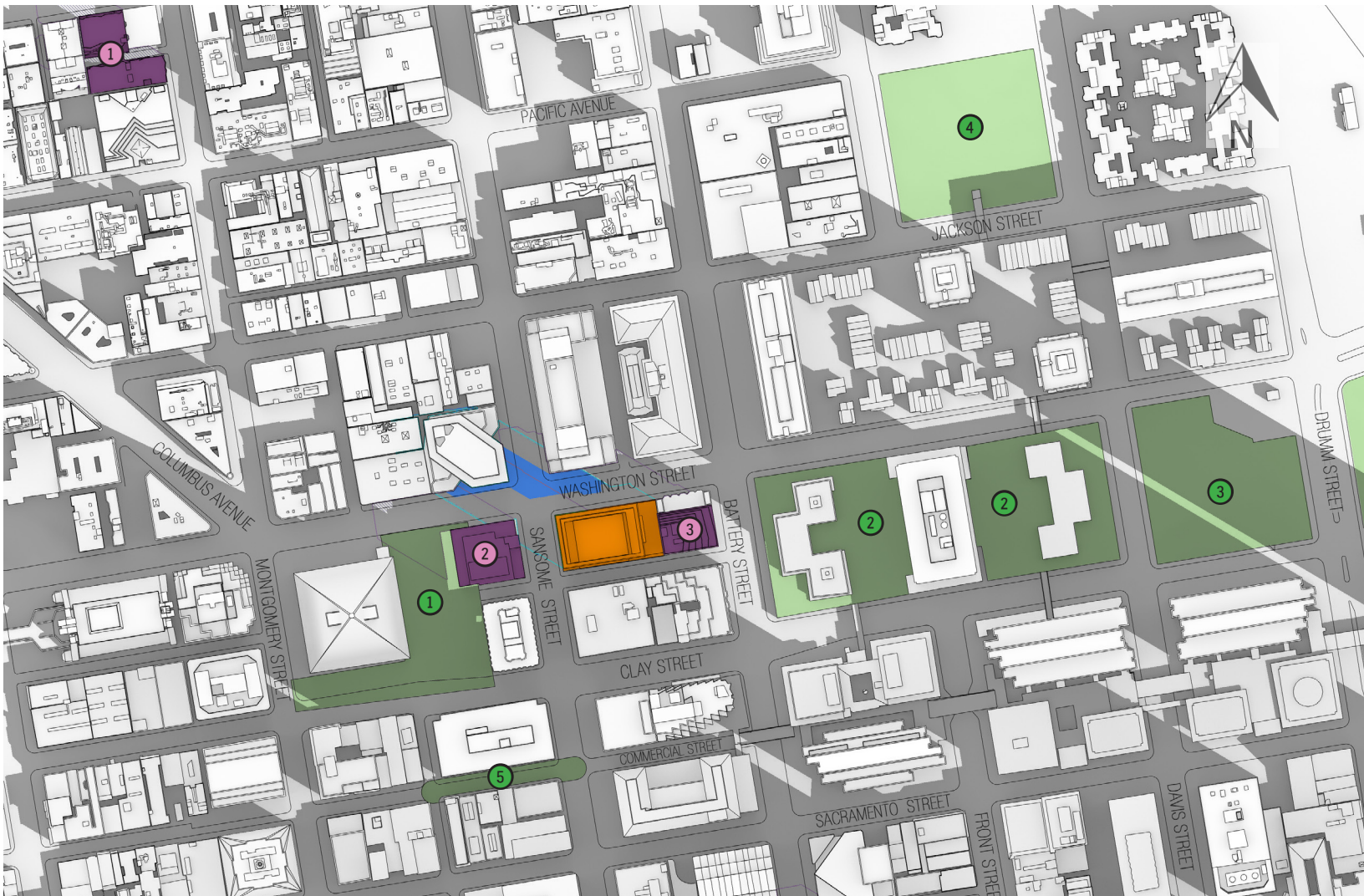
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- 1 425 Broadway
 - 2 545 Sansome Street
 - 3 447 Battery Street

C1.4






530 SANSOME STREET

Shadow diagrams on the Fall Equinox (Spring sim)







**FALL EQUINOX (SPRING SIM)
SEPTEMBER 20 & MARCH 22**

10:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

C1.5

530 SANSOME STREET

Shadow diagrams on the Fall Equinox (Spring sim)



**FALL EQUINOX (SPRING SIM)
SEPTEMBER 20 & MARCH 22**

11:00 AM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

C1.6






530 SANSOME STREET

Shadow diagrams on the Fall Equinox (Spring sim)







**FALL EQUINOX (SPRING SIM)
SEPTEMBER 20 & MARCH 22**

12:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

C1.7

530 SANSOME STREET

Shadow diagrams on the Fall Equinox (Spring sim)



FALL EQUINOX (SPRING SIM)
SEPTEMBER 20 & MARCH 22

1:00 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

* Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.

- Parks & Open Spaces (Jurisdiction)
- 1 Transamerica Redwood Park (POPOS)
- 2 Maritime Plaza (RPD)
- 3 Sue Bierman Park West (RPD)
- 4 Sydney G. Walton Square (POPOS)
- 5 Commercial Street OS (DPW)

- Cumulative Projects
- 1 425 Broadway
- 2 545 Sansome Street
- 3 447 Battery Street

C1.8






530 SANSOME STREET

Shadow diagrams on the Fall Equinox (Spring sim)







**FALL EQUINOX (SPRING SIM)
SEPTEMBER 20 & MARCH 22**

2:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

C1.9






530 SANSOME STREET

Shadow diagrams on the Fall Equinox (Spring sim)







**FALL EQUINOX (SPRING SIM)
SEPTEMBER 20 & MARCH 22**

3:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street



C1.10 530 SANSOME STREET

Shadow diagrams on the Fall Equinox (Spring sim)







**FALL EQUINOX (SPRING SIM)
SEPTEMBER 20 & MARCH 22**

4:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street






C1.11 530 SANSOME STREET

Shadow diagrams on the Fall Equinox (Spring sim)







**FALL EQUINOX (SPRING SIM)
SEPTEMBER 20 & MARCH 22**

5:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street






C1.12 530 SANSOME STREET

Shadow diagrams on the Fall Equinox (Spring sim)







**FALL EQUINOX (SPRING SIM)
SEPTEMBER 20 & MARCH 22**

6:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street






C1.13 530 SANSOME STREET

Shadow diagrams on the Fall Equinox (Spring sim)



**FALL EQUINOX (SPRING SIM)
SEPTEMBER 20 & MARCH 22**

6:09 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)





-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

EXHIBIT D: SHADOW DIAGRAMS ON WINTER SOLSTICE

D1 - December 20th

Diagrams at one hour intervals starting one hour after sunrise to one hour prior to sunset.

D1.1




530 SANSOME STREET

Shadow diagrams on the Winter Solstice




**WINTER SOLSTICE
DECEMBER 20 & DECEMBER 21**

8:19 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 - ① Transamerica Redwood Park (POPOS)
 - ② Maritime Plaza (RPD)
 - ③ Sue Bierman Park West (RPD)
 - ④ Sydney G. Walton Square (POPOS)
 - ⑤ Commercial Street OS (DPW)

-  Cumulative Projects
 - ① 425 Broadway
 - ② 545 Sansome Street
 - ③ 447 Battery Street

D1.2






530 SANSOME STREET

Shadow diagrams on the Winter Solstice







**WINTER SOLSTICE
DECEMBER 20 & DECEMBER 21**

9:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)






-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

Shadow diagrams on the Winter Solstice



WINTER SOLSTICE
DECEMBER 20 & DECEMBER 21

10:00 AM

-  Proposed Project
 Existing (current) Shadow
 Net new Shadow from Project
 Net new Shadow from Residential Variant
 Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
 - ② Maritime Plaza (RPD)
 - ③ Sue Bierman Park West (RPD)
 - ④ Sydney G. Walton Square (POPOS)
 - ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- 1 425 Broadway
 - 2 545 Sansome Street
 - 3 447 Battery Street

D1.4






530 SANSOME STREET

Shadow diagrams on the Winter Solstice







**WINTER SOLSTICE
DECEMBER 20 & DECEMBER 21**

11:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

Shadow diagrams on the Winter Solstice



12:00 PM

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
 - ② Maritime Plaza (RPD)
 - ③ Sue Bierman Park West (RPD)
 - ④ Sydney G. Walton Square (POPOS)
 - ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
 - ② 545 Sansome Street
 - ③ 447 Battery Street

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D1.6

530 SANSOME STREET

Shadow diagrams on the Winter Solstice



**WINTER SOLSTICE
DECEMBER 20 & DECEMBER 21**

1:00 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

D1.7




530 SANSOME STREET

Shadow diagrams on the Winter Solstice







**WINTER SOLSTICE
DECEMBER 20 & DECEMBER 21**

2:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

D1.8

530 SANSOME STREET

Shadow diagrams on the Winter Solstice



**WINTER SOLSTICE
DECEMBER 20 & DECEMBER 21**

3:00 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

D1.8

530 SANSOME STREET

Shadow diagrams on the Winter Solstice



**WINTER SOLSTICE
DECEMBER 20 & DECEMBER 21**

3:00 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

D1.9




530 SANSOME STREET

Shadow diagrams on the Winter Solstice



**WINTER SOLSTICE
DECEMBER 20 & DECEMBER 21**

3:54 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)





-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

EXHIBIT E: DAYS OF MAXIMUM SFH NET NEW SHADOW

E1 - April 26th and August 16th

Diagrams at one hour intervals starting one hour after sunrise to one hour prior to sunset, and at 15-minute intervals when net new shadow is present.

Shadow diagrams on date of max SFH shadow on Maritime Plaza



7:25 AM

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
 - ② Maritime Plaza (RPD)
 - ③ Sue Bierman Park West (RPD)
 - ④ Sydney G. Walton Square (POPOS)
 - ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- 1 425 Broadway
 - 2 545 Sansome Street
 - 3 447 Battery Street

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E1.2






530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16

8:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

E1.3






530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

9:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

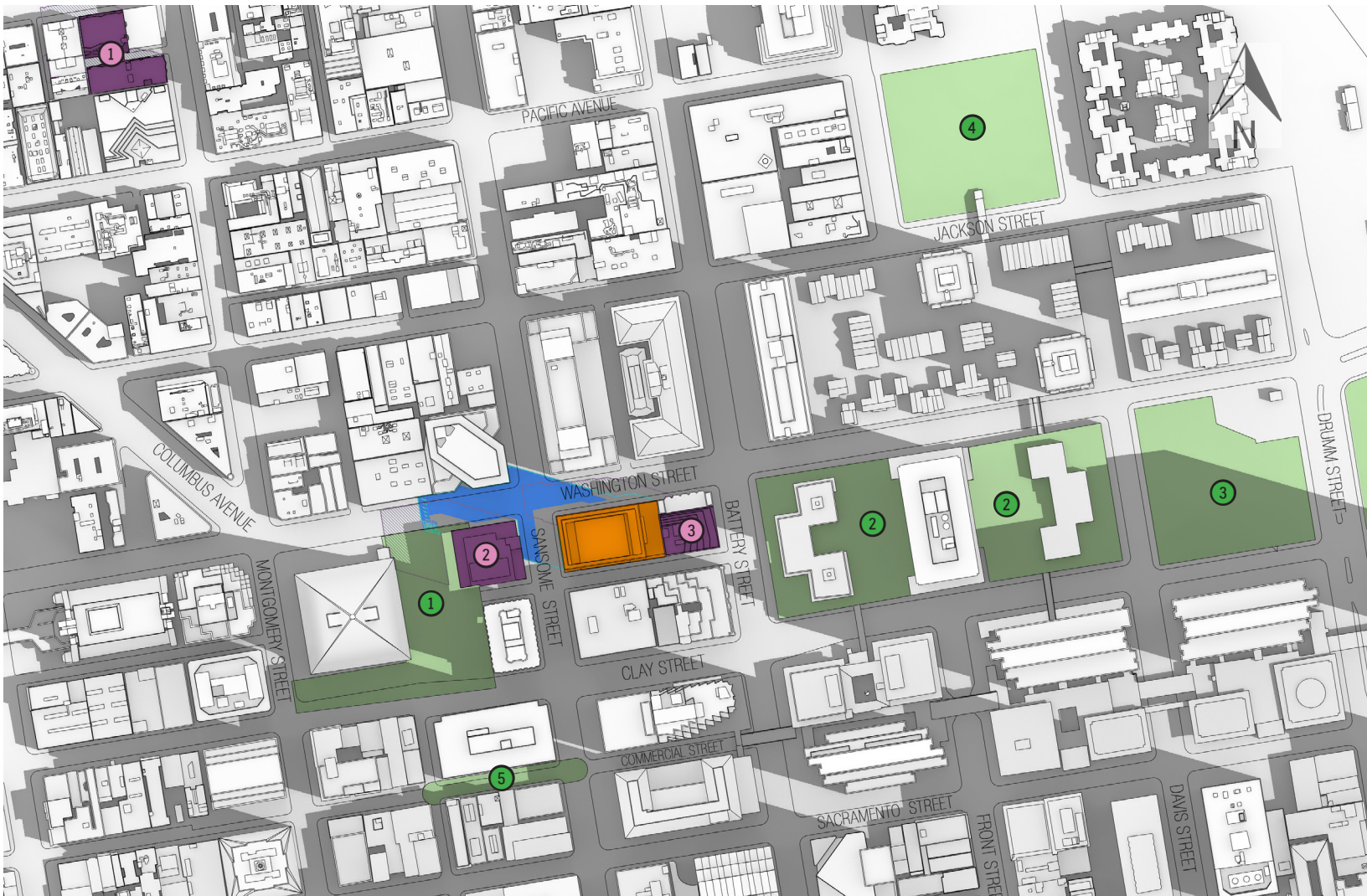
-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

E1.4




530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16

10:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

E1.5




530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

11:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

E1.6

530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza



**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

12:00 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

E1.7






530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

1:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

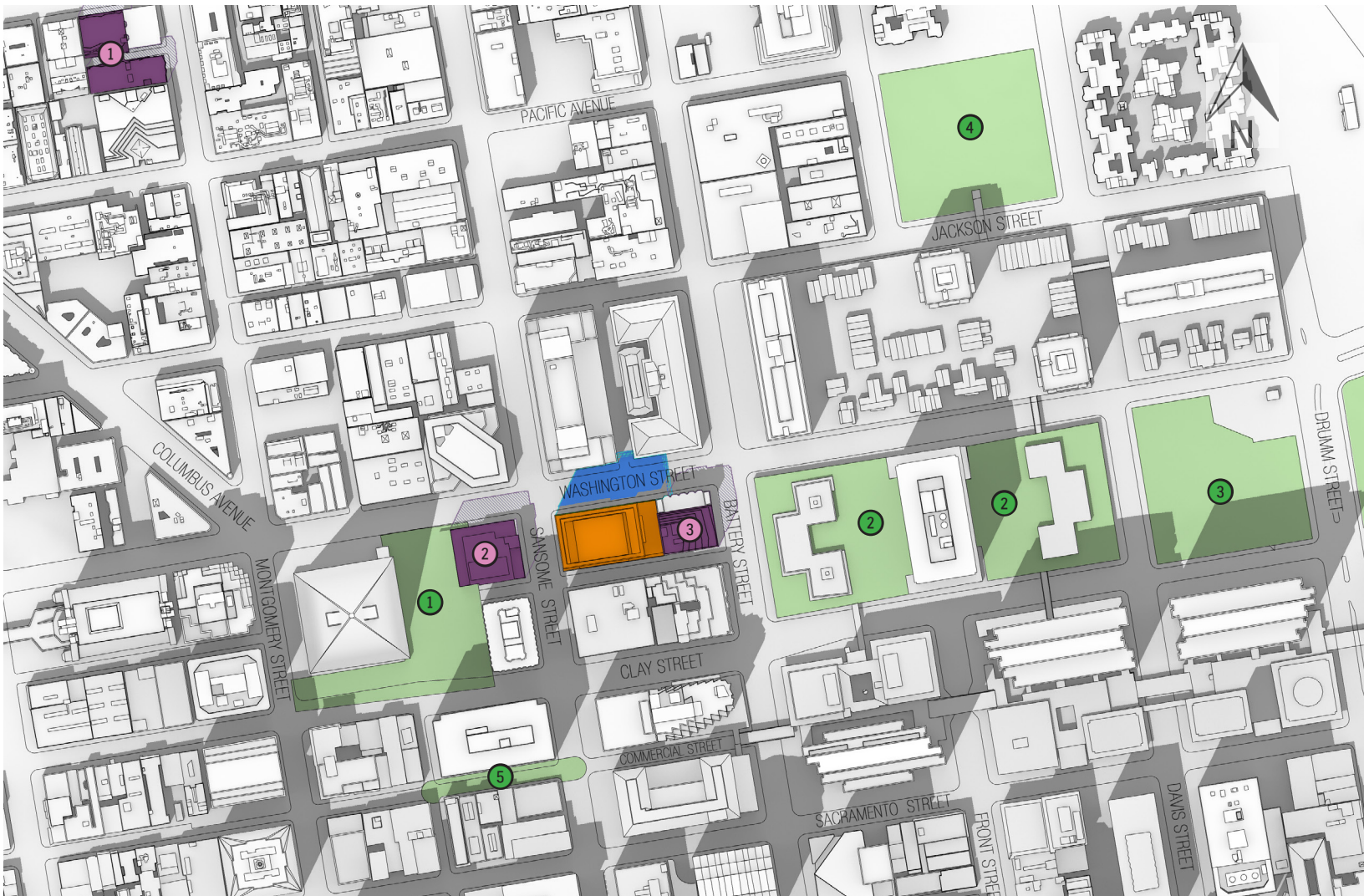
-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

E1.8






530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

2:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

E1.9






530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

3:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

E1.10



530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

4:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

E1.11 530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza



**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

4:15 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street






E1.12 530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

4:30 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

E1.13 530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza



**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

4:45 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street






E1.14 530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

5:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street



E1.15 530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza




**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

5:15 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 - ① Transamerica Redwood Park (POPOS)
 - ② Maritime Plaza (RPD)
 - ③ Sue Bierman Park West (RPD)
 - ④ Sydney G. Walton Square (POPOS)
 - ⑤ Commercial Street OS (DPW)

-  Cumulative Projects
 - ① 425 Broadway
 - ② 545 Sansome Street
 - ③ 447 Battery Street

E1.16



530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza




**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

5:30 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 - ① Transamerica Redwood Park (POPOS)
 - ② Maritime Plaza (RPD)
 - ③ Sue Bierman Park West (RPD)
 - ④ Sydney G. Walton Square (POPOS)
 - ⑤ Commercial Street OS (DPW)

-  Cumulative Projects
 - ① 425 Broadway
 - ② 545 Sansome Street
 - ③ 447 Battery Street


E1.17 530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

5:45 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street



E1.18 530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

6:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street



E1.19 530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

6:15 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street



E1.20 530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza




**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

6:30 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 - ① Transamerica Redwood Park (POPOS)
 - ② Maritime Plaza (RPD)
 - ③ Sue Bierman Park West (RPD)
 - ④ Sydney G. Walton Square (POPOS)
 - ⑤ Commercial Street OS (DPW)

-  Cumulative Projects
 - ① 425 Broadway
 - ② 545 Sansome Street
 - ③ 447 Battery Street


E1.21 530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza







**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

6:45 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street






E1.22 530 SANSOME STREET

Shadow diagrams on date of max SFH shadow on Maritime Plaza



**DATE OF MAXIMUM SFH NET NEW SHADOW
APRIL 26 & AUGUST 16**

7:02 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)





-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

EXHIBIT F: DAYS OF LARGEST NET NEW SHADOW

E1 - April 19th and August 23rd

Diagrams at one hour intervals starting one hour after sunrise to one hour prior to sunset, and at 15-minute intervals when net new shadow is present.

Shadow diagrams on date of max shadow size on Maritime Plaza



7:31 AM

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
 - ② Maritime Plaza (RPD)
 - ③ Sue Bierman Park West (RPD)
 - ④ Sydney G. Walton Square (POPOS)
 - ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- 1 425 Broadway
 - 2 545 Sansome Street
 - 3 447 Battery Street

PREVISION DESIGN | 530 SANSOME STREET SHADOW ANALYSIS REPORT | FINAL | FEBRUARY 5, 2021

F1.2




530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza




**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

8:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 - ① Transamerica Redwood Park (POPOS)
 - ② Maritime Plaza (RPD)
 - ③ Sue Bierman Park West (RPD)
 - ④ Sydney G. Walton Square (POPOS)
 - ⑤ Commercial Street OS (DPW)

-  Cumulative Projects
 - ① 425 Broadway
 - ② 545 Sansome Street
 - ③ 447 Battery Street

F1.3






530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza







**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

9:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

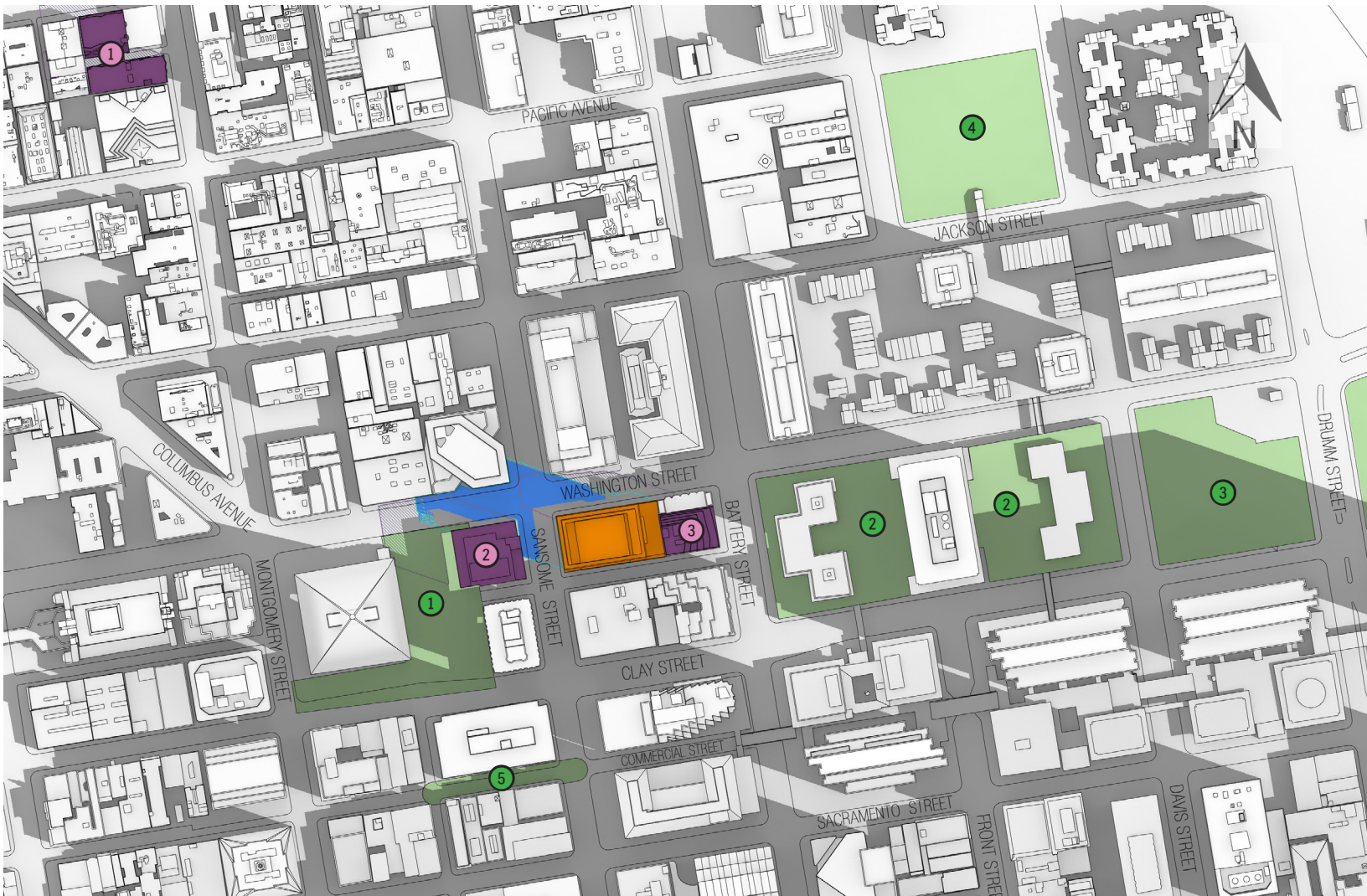
-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

F1.4




530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza







**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

10:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

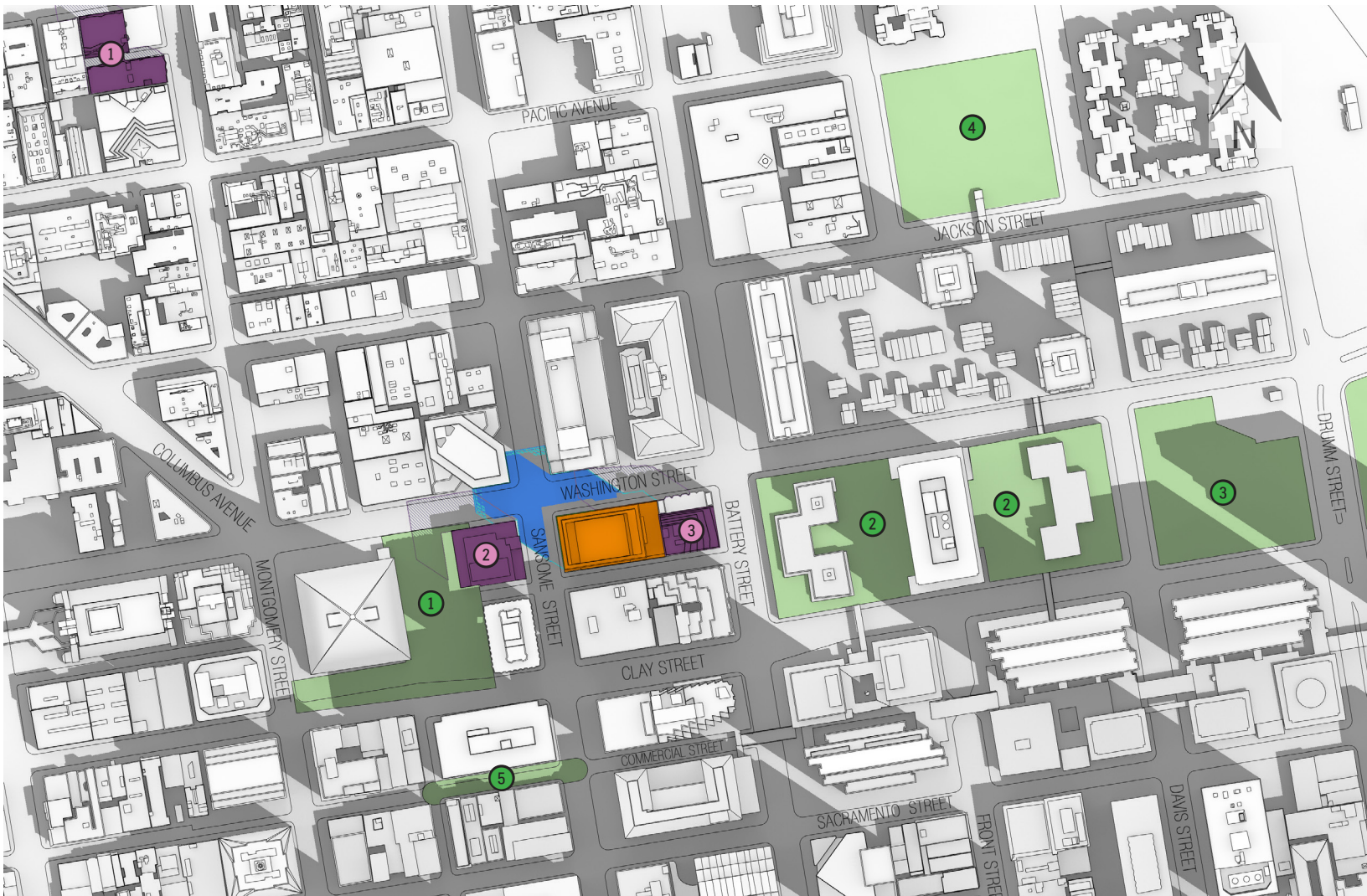
-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

F1.5




530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza







**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

11:00 AM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
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-  Net new Shadow from Cumulative Projects

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 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

F1.6

530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza



**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

12:00 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

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- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

F1.7






530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza







**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

1:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

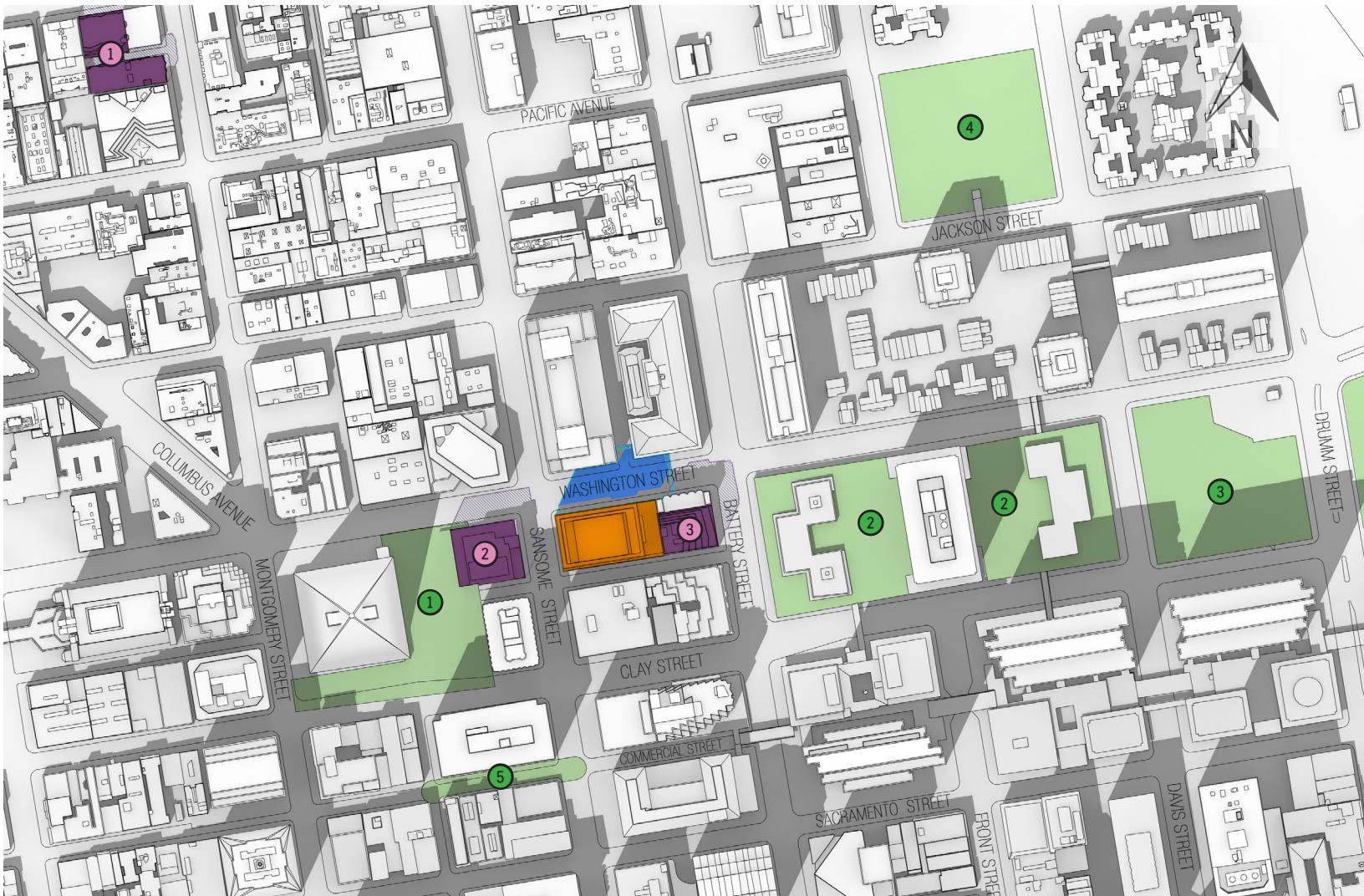
-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

F1.8



530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza







**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

2:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

F1.9

530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza



**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

3:00 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
- ② Maritime Plaza (RPD)
- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

F1.10






530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza







DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23

4:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

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 -  Sue Bierman Park West (RPD)
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 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

F1.11






530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza







**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

4:15 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

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 -  Sue Bierman Park West (RPD)
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 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street






F1.12 530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza







**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

4:30 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

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 -  Sue Bierman Park West (RPD)
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 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

F1.13

530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza



DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23

4:45 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

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- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

F1.14






530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza




**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

5:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

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 - ④ Sydney G. Walton Square (POPOS)
 - ⑤ Commercial Street OS (DPW)

-  Cumulative Projects
 - ① 425 Broadway
 - ② 545 Sansome Street
 - ③ 447 Battery Street

F1.15

530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza



**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

5:15 PM

- Proposed Project
- Existing (current) Shadow
- Net new Shadow from Project
- Net new Shadow from Residential Variant
- Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

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- ③ Sue Bierman Park West (RPD)
- ④ Sydney G. Walton Square (POPOS)
- ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- ① 425 Broadway
- ② 545 Sansome Street
- ③ 447 Battery Street

Shadow diagrams on date of max shadow size on Maritime Plaza



5:30 PM

- Parks & Open Spaces (Jurisdiction)
- ① Transamerica Redwood Park (POPOS)
 - ② Maritime Plaza (RPD)
 - ③ Sue Bierman Park West (RPD)
 - ④ Sydney G. Walton Square (POPOS)
 - ⑤ Commercial Street OS (DPW)

- Cumulative Projects
- 1 425 Broadway
 - 2 545 Sansome Street
 - 3 447 Battery Street

PREVISION DESIGN | 530 SANSOME STREET SHADOW ANALYSIS REPORT | FINAL | FEBRUARY 5, 2021






F1.17 530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza







**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

5:45 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

F1.18



530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza







**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

6:00 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
 -  Transamerica Redwood Park (POPOS)
 -  Maritime Plaza (RPD)
 -  Sue Bierman Park West (RPD)
 -  Sydney G. Walton Square (POPOS)
 -  Commercial Street OS (DPW)

-  Cumulative Projects
 -  425 Broadway
 -  545 Sansome Street
 -  447 Battery Street

F1.19



530 SANSOME STREET

Shadow diagrams on date of max shadow size on Maritime Plaza



**DATE OF MAXIMUM NET NEW SHADOW SIZE
APRIL 19 & AUGUST 23**

6:52 PM

-  Proposed Project
-  Existing (current) Shadow
-  Net new Shadow from Project
-  Net new Shadow from Residential Variant
-  Net new Shadow from Cumulative Projects

** Project and Residential Variant are very similar in form so distinctions between their shadows may be imperceptible at this scale.*

-  Parks & Open Spaces (Jurisdiction)
-  ① Transamerica Redwood Park (POPOS)
-  ② Maritime Plaza (RPD)
-  ③ Sue Bierman Park West (RPD)
-  ④ Sydney G. Walton Square (POPOS)
-  ⑤ Commercial Street OS (DPW)





-  Cumulative Projects
-  ① 425 Broadway
-  ② 545 Sansome Street
-  ③ 447 Battery Street

EXHIBIT G: QUANTITATIVE SHADOW DATA

Quantitative Shadow Data for Maritime Plaza

Shadow data for existing conditions, net new shadow from project, and cumulative condition shadow

JUNE 21

Summer solstice
Analysis hours: 6:46 AM-7:36 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
6:46 AM	72,578.13	7,983.59	83.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 AM	66,802.85	15,364.66	77.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 AM	59,805.09	14,951.27	69.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	53,843.69	13,460.92	62.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	50,687.23	12,671.81	58.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	48,005.26	12,001.31	55.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	45,330.99	11,332.75	52.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	44,259.06	11,064.76	51.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	44,591.63	11,147.91	51.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	43,737.86	10,934.46	50.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	44,092.07	11,023.02	50.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	43,550.44	10,887.61	50.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	42,220.23	10,555.06	48.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	40,825.74	10,206.44	47.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	40,823.33	10,205.83	47.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	40,431.59	10,107.90	46.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	37,703.93	9,425.98	43.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	34,509.20	8,627.30	39.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	32,526.65	8,131.66	37.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	30,186.36	7,546.59	34.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	27,899.46	6,974.87	32.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	23,034.61	5,758.65	26.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	18,497.69	4,624.42	21.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	14,036.10	3,509.02	16.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	9,858.87	2,464.72	11.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	4,942.48	1,235.62	5.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	6,751.08	1,687.77	7.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	9,420.70	2,355.18	10.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	13,419.24	3,354.81	15.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	18,149.70	4,537.43	20.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	22,958.27	5,739.57	26.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	26,014.80	6,503.70	30.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	27,615.18	6,903.79	31.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	29,193.36	7,298.34	33.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	31,640.09	7,910.02	36.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	36,147.20	9,036.80	41.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	380.50	95.12	0.4%	380.50	95.12	0.4%
3:45 PM	40,778.84	10,194.71	47.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	984.45	246.11	1.1%	984.45	246.11	1.1%
4:00 PM	39,577.26	9,894.31	45.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,620.63	405.16	1.9%	1,620.63	405.16	1.9%
4:15 PM	41,207.36	10,301.84	47.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,001.31	500.33	2.3%	2,001.31	500.33	2.3%
4:30 PM	42,590.23	10,647.56	49.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,353.76	588.44	2.7%	2,353.76	588.44	2.7%
4:45 PM	45,001.95	11,250.49	51.9%	315.77	78.94	0.4%	165.78	41.44	0.2%	2,627.83	656.96	3.0%	2,623.19	655.80	3.0%
5:00 PM	42,187.54	10,546.88	48.7%	1,800.43	450.11	2.1%	1,475.47	368.87	1.7%	2,735.56	683.89	3.2%	2,715.97	678.99	3.1%
5:15 PM	41,478.27	10,369.57	47.9%	2,404.19	601.05	2.8%	2,372.99	593.25	2.7%	2,722.47	680.62	3.1%	2,711.04	677.76	3.1%
5:30 PM	42,311.52	10,577.88	48.8%	2,540.71	635.18	2.9%	2,516.29	629.07	2.9%	3,044.55	761.14	3.5%	3,019.10	754.78	3.5%
5:45 PM	45,280.75	11,320.19	52.2%	3,473.81	868.45	4.0%	3,448.64	862.16	4.0%	5,425.15	1,356.29	6.3%	5,400.54	1,350.13	6.2%
6:00 PM	51,120.76	12,780.19	59.0%	4,583.73	1,145.93	5.3%	4,560.04	1,140.01	5.3%	9,647.32	2,411.83	11.1%	9,692.74	2,423.18	11.2%
6:15 PM	56,033.44	14,008.36	64.6%	8,699.65	2,174.91	10.0%	8,273.65	2,068.41	9.5%	13,416.00	3,354.00	15.5%	13,477.11	3,369.28	15.5%
6:30 PM	63,972.84	15,993.21	73.8%	8,252.38	2,063.09	9.5%	8,169.16	2,042.29	9.4%	11,578.70	2,894.68	13.4%	11,578.70	2,894.68	13.4%
6:45 PM	76,433.27	19,108.32	88.2%	5,973.28	1,493.32	6.9%	5,974.40	1,493.60	6.9%	8,649.04	2,162.26	10.0%	8,649.04	2,162.26	10.0%
7:00 PM	82,291.49	20,572.87	94.9%	3,523.86	880.97	4.1%	3,521.91	880.48	4.1%	4,384.51	1,096.13	5.1%	4,384.51	1,096.13	5.1%
7:15 PM	84,704.32	25,411.29	97.7%	1,971.68	591.51	2.3%	1,971.68	591.51	2.3%	1,971.68	591.51	2.3%	1,971.68	591.51	2.3%
7:36 PM	86,676.00	15,601.68	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



JUNE 28

Mirror date: June 14
Analysis hours: 6:48 AM-7:36 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
6:48 AM	71,794.10	7,179.41	82.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 AM	67,562.92	14,863.84	77.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 AM	60,497.55	15,124.39	69.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	54,287.81	13,571.95	62.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	50,997.05	12,749.26	58.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	48,277.10	12,069.27	55.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	45,537.82	11,384.45	52.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	44,377.28	11,094.32	51.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	44,702.90	11,175.72	51.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	43,861.38	10,965.34	50.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	44,339.95	11,084.99	51.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	43,841.04	10,960.26	50.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	42,657.66	10,664.41	49.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	41,442.23	10,360.56	47.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	41,389.85	10,347.46	47.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	40,861.50	10,215.38	47.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	38,339.27	9,584.82	44.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	35,103.87	8,775.97	40.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	32,968.35	8,242.09	38.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	30,624.44	7,656.11	35.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	28,358.53	7,089.63	32.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	23,635.03	5,908.76	27.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	19,074.99	4,768.75	22.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	14,646.08	3,661.52	16.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	10,497.00	2,624.25	12.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	5,572.90	1,393.22	6.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	6,728.14	1,682.04	7.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	9,292.63	2,323.16	10.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	13,182.13	3,295.53	15.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	17,693.33	4,423.33	20.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	22,500.78	5,625.20	26.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	25,830.91	6,457.73	29.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	27,424.14	6,856.04	31.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	29,021.18	7,255.29	33.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	31,350.33	7,837.58	36.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	35,557.83	8,889.46	41.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	327.75	81.94	0.4%	327.75	81.94	0.4%
3:45 PM	40,779.03	10,194.76	47.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	939.96	234.99	1.1%	939.96	234.99	1.1%
4:00 PM	39,745.17	9,936.29	45.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,587.75	396.94	1.8%	1,587.75	396.94	1.8%
4:15 PM	40,855.93	10,213.98	47.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,971.78	492.94	2.3%	1,971.78	492.94	2.3%
4:30 PM	42,576.02	10,644.01	49.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,350.88	587.72	2.7%	2,350.88	587.72	2.7%
4:45 PM	44,654.14	11,163.53	51.5%	225.68	56.42	0.3%	143.95	35.99	0.2%	2,621.14	655.29	3.0%	2,616.68	654.17	3.0%
5:00 PM	42,707.16	10,676.79	49.3%	1,671.52	417.88	1.9%	1,350.83	337.71	1.6%	2,732.13	683.03	3.2%	2,713.55	678.39	3.1%
5:15 PM	41,562.32	10,390.58	48.0%	2,379.40	594.85	2.7%	2,346.33	586.58	2.7%	2,770.30	692.57	3.2%	2,758.04	689.51	3.2%
5:30 PM	42,220.97	10,555.24	48.7%	2,524.55	631.14	2.9%	2,506.35	626.59	2.9%	2,986.87	746.72	3.4%	2,968.21	742.05	3.4%
5:45 PM	44,953.84	11,238.46	51.9%	3,348.80	837.20	3.9%	3,308.77	827.19	3.8%	5,173.56	1,293.39	6.0%	5,133.72	1,283.43	5.9%
6:00 PM	50,645.25	12,661.31	58.4%	4,481.75	1,120.44	5.2%	4,438.94	1,109.73	5.1%	9,316.98	2,329.24	10.7%	9,351.80	2,337.95	10.8%
6:15 PM	55,683.96	13,920.99	64.2%	8,730.76	2,182.69	10.1%	8,266.22	2,066.55	9.5%	13,633.41	3,408.35	15.7%	13,690.72	3,422.68	15.8%
6:30 PM	63,128.63	15,782.16	72.8%	8,528.02	2,132.01	9.8%	8,446.39	2,111.60	9.7%	11,902.83	2,975.71	13.7%	11,902.83	2,975.71	13.7%
6:45 PM	75,715.27	18,928.82	87.4%	6,266.76	1,566.69	7.2%	6,266.76	1,566.69	7.2%	9,038.54	2,259.64	10.4%	9,038.54	2,259.64	10.4%
7:00 PM	81,912.84	20,478.21	94.5%	3,763.57	940.89	4.3%	3,763.75	940.94	4.3%	4,763.16	1,190.79	5.5%	4,763.16	1,190.79	5.5%
7:15 PM	84,676.08	25,402.82	97.7%	1,999.92	599.98	2.3%	1,999.92	599.98	2.3%	1,999.92	599.98	2.3%	1,999.92	599.98	2.3%
7:36 PM	86,676.00	15,601.68	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



JULY 5

Mirror date: June 7
Analysis hours: 6:52 AM-7:36 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
6:52 AM	71,227.67	4,273.66	82.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 AM	68,295.96	12,976.23	78.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 AM	60,961.91	15,240.48	70.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	54,717.34	13,679.34	63.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	51,430.03	12,857.51	59.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	48,383.25	12,095.81	55.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	45,671.74	11,417.94	52.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	44,781.65	11,195.41	51.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	44,977.89	11,244.47	51.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	43,973.10	10,993.28	50.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	45,307.12	11,326.78	52.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	44,775.89	11,193.97	51.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	43,920.26	10,980.06	50.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	43,400.45	10,850.11	50.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	43,101.03	10,775.26	49.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	42,148.53	10,537.13	48.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	39,741.55	9,935.39	45.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	36,283.35	9,070.84	41.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	33,878.32	8,469.58	39.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	31,504.87	7,876.22	36.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	29,081.64	7,270.41	33.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	24,442.37	6,110.59	28.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	19,724.45	4,931.11	22.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	15,571.28	3,892.82	18.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	11,502.72	2,875.68	13.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	6,690.53	1,672.63	7.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	7,294.48	1,823.62	8.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	9,789.13	2,447.28	11.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	13,512.85	3,378.21	15.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	17,411.18	4,352.79	20.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	22,152.69	5,538.17	25.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	25,599.10	6,399.78	29.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	27,239.14	6,809.78	31.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	28,859.67	7,214.92	33.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	31,112.39	7,778.10	35.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	35,233.70	8,808.43	40.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	323.75	80.94	0.4%	323.75	80.94	0.4%
3:45 PM	40,570.44	10,142.61	46.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	941.08	235.27	1.1%	941.08	235.27	1.1%
4:00 PM	40,105.33	10,026.33	46.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,599.54	399.89	1.8%	1,599.54	399.89	1.8%
4:15 PM	40,434.38	10,108.59	46.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,978.65	494.66	2.3%	1,978.65	494.66	2.3%
4:30 PM	42,597.57	10,649.39	49.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,366.67	591.67	2.7%	2,366.67	591.67	2.7%
4:45 PM	43,876.79	10,969.20	50.6%	239.24	59.81	0.3%	143.40	35.85	0.2%	2,652.25	663.06	3.1%	2,650.68	662.67	3.1%
5:00 PM	44,175.57	11,043.89	51.0%	1,691.02	422.76	2.0%	1,373.96	343.49	1.6%	2,765.65	691.41	3.2%	2,751.54	687.88	3.2%
5:15 PM	42,103.76	10,525.94	48.6%	2,389.70	597.43	2.8%	2,353.58	588.39	2.7%	2,842.36	710.59	3.3%	2,828.71	707.18	3.3%
5:30 PM	42,294.71	10,573.68	48.8%	2,605.91	651.48	3.0%	2,592.91	648.23	3.0%	3,058.94	764.74	3.5%	3,046.50	761.62	3.5%
5:45 PM	44,922.35	11,230.59	51.8%	3,169.18	792.30	3.7%	3,126.83	781.71	3.6%	5,172.54	1,293.13	6.0%	5,130.19	1,282.55	5.9%
6:00 PM	50,462.11	12,615.53	58.2%	4,403.55	1,100.89	5.1%	4,315.51	1,078.88	5.0%	9,300.91	2,325.23	10.7%	9,329.14	2,332.29	10.8%
6:15 PM	55,675.51	13,918.88	64.2%	9,105.13	2,276.28	10.5%	8,630.18	2,157.55	10.0%	13,960.42	3,490.10	16.1%	14,031.37	3,507.84	16.2%
6:30 PM	63,258.55	15,814.64	73.0%	9,107.27	2,276.82	10.5%	9,036.69	2,259.17	10.4%	12,310.35	3,077.59	14.2%	12,310.35	3,077.59	14.2%
6:45 PM	75,205.31	18,801.33	86.8%	6,588.29	1,647.07	7.6%	6,588.10	1,647.03	7.6%	9,410.50	2,352.62	10.9%	9,410.50	2,352.62	10.9%
7:00 PM	81,646.86	20,411.71	94.2%	3,995.93	998.98	4.6%	3,993.71	998.43	4.6%	5,029.14	1,257.29	5.8%	5,029.14	1,257.29	5.8%
7:15 PM	84,602.43	25,380.73	97.6%	2,066.60	619.98	2.4%	2,067.44	620.23	2.4%	2,073.57	622.07	2.4%	2,073.57	622.07	2.4%
7:36 PM	86,676.00	15,601.68	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



JULY 12

Mirror date: May 31
Analysis hours: 6:56 AM-7:33 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
6:56 AM	70,278.88	2,108.37	81.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 AM	68,851.62	10,327.74	79.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 AM	61,379.93	15,344.98	70.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	55,331.60	13,832.90	63.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	51,947.61	12,986.90	59.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	48,445.75	12,111.44	55.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	45,716.51	11,429.13	52.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	45,498.63	11,374.66	52.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	45,285.58	11,321.39	52.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	45,853.59	11,463.40	52.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	47,050.34	11,762.59	54.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	46,606.50	11,651.63	53.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	47,041.24	11,760.31	54.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	46,683.12	11,670.78	53.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	46,058.09	11,514.52	53.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	44,181.42	11,045.35	51.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	41,851.34	10,462.83	48.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	37,973.44	9,493.36	43.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	35,378.12	8,844.53	40.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	32,879.29	8,219.82	37.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	30,175.30	7,543.83	34.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	25,418.56	6,354.64	29.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	20,539.68	5,134.92	23.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	16,434.25	4,108.56	19.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	12,511.59	3,127.90	14.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	8,156.52	2,039.13	9.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	8,498.38	2,124.60	9.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	10,868.68	2,717.17	12.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	14,418.36	3,604.59	16.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	17,645.77	4,411.44	20.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	21,953.58	5,488.39	25.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	25,387.17	6,346.79	29.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	27,060.64	6,765.16	31.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	28,716.28	7,179.07	33.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	30,995.28	7,748.82	35.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	35,163.21	8,790.80	40.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	362.39	90.60	0.4%	362.39	90.60	0.4%
3:45 PM	40,139.79	10,034.95	46.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	991.41	247.85	1.1%	991.41	247.85	1.1%
4:00 PM	40,943.04	10,235.76	47.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,652.48	413.12	1.9%	1,652.48	413.12	1.9%
4:15 PM	39,996.02	9,999.01	46.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,024.71	506.18	2.3%	2,024.71	506.18	2.3%
4:30 PM	42,142.58	10,535.65	48.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,407.16	601.79	2.8%	2,407.16	601.79	2.8%
4:45 PM	44,343.01	11,085.75	51.2%	360.81	90.20	0.4%	165.87	41.47	0.2%	2,736.68	684.17	3.2%	2,736.21	684.05	3.2%
5:00 PM	46,854.01	11,713.50	54.1%	1,845.47	461.37	2.1%	1,534.16	383.54	1.8%	2,859.64	714.91	3.3%	2,844.59	711.15	3.3%
5:15 PM	43,621.86	10,905.46	50.3%	2,464.00	616.00	2.8%	2,385.43	596.36	2.8%	2,912.20	728.05	3.4%	2,892.52	723.13	3.3%
5:30 PM	42,545.37	10,636.34	49.1%	2,763.33	690.83	3.2%	2,742.99	685.75	3.2%	3,276.73	819.18	3.8%	3,265.31	816.33	3.8%
5:45 PM	45,117.48	11,279.37	52.1%	2,985.30	746.32	3.4%	2,947.68	736.92	3.4%	5,424.96	1,356.24	6.3%	5,387.44	1,346.86	6.2%
6:00 PM	50,554.15	12,638.54	58.3%	4,426.96	1,106.74	5.1%	4,261.92	1,065.48	4.9%	9,578.60	2,394.65	11.1%	9,592.25	2,398.06	11.1%
6:15 PM	56,048.49	14,012.12	64.7%	9,923.06	2,480.77	11.4%	9,380.31	2,345.08	10.8%	14,285.29	3,571.32	16.5%	14,309.80	3,577.45	16.5%
6:30 PM	64,304.49	16,076.12	74.2%	9,968.76	2,492.19	11.5%	9,908.20	2,477.05	11.4%	12,788.27	3,197.07	14.8%	12,788.27	3,197.07	14.8%
6:45 PM	74,926.41	18,731.60	86.4%	6,922.72	1,730.68	8.0%	6,922.63	1,730.66	8.0%	9,765.27	2,441.32	11.3%	9,765.27	2,441.32	11.3%
7:00 PM	81,490.00	20,372.50	94.0%	4,166.36	1,041.59	4.8%	4,166.82	1,041.71	4.8%	5,186.00	1,296.50	6.0%	5,186.00	1,296.50	6.0%
7:15 PM	84,410.19	23,634.85	97.4%	2,219.10	621.35	2.6%	2,218.63	621.22	2.6%	2,265.81	634.43	2.6%	2,265.81	634.43	2.6%
7:33 PM	86,618.05	12,992.71	99.9%	57.95	8.69	0.1%	57.95	8.69	0.1%	57.95	8.69	0.1%	57.95	8.69	0.1%

JULY 19

Mirror date: May 24
Analysis hours: 7:01 AM-7:30 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:01 AM	68,847.81	8,950.22	79.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:16 AM	61,276.75	14,706.42	70.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	56,262.37	13,502.97	64.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	52,239.69	13,059.92	60.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	48,500.92	12,125.23	56.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	46,549.85	11,637.46	53.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	46,551.90	11,637.97	53.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	45,875.69	11,468.92	52.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	48,783.34	12,195.84	56.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	49,718.20	12,429.55	57.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	50,783.26	12,695.82	58.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	51,289.88	12,822.47	59.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	51,062.81	12,765.70	58.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	49,457.69	12,364.42	57.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	46,775.53	11,693.88	54.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	44,860.22	11,215.06	51.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	40,348.29	10,087.07	46.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	37,452.80	9,363.20	43.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	34,813.73	8,703.43	40.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	31,685.04	7,921.26	36.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	26,558.01	6,639.50	30.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	21,469.52	5,367.38	24.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	17,404.12	4,351.03	20.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	13,678.44	3,419.61	15.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	9,486.92	2,371.73	10.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	9,859.15	2,464.79	11.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	12,416.68	3,104.17	14.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	15,889.55	3,972.39	18.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	18,935.22	4,733.80	21.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	22,817.10	5,704.28	26.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	25,167.34	6,291.83	29.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	26,915.94	6,728.99	31.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	28,597.68	7,149.42	33.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	31,001.22	7,750.31	35.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	35,399.94	8,849.99	40.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	449.78	112.45	0.5%	449.78	112.45	0.5%
3:45 PM	39,624.90	9,906.23	45.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,099.05	274.76	1.3%	1,099.05	274.76	1.3%
4:00 PM	40,982.61	10,245.65	47.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,759.66	439.91	2.0%	1,759.66	439.91	2.0%
4:15 PM	40,750.05	10,187.51	47.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,040.13	510.03	2.4%	2,040.13	510.03	2.4%
4:30 PM	41,540.77	10,385.19	47.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,543.69	635.92	2.9%	2,543.69	635.92	2.9%
4:45 PM	44,462.82	11,115.70	51.3%	600.24	150.06	0.7%	319.85	79.96	0.4%	2,912.86	728.21	3.4%	2,902.64	725.66	3.3%
5:00 PM	48,577.72	12,144.43	56.0%	1,998.99	499.75	2.3%	1,750.93	437.73	2.0%	2,937.19	734.30	3.4%	2,922.33	730.58	3.4%
5:15 PM	46,764.57	11,691.14	54.0%	2,644.55	661.14	3.1%	2,544.15	636.04	2.9%	2,975.54	743.89	3.4%	2,954.37	738.59	3.4%
5:30 PM	43,924.81	10,981.20	50.7%	2,927.44	731.86	3.4%	2,905.33	726.33	3.4%	3,829.14	957.28	4.4%	3,817.62	954.40	4.4%
5:45 PM	45,406.31	11,351.58	52.4%	2,894.28	723.57	3.3%	2,860.01	715.00	3.3%	5,970.31	1,492.58	6.9%	5,935.58	1,483.89	6.8%
6:00 PM	50,951.27	12,737.82	58.8%	4,995.15	1,248.79	5.8%	4,442.74	1,110.69	5.1%	10,211.25	2,552.81	11.8%	10,182.92	2,545.73	11.7%
6:15 PM	56,986.03	14,246.51	65.7%	10,895.72	2,723.93	12.6%	10,243.57	2,560.89	11.8%	14,029.52	3,507.38	16.2%	13,951.04	3,487.76	16.1%
6:30 PM	67,083.88	16,770.97	77.4%	10,924.60	2,731.15	12.6%	10,908.81	2,727.20	12.6%	13,188.46	3,297.12	15.2%	13,188.46	3,297.12	15.2%
6:45 PM	74,987.99	18,747.00	86.5%	7,310.37	1,827.59	8.4%	7,309.35	1,827.34	8.4%	10,061.91	2,515.48	11.6%	10,061.91	2,515.48	11.6%
7:00 PM	81,106.43	20,276.61	93.6%	4,204.62	1,051.15	4.9%	4,205.18	1,051.29	4.9%	5,569.57	1,392.39	6.4%	5,569.57	1,392.39	6.4%
7:15 PM	84,304.41	21,076.10	97.3%	2,233.68	558.42	2.6%	2,236.00	559.00	2.6%	2,371.59	592.90	2.7%	2,371.59	592.90	2.7%
7:30 PM	86,335.53	11,223.62	99.6%	340.47	44.26	0.4%	340.47	44.26	0.4%	340.47	44.26	0.4%	340.47	44.26	0.4%

JULY 26

Mirror date: May 17
Analysis hours: 7:07 AM-7:25 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:07 AM	65,949.82	3,956.99	<div></div> 76.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 AM	62,994.52	11,968.96	<div></div> 72.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	57,284.34	14,321.09	<div></div> 66.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	52,212.48	13,053.12	<div></div> 60.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	48,635.12	12,158.78	<div></div> 56.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	47,947.96	11,986.99	<div></div> 55.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	48,125.44	12,031.36	<div></div> 55.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	50,821.43	12,705.36	<div></div> 58.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	53,242.43	13,310.61	<div></div> 61.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	55,620.62	13,905.16	<div></div> 64.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	56,597.73	14,149.43	<div></div> 65.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	55,991.74	13,997.94	<div></div> 64.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	55,326.77	13,831.69	<div></div> 63.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	53,537.12	13,384.28	<div></div> 61.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	49,925.68	12,481.42	<div></div> 57.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	48,175.21	12,043.80	<div></div> 55.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	43,293.09	10,823.27	<div></div> 49.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	40,004.01	10,001.00	<div></div> 46.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	37,056.51	9,264.13	<div></div> 42.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	33,515.93	8,378.98	<div></div> 38.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	27,896.03	6,974.01	<div></div> 32.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	22,533.56	5,633.39	<div></div> 26.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	18,660.31	4,665.08	<div></div> 21.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	15,157.90	3,789.48	<div></div> 17.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	11,111.08	2,777.77	<div></div> 12.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	11,712.80	2,928.20	<div></div> 13.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	14,106.31	3,526.58	<div></div> 16.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	17,381.83	4,345.46	<div></div> 20.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	20,579.99	5,145.00	<div></div> 23.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	24,306.04	6,076.51	<div></div> 28.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	25,892.77	6,473.19	<div></div> 29.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	26,988.85	6,747.21	<div></div> 31.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	28,520.69	7,130.17	<div></div> 32.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	31,179.16	7,794.79	<div></div> 36.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	6.78	1.69	0.0%	6.78	1.69	0.0%
3:30 PM	35,877.22	8,969.30	<div></div> 41.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	585.65	146.41	0.7%	585.65	146.41	0.7%
3:45 PM	39,040.36	9,760.09	<div></div> 45.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,269.57	317.39	1.5%	1,269.57	317.39	1.5%
4:00 PM	40,516.20	10,129.05	<div></div> 46.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,926.46	481.61	2.2%	1,926.46	481.61	2.2%
4:15 PM	41,815.02	10,453.76	<div></div> 48.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,077.09	519.27	2.4%	2,077.09	519.27	2.4%
4:30 PM	41,270.23	10,317.56	<div></div> 47.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,710.49	677.62	3.1%	2,710.49	677.62	3.1%
4:45 PM	44,013.13	11,003.28	<div></div> 50.8%	941.73	235.43	1.1%	656.05	164.01	0.8%	3,146.52	786.63	3.6%	3,108.44	777.11	3.6%
5:00 PM	48,366.53	12,091.63	<div></div> 55.8%	2,224.67	556.17	2.6%	2,070.32	517.58	2.4%	3,064.89	766.22	3.5%	3,049.93	762.48	3.5%
5:15 PM	51,073.40	12,768.35	<div></div> 58.9%	2,969.51	742.38	3.4%	2,861.13	715.28	3.3%	3,132.96	783.24	3.6%	3,109.09	777.27	3.6%
5:30 PM	47,286.05	11,821.51	<div></div> 54.6%	3,070.00	767.50	3.5%	3,044.64	761.16	3.5%	4,625.24	1,156.31	5.3%	4,613.54	1,153.38	5.3%
5:45 PM	46,339.50	11,584.87	<div></div> 53.5%	3,091.08	772.77	3.6%	2,933.94	733.48	3.4%	6,835.79	1,708.95	7.9%	6,827.34	1,706.84	7.9%
6:00 PM	51,562.83	12,890.71	<div></div> 59.5%	6,367.62	1,591.91	7.3%	5,721.60	1,430.40	6.6%	11,060.84	2,765.21	12.8%	11,016.08	2,754.02	12.7%
6:15 PM	58,491.68	14,622.92	<div></div> 67.5%	12,247.75	3,061.94	14.1%	11,905.06	2,976.26	13.7%	13,672.42	3,418.11	15.8%	13,611.96	3,402.99	15.7%
6:30 PM	68,820.14	17,205.03	<div></div> 79.4%	11,685.78	2,921.45	13.5%	11,690.61	2,922.65	13.5%	13,433.64	3,358.41	15.5%	13,433.27	3,358.32	15.5%
6:45 PM	75,191.29	18,797.82	<div></div> 86.7%	7,835.75	1,958.94	9.0%	7,832.41	1,958.10	9.0%	10,184.87	2,546.22	11.8%	10,184.87	2,546.22	11.8%
7:00 PM	80,737.54	20,184.39	<div></div> 93.1%	4,083.51	1,020.88	4.7%	4,082.96	1,020.74	4.7%	5,938.46	1,484.61	6.9%	5,938.46	1,484.61	6.9%
7:15 PM	84,495.26	17,744.00	<div></div> 97.5%	2,006.60	421.39	2.3%	2,007.90	421.66	2.3%	2,180.74	457.96	2.5%	2,180.74	457.96	2.5%
7:25 PM	85,569.89	7,701.29	<div></div> 98.7%	1,106.11	99.55	1.3%	1,106.11	99.55	1.3%	1,106.11	99.55	1.3%	1,106.11	99.55	1.3%

AUGUST 2

Mirror date: May 10
Analysis hours: 7:12 AM-7:18 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:12 AM	64,697.06	1,293.94	74.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 AM	63,920.74	9,588.11	73.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	57,847.24	14,461.81	66.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	52,464.44	13,116.11	60.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	50,246.64	12,561.66	58.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	50,822.92	12,705.73	58.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	54,828.61	13,707.15	63.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	57,705.89	14,426.47	66.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	59,868.89	14,967.22	69.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	61,580.72	15,395.18	71.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	62,264.82	15,566.20	71.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	60,623.39	15,155.85	69.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	59,382.05	14,845.51	68.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	57,742.76	14,435.69	66.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	52,960.29	13,240.07	61.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	50,821.62	12,705.40	58.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	46,244.67	11,561.17	53.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	42,775.14	10,693.78	49.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	39,431.82	9,857.96	45.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	35,326.67	8,831.67	40.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	29,210.73	7,302.68	33.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	23,672.18	5,918.05	27.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	20,070.86	5,017.72	23.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	16,876.60	4,219.15	19.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	13,053.23	3,263.31	15.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	14,101.20	3,525.30	16.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	16,269.03	4,067.26	18.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	19,217.09	4,804.27	22.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	22,097.71	5,524.43	25.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	25,688.35	6,422.09	29.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	27,117.85	6,779.46	31.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	27,974.23	6,993.56	32.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	28,787.51	7,196.88	33.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	31,582.70	7,895.67	36.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	106.34	26.58	0.1%	106.34	26.58	0.1%
3:30 PM	36,644.53	9,161.13	42.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	791.92	197.98	0.9%	791.92	197.98	0.9%
3:45 PM	38,443.10	9,610.77	44.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,533.70	383.42	1.8%	1,533.70	383.42	1.8%
4:00 PM	39,990.82	9,997.71	46.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,196.81	549.20	2.5%	2,196.81	549.20	2.5%
4:15 PM	42,240.01	10,560.00	48.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,990.17	497.54	2.3%	1,990.17	497.54	2.3%
4:30 PM	42,597.20	10,649.30	49.1%	86.09	21.52	0.1%	71.98	17.99	0.1%	2,682.62	670.66	3.1%	2,680.49	670.12	3.1%
4:45 PM	44,658.32	11,164.58	51.5%	1,353.15	338.29	1.6%	1,057.35	264.34	1.2%	3,216.46	804.11	3.7%	3,163.43	790.86	3.6%
5:00 PM	48,361.80	12,090.45	55.8%	2,638.05	659.51	3.0%	2,441.90	610.47	2.8%	3,297.53	824.38	3.8%	3,252.58	813.15	3.8%
5:15 PM	52,490.17	13,122.54	60.6%	3,253.05	813.26	3.8%	3,232.24	808.06	3.7%	3,626.21	906.55	4.2%	3,612.84	903.21	4.2%
5:30 PM	51,887.15	12,971.79	59.9%	3,226.95	806.74	3.7%	3,218.41	804.60	3.7%	5,571.05	1,392.76	6.4%	5,562.51	1,390.63	6.4%
5:45 PM	49,413.76	12,353.44	57.0%	4,130.23	1,032.56	4.8%	3,796.44	949.11	4.4%	8,195.07	2,048.77	9.5%	8,186.81	2,046.70	9.4%
6:00 PM	52,449.49	13,112.37	60.5%	8,554.96	2,138.74	9.9%	7,861.38	1,965.35	9.1%	11,426.95	2,856.74	13.2%	11,350.42	2,837.61	13.1%
6:15 PM	60,463.74	15,115.94	69.8%	12,532.50	3,133.13	14.5%	12,414.46	3,103.62	14.3%	13,293.96	3,323.49	15.3%	13,262.02	3,315.50	15.3%
6:30 PM	69,822.97	17,455.74	80.6%	11,834.94	2,958.73	13.7%	11,838.74	2,959.69	13.7%	12,989.25	3,247.31	15.0%	12,992.31	3,248.08	15.0%
6:45 PM	75,706.45	18,926.61	87.3%	8,086.14	2,021.53	9.3%	8,086.41	2,021.60	9.3%	9,980.74	2,495.18	11.5%	9,980.74	2,495.18	11.5%
7:00 PM	80,475.92	20,118.98	92.8%	4,194.03	1,048.51	4.8%	4,194.96	1,048.74	4.8%	6,200.08	1,550.02	7.2%	6,200.08	1,550.02	7.2%
7:15 PM	85,521.69	12,828.25	98.7%	1,154.31	173.15	1.3%	1,154.31	173.15	1.3%	1,154.31	173.15	1.3%	1,154.31	173.15	1.3%
7:18 PM	85,697.87	2,570.94	98.9%	978.13	29.34	1.1%	978.13	29.34	1.1%	978.13	29.34	1.1%	978.13	29.34	1.1%

AUGUST 9

Mirror date: May 3
Analysis hours: 7:19 AM-7:10 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:19 AM	62,872.86	5,658.56	72.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	58,574.71	12,300.69	67.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	54,128.62	13,532.16	62.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	52,990.29	13,247.57	61.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	57,100.73	14,275.18	65.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	60,470.98	15,117.75	69.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	63,203.20	15,800.80	72.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	65,759.24	16,439.81	75.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	67,692.20	16,923.05	78.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	68,339.52	17,084.88	78.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	66,240.51	16,560.13	76.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	63,663.29	15,915.82	73.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	61,658.64	15,414.66	71.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	55,942.15	13,985.54	64.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	53,446.66	13,361.67	61.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	49,219.94	12,304.98	56.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	45,171.34	11,292.84	52.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	41,652.03	10,413.01	48.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	36,846.62	9,211.65	42.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	30,474.17	7,618.54	35.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	24,929.77	6,232.44	28.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	21,709.51	5,427.38	25.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	18,843.27	4,710.82	21.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	15,389.44	3,847.36	17.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	16,958.15	4,239.54	19.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	18,809.93	4,702.48	21.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	21,395.50	5,348.88	24.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	23,908.73	5,977.18	27.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	26,798.74	6,699.68	30.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	28,098.30	7,024.58	32.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	29,149.25	7,287.31	33.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	30,128.50	7,532.12	34.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	32,667.91	8,166.98	37.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	323.10	80.78	0.4%	323.10	80.78	0.4%
3:30 PM	36,524.17	9,131.04	42.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,064.23	266.06	1.2%	1,064.23	266.06	1.2%
3:45 PM	37,900.26	9,475.06	43.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,894.41	473.60	2.2%	1,894.41	473.60	2.2%
4:00 PM	39,464.14	9,866.03	45.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,596.90	649.23	3.0%	2,596.90	649.23	3.0%
4:15 PM	42,790.46	10,697.62	49.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,386.45	596.61	2.8%	2,386.45	596.61	2.8%
4:30 PM	44,905.54	11,226.39	51.8%	198.19	49.55	0.2%	118.04	29.51	0.1%	1,755.38	438.85	2.0%	1,754.08	438.52	2.0%
4:45 PM	46,021.96	11,505.49	53.1%	1,707.00	426.75	2.0%	1,415.38	353.84	1.6%	3,155.16	788.79	3.6%	3,063.31	765.83	3.5%
5:00 PM	48,386.22	12,096.56	55.8%	3,198.72	799.68	3.7%	2,986.04	746.51	3.4%	3,480.31	870.08	4.0%	3,414.46	853.61	3.9%
5:15 PM	52,202.08	13,050.52	60.2%	3,429.97	857.49	4.0%	3,429.51	857.38	4.0%	4,186.51	1,046.63	4.8%	4,186.05	1,046.51	4.8%
5:30 PM	56,666.83	14,166.71	65.4%	3,266.14	816.54	3.8%	3,259.08	814.77	3.8%	6,518.26	1,629.57	7.5%	6,511.20	1,627.80	7.5%
5:45 PM	53,813.51	13,453.38	62.1%	6,055.76	1,513.94	7.0%	5,506.51	1,376.63	6.4%	10,074.17	2,518.54	11.6%	10,049.65	2,512.41	11.6%
6:00 PM	54,962.71	13,740.68	63.4%	11,421.00	2,855.25	13.2%	10,700.59	2,675.15	12.3%	11,826.95	2,956.74	13.6%	11,730.45	2,932.61	13.5%
6:15 PM	62,868.40	15,717.10	72.5%	12,476.96	3,119.24	14.4%	12,473.25	3,118.31	14.4%	12,660.29	3,165.07	14.6%	12,657.51	3,164.38	14.6%
6:30 PM	71,035.52	17,758.88	82.0%	11,546.94	2,886.73	13.3%	11,547.22	2,886.80	13.3%	12,043.34	3,010.84	13.9%	12,045.20	3,011.30	13.9%
6:45 PM	76,536.17	26,022.30	88.3%	8,208.45	2,790.87	9.5%	8,209.75	2,791.31	9.5%	9,447.46	3,212.14	10.9%	9,447.46	3,212.14	10.9%
7:10 PM	85,911.47	18,041.41	99.1%	764.53	160.55	0.9%	764.53	160.55	0.9%	764.53	160.55	0.9%	764.53	160.55	0.9%



AUGUST 16

Mirror date: April 26
Analysis hours: 7:25 AM-7:02 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:25 AM	61,325.88	2,453.04	<div></div> 70.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	60,554.66	10,294.29	<div></div> 69.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	57,460.80	14,365.20	<div></div> 66.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	60,239.73	15,059.93	<div></div> 69.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	62,761.32	15,690.33	<div></div> 72.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	64,574.00	16,143.50	<div></div> 74.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	67,850.64	16,962.66	<div></div> 78.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	71,375.34	17,843.83	<div></div> 82.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	73,613.38	18,403.35	<div></div> 84.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	74,419.05	18,604.76	<div></div> 85.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	71,754.72	17,938.68	<div></div> 82.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	67,422.77	16,855.69	<div></div> 77.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	65,088.42	16,272.11	<div></div> 75.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	58,881.94	14,720.48	<div></div> 67.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	56,106.07	14,026.52	<div></div> 64.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	51,717.00	12,929.25	<div></div> 59.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	47,444.49	11,861.12	<div></div> 54.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	44,035.51	11,008.88	<div></div> 50.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	39,439.99	9,860.00	<div></div> 45.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	33,500.42	8,375.11	<div></div> 38.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	28,387.04	7,096.76	<div></div> 32.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	24,926.33	6,231.58	<div></div> 28.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	22,298.60	5,574.65	<div></div> 25.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	18,522.03	4,630.51	<div></div> 21.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	20,104.39	5,026.10	<div></div> 23.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	21,594.62	5,398.66	<div></div> 24.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	23,749.08	5,937.27	<div></div> 27.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	25,837.88	6,459.47	<div></div> 29.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	27,962.34	6,990.58	<div></div> 32.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	29,216.40	7,304.10	<div></div> 33.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	30,364.76	7,591.19	<div></div> 35.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	31,814.69	7,953.67	<div></div> 36.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	34,443.17	8,610.79	<div></div> 39.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	570.42	142.61	<div></div> 0.7%	570.42	142.61	<div></div> 0.7%
3:30 PM	36,274.06	9,068.52	<div></div> 41.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,369.50	342.37	<div></div> 1.6%	1,369.50	342.37	<div></div> 1.6%
3:45 PM	37,502.02	9,375.51	<div></div> 43.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,345.40	586.35	<div></div> 2.7%	2,345.40	586.35	<div></div> 2.7%
4:00 PM	38,999.68	9,749.92	<div></div> 45.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	3,173.18	793.29	<div></div> 3.7%	3,173.18	793.29	<div></div> 3.7%
4:15 PM	40,986.51	10,246.63	<div></div> 47.3%	65.01	16.25	<div></div> 0.1%	11.24	2.81	0.0%	4,003.64	1,000.91	<div></div> 4.6%	4,003.64	1,000.91	<div></div> 4.6%
4:30 PM	47,244.35	11,811.09	<div></div> 54.5%	213.89	53.47	<div></div> 0.2%	144.14	36.03	0.2%	1,410.08	352.52	<div></div> 1.6%	1,375.63	343.91	<div></div> 1.6%
4:45 PM	48,802.85	12,200.71	<div></div> 56.3%	1,478.90	369.73	<div></div> 1.7%	1,255.64	313.91	1.4%	1,961.65	490.41	<div></div> 2.3%	1,847.14	461.79	<div></div> 2.1%
5:00 PM	49,556.88	12,389.22	<div></div> 57.2%	3,595.10	898.77	<div></div> 4.1%	3,542.35	885.59	4.1%	3,595.10	898.77	<div></div> 4.1%	3,542.35	885.59	<div></div> 4.1%
5:15 PM	52,514.59	13,128.65	<div></div> 60.6%	3,469.44	867.36	<div></div> 4.0%	3,463.68	865.92	4.0%	4,993.76	1,248.44	<div></div> 5.8%	4,988.00	1,247.00	<div></div> 5.8%
5:30 PM	56,383.01	14,095.75	<div></div> 65.1%	3,887.65	971.91	<div></div> 4.5%	3,695.86	923.97	4.3%	7,775.29	1,943.82	<div></div> 9.0%	7,771.30	1,942.82	<div></div> 9.0%
5:45 PM	58,237.86	14,559.47	<div></div> 67.2%	8,899.70	2,224.92	<div></div> 10.3%	8,280.52	2,070.13	9.6%	10,950.88	2,737.72	<div></div> 12.6%	10,834.61	2,708.65	<div></div> 12.5%
6:00 PM	57,725.49	14,431.37	<div></div> 66.6%	12,065.54	3,016.38	<div></div> 13.9%	11,954.56	2,988.64	13.8%	12,196.02	3,049.01	<div></div> 14.1%	12,134.91	3,033.73	<div></div> 14.0%
6:15 PM	64,956.45	16,239.11	<div></div> 74.9%	12,077.98	3,019.50	<div></div> 13.9%	12,037.58	3,009.40	13.9%	12,077.98	3,019.50	<div></div> 13.9%	12,037.58	3,009.40	<div></div> 13.9%
6:30 PM	71,710.33	17,927.58	<div></div> 82.7%	11,135.88	2,783.97	<div></div> 12.8%	11,137.83	2,784.46	12.8%	11,315.96	2,828.99	<div></div> 13.1%	11,317.17	2,829.29	<div></div> 13.1%
6:45 PM	78,499.50	21,194.86	<div></div> 90.6%	7,720.31	2,084.48	<div></div> 8.9%	7,717.90	2,083.83	8.9%	8,166.66	2,205.00	<div></div> 9.4%	8,166.66	2,205.00	<div></div> 9.4%
7:02 PM	85,238.15	11,933.34	<div></div> 98.3%	1,437.85	201.30	<div></div> 1.7%	1,437.85	201.30	1.7%	1,437.85	201.30	<div></div> 1.7%	1,437.85	201.30	<div></div> 1.7%

AUGUST 23

Mirror date: April 19
Analysis hours: 7:31 AM-6:52 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:31 AM	64,230.93	7,065.40	74.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	65,947.96	15,168.03	76.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	66,516.06	16,629.01	76.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	67,053.23	16,763.31	77.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	69,369.01	17,342.25	80.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	72,643.14	18,160.79	83.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	76,686.63	19,171.66	88.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	78,719.89	19,679.97	90.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	80,618.94	20,154.74	93.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	77,842.05	19,460.51	89.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	72,429.63	18,107.41	83.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	68,931.03	17,232.76	79.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	62,198.69	15,549.67	71.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	58,616.51	14,654.13	67.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	53,741.81	13,435.45	62.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	49,511.65	12,377.91	57.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	46,614.03	11,653.51	53.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	43,250.28	10,812.57	49.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	37,345.16	9,336.29	43.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	32,617.85	8,154.46	37.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	30,370.06	7,592.51	35.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	29,210.73	7,302.68	33.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	26,817.13	6,704.28	30.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	26,963.68	6,740.92	31.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	26,058.36	6,514.59	30.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	26,824.65	6,706.16	30.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	27,853.96	6,963.49	32.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	29,369.36	7,342.34	33.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	30,524.04	7,631.01	35.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	31,896.79	7,974.20	36.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	33,778.95	8,444.74	39.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	176.74	44.18	0.2%	176.74	44.18	0.2%
3:15 PM	35,920.22	8,980.05	41.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	833.07	208.27	1.0%	833.07	208.27	1.0%
3:30 PM	36,338.05	9,084.51	41.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,684.52	421.13	1.9%	1,684.52	421.13	1.9%
3:45 PM	37,357.79	9,339.45	43.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,689.22	672.30	3.1%	2,689.22	672.30	3.1%
4:00 PM	38,730.26	9,682.57	44.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	3,894.70	973.68	4.5%	3,894.70	973.68	4.5%
4:15 PM	40,272.97	10,068.24	46.5%	378.92	94.73	0.4%	235.80	58.95	0.3%	4,845.07	1,211.27	5.6%	4,845.07	1,211.27	5.6%
4:30 PM	45,358.67	11,339.67	52.3%	784.96	196.24	0.9%	660.51	165.13	0.8%	2,737.70	684.42	3.2%	2,737.70	684.42	3.2%
4:45 PM	51,599.98	12,900.00	59.5%	483.31	120.83	0.6%	423.31	105.83	0.5%	772.51	193.13	0.9%	712.52	178.13	0.8%
5:00 PM	52,430.36	13,107.59	60.5%	2,712.71	678.18	3.1%	2,597.37	649.34	3.0%	2,780.23	695.06	3.2%	2,664.89	666.22	3.1%
5:15 PM	53,698.72	13,424.68	62.0%	3,721.96	930.49	4.3%	3,673.39	918.35	4.2%	5,346.95	1,336.74	6.2%	5,298.38	1,324.59	6.1%
5:30 PM	58,047.29	14,511.82	67.0%	5,771.66	1,442.91	6.7%	5,204.67	1,301.17	6.0%	9,130.86	2,282.71	10.5%	9,020.53	2,255.13	10.4%
5:45 PM	62,012.48	15,503.12	71.5%	11,309.37	2,827.34	13.0%	11,217.24	2,804.31	12.9%	11,395.37	2,848.84	13.1%	11,331.94	2,832.98	13.1%
6:00 PM	60,452.69	15,113.17	69.7%	12,256.30	3,064.07	14.1%	12,217.39	3,054.35	14.1%	12,256.30	3,064.07	14.1%	12,217.39	3,054.35	14.1%
6:15 PM	65,356.27	16,339.07	75.4%	11,524.93	2,881.23	13.3%	11,526.79	2,881.70	13.3%	11,524.93	2,881.23	13.3%	11,526.79	2,881.70	13.3%
6:30 PM	74,077.37	18,519.34	85.5%	9,677.23	2,419.31	11.2%	9,682.06	2,420.51	11.2%	9,686.79	2,421.70	11.2%	9,690.42	2,422.60	11.2%
6:45 PM	81,151.10	15,418.71	93.6%	5,172.63	982.80	6.0%	5,174.58	983.17	6.0%	5,252.04	997.89	6.1%	5,252.04	997.89	6.1%
6:52 PM	84,234.47	5,054.07	97.2%	2,441.53	146.49	2.8%	2,441.53	146.49	2.8%	2,441.53	146.49	2.8%	2,441.53	146.49	2.8%

AUGUST 30

Mirror date: April 12
Analysis hours: 7:37 AM-6:42 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:37 AM	73,807.58	4,428.45	<div></div> 85.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	72,700.91	13,813.17	<div></div> 83.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	70,839.46	17,709.87	<div></div> 81.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	71,808.59	17,952.15	<div></div> 82.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	74,096.88	18,524.22	<div></div> 85.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	77,628.82	19,407.20	<div></div> 89.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	80,726.77	20,181.69	<div></div> 93.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	83,720.42	20,930.11	<div></div> 96.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	86,377.88	21,594.47	<div></div> 99.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	83,219.47	20,804.87	<div></div> 96.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	77,565.67	19,391.42	<div></div> 89.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	72,449.04	18,112.26	<div></div> 83.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	65,666.46	16,416.62	<div></div> 75.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	60,517.33	15,129.33	<div></div> 69.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	55,413.89	13,853.47	<div></div> 63.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	51,712.45	12,928.11	<div></div> 59.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	49,681.89	12,420.47	<div></div> 57.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	47,208.97	11,802.24	<div></div> 54.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	41,120.62	10,280.15	<div></div> 47.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	37,497.66	9,374.41	<div></div> 43.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	36,577.66	9,144.42	<div></div> 42.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	37,152.08	9,288.02	<div></div> 42.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	34,859.05	8,714.76	<div></div> 40.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	33,446.28	8,361.57	<div></div> 38.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	32,083.84	8,020.96	<div></div> 37.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	32,324.47	8,081.12	<div></div> 37.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	32,354.65	8,088.66	<div></div> 37.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	32,479.75	8,119.94	<div></div> 37.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	32,648.32	8,162.08	<div></div> 37.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	34,321.32	8,580.33	<div></div> 39.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	36,278.89	9,069.72	<div></div> 41.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	423.78	105.94	<div></div> 0.5%	423.78	105.94	<div></div> 0.5%
3:15 PM	36,959.65	9,239.91	<div></div> 42.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,104.07	276.02	<div></div> 1.3%	1,104.07	276.02	<div></div> 1.3%
3:30 PM	36,813.28	9,203.32	<div></div> 42.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,964.81	491.20	<div></div> 2.3%	1,964.81	491.20	<div></div> 2.3%
3:45 PM	37,374.14	9,343.53	<div></div> 43.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	3,032.66	758.17	<div></div> 3.5%	3,032.66	758.17	<div></div> 3.5%
4:00 PM	38,627.36	9,656.84	<div></div> 44.6%	61.48	15.37	<div></div> 0.1%	46.99	11.75	<div></div> 0.1%	4,479.80	1,119.95	<div></div> 5.2%	4,479.80	1,119.95	<div></div> 5.2%
4:15 PM	40,116.38	10,029.10	<div></div> 46.3%	863.16	215.79	<div></div> 1.0%	677.32	169.33	<div></div> 0.8%	5,212.66	1,303.16	<div></div> 6.0%	5,212.66	1,303.16	<div></div> 6.0%
4:30 PM	42,264.53	10,566.13	<div></div> 48.8%	1,994.35	498.59	<div></div> 2.3%	1,795.23	448.81	<div></div> 2.1%	5,051.06	1,262.77	<div></div> 5.8%	5,051.06	1,262.77	<div></div> 5.8%
4:45 PM	50,114.67	12,528.67	<div></div> 57.8%	706.30	176.57	<div></div> 0.8%	674.35	168.59	<div></div> 0.8%	1,367.73	341.93	<div></div> 1.6%	1,367.73	341.93	<div></div> 1.6%
5:00 PM	55,387.98	13,846.99	<div></div> 63.9%	1,167.50	291.88	<div></div> 1.3%	1,074.54	268.63	<div></div> 1.2%	1,174.75	293.69	<div></div> 1.4%	1,085.96	271.49	<div></div> 1.3%
5:15 PM	57,359.75	14,339.94	<div></div> 66.2%	3,769.70	942.42	<div></div> 4.3%	3,442.04	860.51	<div></div> 4.0%	4,782.75	1,195.69	<div></div> 5.5%	4,631.00	1,157.75	<div></div> 5.3%
5:30 PM	61,411.23	15,352.81	<div></div> 70.9%	8,160.53	2,040.13	<div></div> 9.4%	7,671.46	1,917.86	<div></div> 8.9%	8,484.00	2,121.00	<div></div> 9.8%	8,289.80	2,072.45	<div></div> 9.6%
5:45 PM	64,857.82	16,214.46	<div></div> 74.8%	9,858.05	2,464.51	<div></div> 11.4%	9,859.17	2,464.79	<div></div> 11.4%	9,880.34	2,470.09	<div></div> 11.4%	9,890.74	2,472.69	<div></div> 11.4%
6:00 PM	64,083.54	16,020.89	<div></div> 73.9%	11,606.93	2,901.73	<div></div> 13.4%	11,596.63	2,899.16	<div></div> 13.4%	11,606.93	2,901.73	<div></div> 13.4%	11,596.63	2,899.16	<div></div> 13.4%
6:15 PM	65,382.74	16,345.68	<div></div> 75.4%	10,170.94	2,542.73	<div></div> 11.7%	10,170.94	2,542.73	<div></div> 11.7%	10,170.94	2,542.73	<div></div> 11.7%	10,170.94	2,542.73	<div></div> 11.7%
6:30 PM	76,098.84	17,502.73	<div></div> 87.8%	7,427.85	1,708.41	<div></div> 8.6%	7,431.11	1,709.15	<div></div> 8.6%	7,427.85	1,708.41	<div></div> 8.6%	7,431.11	1,709.15	<div></div> 8.6%
6:42 PM	83,414.32	9,175.57	<div></div> 96.2%	3,216.08	353.77	<div></div> 3.7%	3,216.08	353.77	<div></div> 3.7%	3,216.08	353.77	<div></div> 3.7%	3,216.08	353.77	<div></div> 3.7%



SEPTEMBER 6

Mirror date: April 5
Analysis hours: 7:44 AM-6:31 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:44 AM	76,498.19	9,944.76	88.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	75,356.97	18,839.24	86.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	76,300.00	19,075.00	88.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	78,810.99	19,702.75	90.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	81,467.15	20,366.79	94.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	83,816.36	20,954.09	96.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	86,435.92	21,608.98	99.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	86,396.55	21,599.14	99.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	82,352.69	20,588.17	95.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	78,797.62	19,699.41	90.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	73,215.61	18,303.90	84.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	68,184.14	17,046.04	78.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	62,326.21	15,581.55	71.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	57,208.56	14,302.14	66.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	54,293.85	13,573.46	62.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	53,812.12	13,453.03	62.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	50,292.90	12,573.22	58.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	43,782.90	10,945.72	50.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	42,162.55	10,540.64	48.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	43,208.02	10,802.00	49.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	45,859.34	11,464.84	52.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	42,610.85	10,652.71	49.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	39,997.69	9,999.42	46.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	38,090.09	9,522.52	43.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	38,628.84	9,657.21	44.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	37,812.12	9,453.03	43.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	37,366.15	9,341.54	43.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	37,306.15	9,326.54	43.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	39,860.61	9,965.15	46.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	119.43	29.86	0.1%	119.43	29.86	0.1%
3:00 PM	40,984.93	10,246.23	47.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	642.12	160.53	0.7%	642.12	160.53	0.7%
3:15 PM	39,968.25	9,992.06	46.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,345.26	336.31	1.6%	1,345.26	336.31	1.6%
3:30 PM	38,800.66	9,700.16	44.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,228.11	557.03	2.6%	2,228.11	557.03	2.6%
3:45 PM	38,977.21	9,744.30	45.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	3,335.89	833.97	3.8%	3,335.89	833.97	3.8%
4:00 PM	39,032.47	9,758.12	45.0%	297.01	74.25	0.3%	231.62	57.91	0.3%	4,691.64	1,172.91	5.4%	4,691.64	1,172.91	5.4%
4:15 PM	39,977.73	9,994.43	46.1%	1,275.51	318.88	1.5%	1,142.98	285.75	1.3%	5,452.83	1,363.21	6.3%	5,452.83	1,363.21	6.3%
4:30 PM	41,726.89	10,431.72	48.1%	2,811.90	702.98	3.2%	2,676.22	669.05	3.1%	5,893.14	1,473.28	6.8%	5,893.14	1,473.28	6.8%
4:45 PM	46,722.50	11,680.63	53.9%	1,622.39	405.60	1.9%	1,616.45	404.11	1.9%	3,902.13	975.53	4.5%	3,902.13	975.53	4.5%
5:00 PM	55,807.67	13,951.92	64.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,239.94	309.99	1.4%	1,239.94	309.99	1.4%
5:15 PM	62,395.77	15,598.94	72.0%	1,916.33	479.08	2.2%	1,833.49	458.37	2.1%	1,916.33	479.08	2.2%	1,833.49	458.37	2.1%
5:30 PM	66,124.97	16,531.24	76.3%	6,281.16	1,570.29	7.2%	6,284.04	1,571.01	7.3%	6,281.16	1,570.29	7.2%	6,284.04	1,571.01	7.3%
5:45 PM	70,090.26	17,522.57	80.9%	7,398.04	1,849.51	8.5%	7,398.41	1,849.60	8.5%	7,398.04	1,849.51	8.5%	7,398.41	1,849.60	8.5%
6:00 PM	70,176.63	17,544.16	81.0%	7,445.87	1,861.47	8.6%	7,446.06	1,861.51	8.6%	7,445.87	1,861.47	8.6%	7,446.06	1,861.51	8.6%
6:15 PM	72,443.56	19,559.76	83.6%	4,313.00	1,164.51	5.0%	4,313.00	1,164.51	5.0%	4,313.00	1,164.51	5.0%	4,313.00	1,164.51	5.0%
6:31 PM	79,021.44	11,063.00	91.2%	3,601.97	504.28	4.2%	3,601.97	504.28	4.2%	3,601.97	504.28	4.2%	3,601.97	504.28	4.2%



SEPTEMBER 13

Mirror date: March 29
Analysis hours: 7:50 AM-6:21 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:50 AM	79,062.68	6,325.01	91.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	79,032.77	16,596.88	91.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	80,128.02	20,032.00	92.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	81,949.72	20,487.43	94.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	84,084.21	21,021.05	97.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	86,459.79	21,614.95	99.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	86,464.90	21,616.23	99.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	85,882.13	21,470.53	99.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	82,653.41	20,663.35	95.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	79,754.02	19,938.51	92.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	76,423.52	19,105.88	88.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	71,910.84	17,977.71	83.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	65,118.89	16,279.72	75.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	60,097.82	15,024.46	69.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	58,354.79	14,588.70	67.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	57,930.55	14,482.64	66.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	53,617.08	13,404.27	61.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	47,261.26	11,815.31	54.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	48,134.17	12,033.54	55.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	51,391.11	12,847.78	59.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	54,852.57	13,713.14	63.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	49,997.19	12,499.30	57.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	46,835.90	11,708.97	54.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	44,298.62	11,074.66	51.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	44,885.39	11,221.35	51.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	43,122.02	10,780.50	49.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	42,141.28	10,535.32	48.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	42,032.44	10,508.11	48.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	44,453.25	11,113.31	51.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	282.98	70.75	0.3%	282.98	70.75	0.3%
3:00 PM	45,927.33	11,481.83	53.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	812.82	203.21	0.9%	812.82	203.21	0.9%
3:15 PM	44,813.79	11,203.45	51.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,509.74	377.43	1.7%	1,509.74	377.43	1.7%
3:30 PM	43,136.14	10,784.03	49.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,425.46	606.36	2.8%	2,425.46	606.36	2.8%
3:45 PM	42,405.79	10,601.45	48.9%	20.06	5.02	0.0%	25.82	6.45	0.0%	3,527.02	881.76	4.1%	3,527.02	881.76	4.1%
4:00 PM	42,073.95	10,518.49	48.5%	359.88	89.97	0.4%	343.63	85.91	0.4%	4,633.97	1,158.49	5.3%	4,633.97	1,158.49	5.3%
4:15 PM	42,338.64	10,584.66	48.8%	1,294.09	323.52	1.5%	1,249.14	312.28	1.4%	5,546.72	1,386.68	6.4%	5,546.72	1,386.68	6.4%
4:30 PM	42,142.40	10,535.60	48.6%	2,855.55	713.89	3.3%	2,748.19	687.05	3.2%	6,257.57	1,564.39	7.2%	6,257.57	1,564.39	7.2%
4:45 PM	45,148.13	11,287.03	52.1%	3,790.41	947.60	4.4%	3,697.44	924.36	4.3%	7,360.34	1,840.08	8.5%	7,360.34	1,840.08	8.5%
5:00 PM	55,459.86	13,864.97	64.0%	751.52	187.88	0.9%	658.84	164.71	0.8%	3,579.59	894.90	4.1%	3,579.59	894.90	4.1%
5:15 PM	63,411.14	15,852.79	73.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	359.97	89.99	0.4%	359.97	89.99	0.4%
5:30 PM	71,154.49	17,788.62	82.1%	1,675.98	418.99	1.9%	1,675.98	418.99	1.9%	1,675.98	418.99	1.9%	1,675.98	418.99	1.9%
5:45 PM	76,574.99	19,143.75	88.3%	4,432.62	1,108.16	5.1%	4,334.83	1,083.71	5.0%	4,432.62	1,108.16	5.1%	4,334.83	1,083.71	5.0%
6:00 PM	78,276.98	19,569.24	90.3%	1,235.67	308.92	1.4%	1,235.67	308.92	1.4%	1,235.67	308.92	1.4%	1,235.67	308.92	1.4%
6:15 PM	77,575.97	13,963.68	89.5%	719.58	129.52	0.8%	719.58	129.52	0.8%	719.58	129.52	0.8%	719.58	129.52	0.8%
6:21 PM	77,401.56	3,870.08	89.3%	720.97	36.05	0.8%	720.97	36.05	0.8%	720.97	36.05	0.8%	720.97	36.05	0.8%

SEPTEMBER 20

Fall equinox (Spring equinox on March 22 similar)
Analysis hours: 7:57 AM-6:09 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:57 AM	81,367.68	1,627.35	93.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	81,439.94	12,215.99	94.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	82,410.73	20,602.68	95.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	84,357.16	21,089.29	97.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	86,537.99	21,634.50	99.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	86,472.42	21,618.11	99.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	82,632.79	20,658.20	95.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	79,910.70	19,977.67	92.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	79,003.70	19,750.93	91.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	75,281.56	18,820.39	86.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	68,958.05	17,239.51	79.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	63,567.54	15,891.89	73.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	63,757.56	15,939.39	73.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	62,179.28	15,544.82	71.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	58,028.44	14,507.11	66.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	52,328.10	13,082.03	60.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	56,174.05	14,043.51	64.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	61,932.80	15,483.20	71.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	63,629.21	15,907.30	73.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	57,947.73	14,486.93	66.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	54,130.48	13,532.62	62.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	50,884.59	12,721.15	58.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	50,861.28	12,715.32	58.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	48,111.50	12,027.88	55.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	46,101.00	11,525.25	53.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	45,771.58	11,442.90	52.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	50.62	12.65	0.1%	50.62	12.65	0.1%
2:45 PM	47,563.00	11,890.75	54.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	367.31	91.83	0.4%	367.31	91.83	0.4%
3:00 PM	49,524.56	12,381.14	57.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	901.79	225.45	1.0%	901.79	225.45	1.0%
3:15 PM	49,752.19	12,438.05	57.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,592.95	398.24	1.8%	1,592.95	398.24	1.8%
3:30 PM	47,566.25	11,891.56	54.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,500.69	625.17	2.9%	2,500.69	625.17	2.9%
3:45 PM	47,155.38	11,788.85	54.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	3,511.14	877.79	4.1%	3,511.14	877.79	4.1%
4:00 PM	45,674.34	11,418.59	52.7%	210.73	52.68	0.2%	211.38	52.84	0.2%	4,400.30	1,100.08	5.1%	4,400.30	1,100.08	5.1%
4:15 PM	46,749.34	11,687.34	53.9%	981.94	245.49	1.1%	988.26	247.06	1.1%	5,288.91	1,322.23	6.1%	5,288.91	1,322.23	6.1%
4:30 PM	47,317.54	11,829.38	54.6%	2,517.31	629.33	2.9%	2,523.35	630.84	2.9%	6,298.71	1,574.68	7.3%	6,298.71	1,574.68	7.3%
4:45 PM	50,285.47	12,571.37	58.0%	3,823.38	955.84	4.4%	3,776.20	944.05	4.4%	7,446.06	1,861.51	8.6%	7,446.06	1,861.51	8.6%
5:00 PM	57,299.67	14,324.92	66.1%	2,238.60	559.65	2.6%	2,117.49	529.37	2.4%	4,485.19	1,121.30	5.2%	4,485.19	1,121.30	5.2%
5:15 PM	66,704.50	16,676.12	77.0%	13.37	3.34	0.0%	13.56	3.39	0.0%	1,499.89	374.97	1.7%	1,499.89	374.97	1.7%
5:30 PM	77,156.56	19,289.14	89.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	80,203.25	20,050.81	92.5%	630.88	157.72	0.7%	630.88	157.72	0.7%	630.88	157.72	0.7%	630.88	157.72	0.7%
6:00 PM	83,992.26	17,638.37	96.9%	2,529.57	531.21	2.9%	2,547.03	534.88	2.9%	2,529.57	531.21	2.9%	2,547.03	534.88	2.9%
6:09 PM	81,320.78	6,505.66	93.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



SEPTEMBER 27

Mirror date: March 15
Analysis hours: 8:03 AM-5:58 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:03 AM	83,198.11	8,319.81	96.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	84,769.05	18,649.19	97.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	86,580.34	21,645.09	99.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	86,473.91	21,618.48	99.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	86,465.37	21,616.34	99.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	82,656.94	20,664.23	95.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	80,577.62	20,144.40	93.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	77,736.64	19,434.16	89.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	72,875.42	18,218.85	84.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	68,650.64	17,162.66	79.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	65,598.57	16,399.64	75.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	66,228.90	16,557.22	76.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	66,686.95	16,671.74	76.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	62,891.62	15,722.90	72.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	60,459.84	15,114.96	69.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	68,173.00	17,043.25	78.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	76,101.99	19,025.50	87.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	73,715.63	18,428.91	85.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	66,481.79	16,620.45	76.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	62,163.40	15,540.85	71.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	57,841.58	14,460.39	66.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	56,990.77	14,247.69	65.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	52,493.88	13,123.47	60.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	49,404.01	12,351.00	57.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	48,224.44	12,056.11	55.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	70.49	17.62	0.1%	70.49	17.62	0.1%
2:45 PM	49,498.46	12,374.62	57.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	356.44	89.11	0.4%	356.44	89.11	0.4%
3:00 PM	51,645.77	12,911.44	59.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	855.73	213.93	1.0%	855.73	213.93	1.0%
3:15 PM	53,351.00	13,337.75	61.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,516.42	379.11	1.7%	1,516.42	379.11	1.7%
3:30 PM	51,568.96	12,892.24	59.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,410.14	602.53	2.8%	2,410.14	602.53	2.8%
3:45 PM	51,908.51	12,977.13	59.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	3,403.78	850.94	3.9%	3,403.78	850.94	3.9%
4:00 PM	51,602.40	12,900.60	59.5%	35.48	8.87	0.0%	35.85	8.96	0.0%	4,213.16	1,053.29	4.9%	4,213.16	1,053.29	4.9%
4:15 PM	51,364.64	12,841.16	59.3%	486.28	121.57	0.6%	485.82	121.45	0.6%	4,992.09	1,248.02	5.8%	4,992.09	1,248.02	5.8%
4:30 PM	53,683.86	13,420.96	61.9%	1,499.06	374.76	1.7%	1,497.48	374.37	1.7%	5,725.96	1,431.49	6.6%	5,725.96	1,431.49	6.6%
4:45 PM	60,071.17	15,017.79	69.3%	1,569.92	392.48	1.8%	1,570.38	392.60	1.8%	3,791.89	947.97	4.4%	3,791.89	947.97	4.4%
5:00 PM	65,117.31	16,279.33	75.1%	2,282.62	570.66	2.6%	2,282.16	570.54	2.6%	4,482.59	1,120.65	5.2%	4,482.59	1,120.65	5.2%
5:15 PM	81,893.62	20,473.41	94.5%	414.21	103.55	0.5%	413.10	103.27	0.5%	471.79	117.95	0.5%	471.79	117.95	0.5%
5:30 PM	82,611.99	20,653.00	95.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	82,888.75	19,064.41	95.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:58 PM	82,471.66	9,071.88	95.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



OCTOBER 4

Mirror date: March 8
Analysis hours: 8:09 AM-5:47 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:09 AM	86,315.75	3,452.63	99.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	86,626.31	14,726.47	99.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	86,486.45	21,621.61	99.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	86,533.81	21,633.45	99.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	85,554.56	21,388.64	98.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	84,650.91	21,162.73	97.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	81,500.77	20,375.19	94.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	75,711.93	18,927.98	87.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	71,737.54	17,934.39	82.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	68,516.91	17,129.23	79.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	66,423.93	16,605.98	76.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	67,520.48	16,880.12	77.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	67,922.34	16,980.58	78.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	63,802.42	15,950.60	73.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	64,427.08	16,106.77	74.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	73,647.47	18,411.87	85.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	84,747.59	21,186.90	97.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	79,776.03	19,944.01	92.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	73,918.93	18,479.73	85.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	69,565.25	17,391.31	80.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	64,270.96	16,067.74	74.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	62,441.09	15,610.27	72.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	56,224.48	14,056.12	64.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	52,646.47	13,161.62	60.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	51,463.28	12,865.82	59.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	47.37	11.84	0.1%	47.37	11.84	0.1%
2:45 PM	52,119.88	13,029.97	60.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	289.39	72.35	0.3%	289.39	72.35	0.3%
3:00 PM	53,520.68	13,380.17	61.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	724.41	181.10	0.8%	724.41	181.10	0.8%
3:15 PM	54,852.75	13,713.19	63.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,309.32	327.33	1.5%	1,309.32	327.33	1.5%
3:30 PM	55,265.48	13,816.37	63.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,115.73	528.93	2.4%	2,115.73	528.93	2.4%
3:45 PM	56,810.51	14,202.63	65.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	3,080.30	770.08	3.6%	3,080.30	770.08	3.6%
4:00 PM	57,739.51	14,434.88	66.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	3,872.04	968.01	4.5%	3,872.04	968.01	4.5%
4:15 PM	57,543.92	14,385.98	66.4%	168.94	42.23	0.2%	170.33	42.58	0.2%	4,576.39	1,144.10	5.3%	4,576.39	1,144.10	5.3%
4:30 PM	60,806.16	15,201.54	70.2%	41.98	10.49	0.0%	39.19	9.80	0.0%	2,611.30	652.82	3.0%	2,611.30	652.82	3.0%
4:45 PM	66,440.09	16,610.02	76.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,405.44	351.36	1.6%	1,405.44	351.36	1.6%
5:00 PM	78,414.15	19,603.54	90.5%	63.15	15.79	0.1%	63.15	15.79	0.1%	316.32	79.08	0.4%	316.32	79.08	0.4%
5:15 PM	85,612.33	21,403.08	98.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	85,797.70	23,165.38	99.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:47 PM	86,676.00	12,134.64	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



OCTOBER 11

Mirror date: March 1
Analysis hours: 8:16 AM-5:37 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:16 AM	86,676.00	10,401.12	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	86,676.00	20,802.24	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	86,648.79	21,662.20	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	85,655.52	21,413.88	98.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	85,659.51	21,414.88	98.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	85,093.17	21,273.29	98.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	80,974.27	20,243.57	93.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	74,997.09	18,749.27	86.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	70,805.66	17,701.41	81.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	68,101.30	17,025.33	78.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	66,853.37	16,713.34	77.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	68,296.24	17,074.06	78.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	67,856.03	16,964.01	78.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	65,428.71	16,357.18	75.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	68,069.82	17,017.45	78.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	76,818.23	19,204.56	88.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	84,876.13	21,219.03	97.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	78,389.63	19,597.41	90.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	73,140.38	18,285.10	84.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	69,543.24	17,385.81	80.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	65,699.06	16,424.77	75.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	64,634.18	16,158.55	74.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	58,599.05	14,649.76	67.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	55,131.65	13,782.91	63.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	54,134.66	13,533.67	62.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	22.94	5.73	0.0%	22.94	5.73	0.0%
2:45 PM	54,485.53	13,621.38	62.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	205.71	51.43	0.2%	205.71	51.43	0.2%
3:00 PM	55,144.46	13,786.12	63.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	570.70	142.68	0.7%	570.70	142.68	0.7%
3:15 PM	57,073.43	14,268.36	65.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,073.98	268.49	1.2%	1,073.98	268.49	1.2%
3:30 PM	59,603.46	14,900.87	68.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,771.64	442.91	2.0%	1,771.64	442.91	2.0%
3:45 PM	61,770.55	15,442.64	71.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,610.28	652.57	3.0%	2,610.28	652.57	3.0%
4:00 PM	63,127.51	15,781.88	72.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	3,461.92	865.48	4.0%	3,461.92	865.48	4.0%
4:15 PM	63,353.93	15,838.48	73.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,853.70	713.42	3.3%	2,853.70	713.42	3.3%
4:30 PM	66,448.26	16,612.07	76.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	249.36	62.34	0.3%	249.36	62.34	0.3%
4:45 PM	74,718.29	18,679.57	86.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	278.25	69.56	0.3%	278.25	69.56	0.3%
5:00 PM	82,717.03	20,679.26	95.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	85,299.16	21,324.79	98.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	86,676.00	16,468.44	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:37 PM	86,676.00	5,200.56	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



OCTOBER 18

Mirror date: February 22
Analysis hours: 8:22 AM-5:27 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:22 AM	86,676.00	5,200.56	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	86,676.00	15,601.68	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	86,027.10	21,506.77	99.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	85,588.00	21,397.00	98.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	85,803.74	21,450.94	99.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	82,143.35	20,535.84	94.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	79,602.45	19,900.61	91.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	74,495.58	18,623.89	85.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	69,491.42	17,372.85	80.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	67,574.25	16,893.56	78.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	67,723.50	16,930.87	78.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	68,494.43	17,123.61	79.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	67,416.55	16,854.14	77.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	67,663.22	16,915.81	78.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	70,822.65	17,705.66	81.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	79,339.16	19,834.79	91.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	83,612.69	20,903.17	96.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	77,548.30	19,387.07	89.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	72,839.57	18,209.89	84.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	69,467.83	17,366.96	80.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	66,230.11	16,557.53	76.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	65,725.71	16,431.43	75.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	59,938.92	14,984.73	69.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	56,357.66	14,089.41	65.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	55,298.91	13,824.73	63.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	6.41	1.60	0.0%	6.41	1.60	0.0%
2:45 PM	55,392.16	13,848.04	63.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	143.77	35.94	0.2%	143.77	35.94	0.2%
3:00 PM	56,857.87	14,214.47	65.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	448.11	112.03	0.5%	448.11	112.03	0.5%
3:15 PM	59,909.76	14,977.44	69.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	882.01	220.50	1.0%	882.01	220.50	1.0%
3:30 PM	65,054.34	16,263.58	75.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,489.58	372.40	1.7%	1,489.58	372.40	1.7%
3:45 PM	66,706.54	16,676.64	77.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	2,221.14	555.29	2.6%	2,221.14	555.29	2.6%
4:00 PM	67,991.81	16,997.95	78.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	3,044.73	761.18	3.5%	3,044.73	761.18	3.5%
4:15 PM	69,752.30	17,438.07	80.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,313.03	328.26	1.5%	1,313.03	328.26	1.5%
4:30 PM	74,635.44	18,658.86	86.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	79,027.67	19,756.92	91.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	84,035.63	21,008.91	97.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	86,423.02	19,013.06	99.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:27 PM	86,676.00	8,667.60	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%

OCTOBER 25

Mirror date: February 15
Analysis hours: 7:30 AM-4:18 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:30 AM	86,676.00	11,267.88	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	86,273.68	21,568.42	99.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	85,571.75	21,392.94	98.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	85,999.70	21,499.93	99.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	85,679.20	21,419.80	98.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	82,606.60	20,651.65	95.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	78,319.70	19,579.92	90.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	72,159.74	18,039.93	83.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	69,116.77	17,279.19	79.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	67,827.88	16,956.97	78.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	68,426.91	17,106.73	78.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	68,280.64	17,070.16	78.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	68,138.17	17,034.54	78.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	71,029.11	17,757.28	81.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	72,910.34	18,227.58	84.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	81,239.43	20,309.86	93.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	82,570.75	20,642.69	95.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	77,009.17	19,252.29	88.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	72,871.33	18,217.83	84.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	70,593.82	17,648.45	81.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	68,525.36	17,131.34	79.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	68,907.53	17,226.88	79.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	62,776.27	15,694.07	72.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	59,135.38	14,783.85	68.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	57,312.30	14,328.07	66.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	57,216.17	14,304.04	66.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	89.16	22.29	0.1%	89.16	22.29	0.1%
2:00 PM	58,916.39	14,729.10	68.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	335.64	83.91	0.4%	335.64	83.91	0.4%
2:15 PM	63,161.04	15,790.26	72.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	705.55	176.39	0.8%	705.55	176.39	0.8%
2:30 PM	68,466.57	17,116.64	79.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,232.70	308.17	1.4%	1,232.70	308.17	1.4%
2:45 PM	72,495.75	18,123.94	83.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	1,253.32	313.33	1.4%	1,253.32	313.33	1.4%
3:00 PM	74,067.16	18,516.79	85.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	836.13	209.03	1.0%	836.13	209.03	1.0%
3:15 PM	76,227.56	19,056.89	87.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	80,461.53	20,115.38	92.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	83,679.10	20,919.77	96.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	86,676.00	13,001.40	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:18 PM	86,676.00	2,600.28	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



NOVEMBER 1

Mirror date: February 8
Analysis hours: 7:36 AM-4:10 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:36 AM	86,676.00	6,067.32	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	85,651.99	16,273.88	98.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	85,801.60	21,450.40	99.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	85,759.81	21,439.95	98.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	86,578.95	21,644.74	99.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	79,785.60	19,946.40	92.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	70,872.15	17,718.04	81.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	68,675.53	17,168.88	79.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	68,851.90	17,212.97	79.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	72,836.78	18,209.20	84.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	70,689.38	17,672.35	81.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	69,037.83	17,259.46	79.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	73,726.50	18,431.62	85.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	74,260.61	18,565.15	85.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	82,569.45	20,642.36	95.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	81,893.34	20,473.34	94.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	76,740.77	19,185.19	88.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	73,678.02	18,419.51	85.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	73,106.58	18,276.64	84.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	72,091.76	18,022.94	83.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	72,387.18	18,096.80	83.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	66,940.02	16,735.01	77.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	64,084.47	16,021.12	73.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	62,692.96	15,673.24	72.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	62,402.55	15,600.64	72.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	48.76	12.19	0.1%	48.76	12.19	0.1%
2:00 PM	63,157.42	15,789.35	72.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	246.39	61.60	0.3%	246.39	61.60	0.3%
2:15 PM	66,980.42	16,745.11	77.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	560.21	140.05	0.6%	560.21	140.05	0.6%
2:30 PM	71,607.89	17,901.97	82.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	926.68	231.67	1.1%	926.68	231.67	1.1%
2:45 PM	77,403.42	19,350.85	89.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	77,442.33	19,360.58	89.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	81,045.60	20,261.40	93.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	81,787.65	20,446.91	94.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	83,710.76	20,927.69	96.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	86,676.00	18,201.96	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:10 PM	86,676.00	7,800.84	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



NOVEMBER 8

Mirror date: February 1
Analysis hours: 7:43 AM-4:03 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:43 AM	86,676.00	866.76	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	86,676.00	11,267.88	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	86,261.51	21,565.38	99.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	85,844.60	21,461.15	99.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	86,486.35	21,621.59	99.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	83,454.72	20,863.68	96.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	75,827.83	18,956.96	87.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	68,848.83	17,212.21	79.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	70,585.74	17,646.43	81.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	79,044.48	19,761.12	91.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	76,845.63	19,211.41	88.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	71,767.07	17,941.77	82.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	74,649.00	18,662.25	86.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	75,013.34	18,753.34	86.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	83,316.52	20,829.13	96.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	81,594.38	20,398.60	94.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	76,747.18	19,186.80	88.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	74,884.62	18,721.16	86.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	75,410.28	18,852.57	87.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	73,844.17	18,461.04	85.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	75,338.86	18,834.72	86.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	72,658.19	18,164.55	83.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	69,603.70	17,400.93	80.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	68,290.20	17,072.55	78.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	68,386.51	17,096.63	78.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	18.76	4.69	0.0%	18.76	4.69	0.0%
2:00 PM	68,617.02	17,154.26	79.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	166.52	41.63	0.2%	166.52	41.63	0.2%
2:15 PM	70,294.21	17,573.55	81.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	426.94	106.73	0.5%	426.94	106.73	0.5%
2:30 PM	74,228.94	18,557.24	85.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	136.71	34.18	0.2%	136.71	34.18	0.2%
2:45 PM	78,668.62	19,667.16	90.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	80,277.36	20,069.34	92.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	80,820.85	20,205.21	93.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	82,076.58	20,519.14	94.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	84,125.26	21,031.31	97.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	86,414.01	12,962.10	99.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:03 PM	86,676.00	2,600.28	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%

NOVEMBER 15

Mirror date: January 25
Analysis hours: 7:51 AM-3:57 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:51 AM	86,676.00	6,934.08	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	86,676.00	17,335.20	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	85,494.29	21,373.57	98.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	81,845.42	20,461.35	94.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	70,265.05	17,566.26	81.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	73,777.86	18,444.46	85.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	84,525.72	21,131.43	97.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	82,304.02	20,576.01	95.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	75,247.85	18,811.96	86.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	75,126.74	18,781.68	86.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	75,613.30	18,903.32	87.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	83,555.39	20,888.85	96.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	81,622.25	20,405.56	94.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	76,981.87	19,245.47	88.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	76,210.19	19,052.55	87.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	76,737.89	19,184.47	88.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	75,088.94	18,772.24	86.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	77,231.79	19,307.95	89.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	77,376.86	19,344.21	89.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	74,130.40	18,532.60	85.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	71,811.75	17,952.94	82.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	71,946.13	17,986.53	83.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	2.60	0.65	0.0%	2.60	0.65	0.0%
2:00 PM	71,683.77	17,920.94	82.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	95.57	23.89	0.1%	95.57	23.89	0.1%
2:15 PM	72,530.77	18,132.69	83.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	56.65	14.16	0.1%	56.65	14.16	0.1%
2:30 PM	74,951.02	18,737.76	86.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	78,340.78	19,585.20	90.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	80,614.49	20,153.62	93.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	81,100.30	20,275.08	93.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	82,305.51	20,576.38	95.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	86,447.44	19,882.91	99.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:57 PM	86,676.00	9,534.36	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



NOVEMBER 22

Mirror date: January 18
Analysis hours: 7:57 AM-3:54 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:57 AM	86,676.00	1,733.52	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	86,676.00	13,001.40	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	85,772.81	21,443.20	99.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	83,356.46	20,839.11	96.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	72,936.06	18,234.02	84.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	74,814.13	18,703.53	86.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	86,499.64	21,624.91	99.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	78,381.37	19,595.34	90.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	75,229.46	18,807.36	86.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	75,967.61	18,991.90	87.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	83,273.06	20,818.26	96.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	82,030.89	20,507.72	94.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	77,439.27	19,359.82	89.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	77,344.82	19,336.20	89.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	77,911.15	19,477.79	89.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	75,789.94	18,947.49	87.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	78,420.47	19,605.12	90.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	80,672.72	20,168.18	93.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	78,612.62	19,653.15	90.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	74,871.06	18,717.77	86.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	74,100.22	18,525.05	85.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	72,954.82	18,238.71	84.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	72,673.33	18,168.33	83.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	74,178.33	18,544.58	85.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	77,733.67	19,433.42	89.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	81,227.91	20,306.98	93.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	82,789.28	20,697.32	95.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	85,243.25	21,310.81	98.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	86,676.00	17,335.20	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:54 PM	86,676.00	6,934.08	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%

NOVEMBER 29

Mirror date: January 11
Analysis hours: 8:04 AM-3:51 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:04 AM	86,676.00	7,800.84	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	86,676.00	18,201.96	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	85,616.70	21,404.17	98.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	83,556.04	20,889.01	96.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	75,439.26	18,859.81	87.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	75,222.40	18,805.60	86.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	81,713.08	20,428.27	94.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	75,006.38	18,751.59	86.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	76,196.63	19,049.16	87.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	82,547.35	20,636.84	95.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	82,852.90	20,713.23	95.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	78,381.74	19,595.43	90.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	77,701.45	19,425.36	89.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	79,325.32	19,831.33	91.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	77,418.28	19,354.57	89.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	78,645.31	19,661.33	90.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	83,293.77	20,823.44	96.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	82,350.00	20,587.50	95.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	77,884.68	19,471.17	89.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	75,645.62	18,911.40	87.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	73,674.58	18,418.65	85.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	73,059.95	18,264.99	84.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	74,122.88	18,530.72	85.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	77,708.41	19,427.10	89.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	82,596.85	20,649.21	95.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	84,420.31	21,105.08	97.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	86,676.00	15,601.68	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:51 PM	86,676.00	4,333.80	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



DECEMBER 6

Mirror date: January 4
Analysis hours: 8:10 AM-3:51 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:10 AM	86,676.00	3,467.04	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	86,676.00	14,734.92	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	85,641.68	21,410.42	98.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	84,459.22	21,114.81	97.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	78,273.45	19,568.36	90.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	74,930.04	18,732.51	86.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	83,913.78	20,978.45	96.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	74,488.06	18,622.01	85.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	76,947.78	19,236.95	88.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	81,427.21	20,356.80	93.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	84,026.25	21,006.56	96.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	78,744.50	19,686.12	90.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	78,679.67	19,669.92	90.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	80,492.64	20,123.16	92.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	79,781.88	19,945.47	92.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	78,933.86	19,733.47	91.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	84,602.34	21,150.59	97.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	84,822.82	21,205.71	97.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	80,630.09	20,157.52	93.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	77,335.71	19,333.93	89.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	74,647.70	18,661.93	86.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	73,647.74	18,411.94	85.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	74,305.93	18,576.48	85.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	77,685.56	19,421.39	89.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	84,518.29	21,129.57	97.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	85,257.37	21,314.34	98.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	86,676.00	14,734.92	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:51 PM	86,676.00	4,333.80	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%

DECEMBER 13

Mirror date: December 28
Analysis hours: 8:15 AM-3:52 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:15 AM	86,676.00	10,401.12	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	85,814.42	21,453.61	99.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	84,953.77	21,238.44	98.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	80,188.20	20,047.05	92.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	74,117.68	18,529.42	85.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	85,549.08	21,387.27	98.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	86,016.70	21,504.17	99.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	74,655.23	18,663.81	86.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	77,469.73	19,367.43	89.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	79,935.87	19,983.97	92.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	85,188.55	21,297.14	98.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	79,736.84	19,934.21	92.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	77,781.97	19,445.49	89.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	80,850.29	20,212.57	93.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	80,893.94	20,223.49	93.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	79,489.06	19,872.26	91.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	84,022.17	21,005.54	96.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	85,939.71	21,484.93	99.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	82,791.42	20,697.85	95.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	78,966.37	19,741.59	91.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	75,714.53	18,928.63	87.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	74,162.82	18,540.70	85.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	74,446.36	18,611.59	85.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	77,149.88	19,287.47	89.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	85,034.94	21,258.74	98.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	85,312.35	21,328.09	98.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	86,676.00	15,601.68	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:52 PM	86,676.00	5,200.56	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



DECEMBER 20

Winter solstice (December 21 similar)
Analysis hours: 8:19 AM-3:54 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:19 AM	86,676.00	6,934.08	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	86,676.00	18,201.96	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	86,590.65	21,647.66	99.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	85,236.94	21,309.23	98.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	81,508.38	20,377.10	94.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	72,930.49	18,232.62	84.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	82,781.02	20,695.25	95.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	76,902.65	19,225.66	88.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	77,521.92	19,380.48	89.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	78,203.79	19,550.95	90.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	85,353.68	21,338.42	98.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	80,482.79	20,120.70	92.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	77,059.79	19,264.95	88.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	80,724.17	20,181.04	93.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	81,302.86	20,325.71	93.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	79,243.69	19,810.92	91.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	82,957.10	20,739.28	95.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	86,291.79	21,572.95	99.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	84,018.82	21,004.71	96.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	80,349.52	20,087.38	92.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	76,714.12	19,178.53	88.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	74,675.47	18,668.87	86.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	74,385.90	18,596.47	85.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	76,348.48	19,087.12	88.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	84,167.51	21,041.88	97.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	85,087.51	21,271.88	98.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	86,676.00	21,669.00	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	86,676.00	18,201.96	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:54 PM	86,676.00	6,934.08	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%

EXHIBIT H: QUANTITATIVE SHADOW DATA

Quantitative Shadow Data for Sue Bierman Park

Shadow data for existing conditions, net new shadow from project, and cumulative condition shadow



JUNE 21

Summer solstice
Analysis hours: 6:46 AM-7:36 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
6:46 AM	3,163.42	347.98	1.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 AM	60.42	13.90	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 AM	50.84	12.71	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	40.53	10.13	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	31.69	7.92	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	22.11	5.53	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	12.53	3.13	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	3.68	0.92	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	10.32	2.58	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	72.21	18.05	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	2,395.59	598.90	1.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	6,544.22	1,636.06	3.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	11,272.78	2,818.19	6.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	15,215.08	3,803.77	8.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	18,938.53	4,734.63	10.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	20,989.27	5,247.32	11.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	22,286.17	5,571.54	12.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	21,743.83	5,435.96	12.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	21,256.02	5,314.00	12.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	20,234.70	5,058.68	11.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	20,371.76	5,092.94	11.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	19,268.65	4,817.16	10.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	19,951.00	4,987.75	11.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	20,965.69	5,241.42	11.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	24,289.75	6,072.44	13.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	23,434.23	5,858.56	13.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	23,261.80	5,815.45	13.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	19,856.68	4,964.17	11.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	18,658.52	4,664.63	10.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	14,969.70	3,742.43	8.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	13,233.61	3,308.40	7.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	8,598.64	2,149.66	4.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	6,063.78	1,515.94	3.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	3,158.26	789.57	1.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	784.78	196.19	0.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	144.43	36.11	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	141.48	35.37	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	134.11	33.53	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	4,418.33	1,104.58	2.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	11,627.22	2,906.80	6.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	18,292.29	4,573.07	10.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	24,266.90	6,066.73	13.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	29,389.69	7,347.42	16.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	32,911.23	8,227.81	18.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	32,288.57	8,072.14	18.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	32,684.28	8,171.07	18.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:15 PM	42,377.18	10,594.30	23.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:30 PM	61,835.95	15,458.99	34.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:45 PM	94,547.49	23,636.87	53.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 PM	135,990.31	33,997.58	76.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 PM	173,982.33	52,194.70	98.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:36 PM	176,552.57	31,779.46	99.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



JUNE 28

Mirror date: June 14
Analysis hours: 6:48 AM-7:36 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
6:48 AM	3,145.74	314.57	1.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 AM	61.16	13.46	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 AM	51.58	12.90	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	41.27	10.32	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	31.69	7.92	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	22.11	5.53	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	12.53	3.13	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	3.68	0.92	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	8.84	2.21	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	55.27	13.82	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	2,334.43	583.61	1.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	6,436.64	1,609.16	3.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	11,238.88	2,809.72	6.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	15,257.82	3,814.46	8.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	19,082.22	4,770.56	10.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	21,315.70	5,328.93	12.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	22,797.57	5,699.39	12.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	22,313.44	5,578.36	12.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	21,797.62	5,449.41	12.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	20,709.99	5,177.50	11.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	20,827.15	5,206.79	11.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	19,741.73	4,935.43	11.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	20,312.81	5,078.20	11.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	21,222.12	5,305.53	12.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	24,660.40	6,165.10	13.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	24,201.32	6,050.33	13.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	23,995.73	5,998.93	13.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	20,679.78	5,169.94	11.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	19,466.14	4,866.53	11.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	15,820.80	3,955.20	8.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	14,185.66	3,546.42	8.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	9,608.17	2,402.04	5.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	6,721.07	1,680.27	3.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	3,732.29	933.07	2.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	1,304.28	326.07	0.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	146.64	36.66	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	145.17	36.29	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	133.38	33.34	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	3,959.99	990.00	2.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	11,110.66	2,777.67	6.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	17,999.75	4,499.94	10.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	24,143.11	6,035.78	13.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	29,391.16	7,347.79	16.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	33,112.40	8,278.10	18.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	32,872.92	8,218.23	18.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	32,940.71	8,235.18	18.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:15 PM	41,151.02	10,287.75	23.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:30 PM	59,945.86	14,986.46	33.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:45 PM	90,817.41	22,704.35	51.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 PM	132,941.11	33,235.28	74.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 PM	171,999.39	51,599.82	96.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:36 PM	176,721.31	31,809.84	99.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



JULY 5

Mirror date: June 7
Analysis hours: 6:52 AM-7:36 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
6:52 AM	3,075.73	184.54	1.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 AM	150.32	28.56	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 AM	50.11	12.53	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	39.79	9.95	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	30.21	7.55	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	21.37	5.34	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	11.05	2.76	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	2.21	0.55	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	11.05	2.76	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	195.27	48.82	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	2,880.46	720.12	1.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	7,172.78	1,793.20	4.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	12,112.82	3,028.20	6.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	16,244.50	4,061.13	9.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	20,106.49	5,026.62	11.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	22,746.72	5,686.68	12.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	24,469.55	6,117.39	13.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	23,914.68	5,978.67	13.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	23,349.49	5,837.37	13.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	22,138.06	5,534.52	12.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	22,185.22	5,546.31	12.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	21,101.27	5,275.32	11.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	21,610.46	5,402.61	12.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	22,555.87	5,638.97	12.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	26,185.00	6,546.25	14.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	26,208.58	6,552.15	14.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	25,974.99	6,493.75	14.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	22,722.41	5,680.60	12.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	21,522.03	5,380.51	12.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	17,942.27	4,485.57	10.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	16,437.56	4,109.39	9.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	11,976.50	2,994.12	6.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	8,781.39	2,195.35	4.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	5,037.31	1,259.33	2.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	2,436.12	609.03	1.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	159.90	39.98	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	150.32	37.58	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	140.74	35.19	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	3,992.41	998.10	2.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	11,151.19	2,787.80	6.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	18,618.73	4,654.68	10.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	25,025.15	6,256.29	14.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	30,428.69	7,607.17	17.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	34,370.99	8,592.75	19.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	34,214.04	8,553.51	19.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	34,255.30	8,563.83	19.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:15 PM	40,964.59	10,241.15	23.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:30 PM	59,048.34	14,762.08	33.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:45 PM	89,503.56	22,375.89	50.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 PM	132,900.58	33,225.15	74.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 PM	171,639.06	51,491.72	96.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:36 PM	177,173.75	31,891.28	99.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



JULY 12

Mirror date: May 31
Analysis hours: 6:56 AM-7:33 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
6:56 AM	2,954.89	88.65	1.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 AM	1,280.70	192.10	0.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 AM	47.16	11.79	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	36.84	9.21	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	27.26	6.82	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	17.69	4.42	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	7.37	1.84	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	4.42	1.11	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	14.74	3.68	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	750.14	187.54	0.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	4,135.37	1,033.84	2.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	8,743.07	2,185.77	4.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	13,866.59	3,466.65	7.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	18,006.38	4,501.59	10.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	22,060.69	5,515.17	12.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	25,088.53	6,272.13	14.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	27,271.16	6,817.79	15.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	26,576.28	6,644.07	15.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	25,876.25	6,469.06	14.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	24,476.18	6,119.04	13.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	24,421.65	6,105.41	13.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	23,325.17	5,831.29	13.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	23,824.04	5,956.01	13.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	24,951.47	6,237.87	14.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	28,877.56	7,219.39	16.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	29,411.06	7,352.76	16.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	29,153.15	7,288.29	16.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	25,952.88	6,488.22	14.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	24,739.24	6,184.81	13.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	21,322.34	5,330.58	12.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	20,030.59	5,007.65	11.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	15,771.42	3,942.86	8.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	12,776.75	3,194.19	7.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	7,146.99	1,786.75	4.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	4,273.16	1,068.29	2.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	900.47	225.12	0.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	164.32	41.08	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	152.53	38.13	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	4,527.39	1,131.85	2.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	11,804.07	2,951.02	6.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	20,189.75	5,047.44	11.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	26,955.78	6,738.94	15.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	32,664.38	8,166.10	18.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	36,841.01	9,210.25	20.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	36,301.62	9,075.40	20.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	36,737.11	9,184.28	20.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:15 PM	42,094.22	10,523.56	23.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:30 PM	59,327.62	14,831.90	33.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:45 PM	90,756.99	22,689.25	51.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 PM	135,999.89	33,999.97	76.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 PM	171,712.74	48,079.57	96.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:33 PM	177,576.09	26,636.41	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



JULY 19

Mirror date: May 24
Analysis hours: 7:01 AM-7:30 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:01 AM	2,785.40	362.10	1.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:16 AM	42.74	10.26	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	33.90	8.14	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	23.58	5.90	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	13.26	3.32	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	4.42	1.11	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	8.84	2.21	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	33.16	8.29	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	2,106.74	526.68	1.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	6,309.90	1,577.47	3.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	11,162.98	2,790.75	6.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	16,219.45	4,054.86	9.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	20,707.78	5,176.94	11.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	25,255.06	6,313.76	14.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	28,415.53	7,103.88	16.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	31,013.77	7,753.44	17.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	30,340.26	7,585.07	17.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	29,385.27	7,346.32	16.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	27,712.55	6,928.14	15.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	27,532.02	6,883.00	15.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	26,384.70	6,596.17	14.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	26,979.36	6,744.84	15.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	28,470.06	7,117.52	16.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	32,787.44	8,196.86	18.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	33,784.44	8,446.11	19.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	33,501.47	8,375.37	18.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	30,356.47	7,589.12	17.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	29,093.46	7,273.37	16.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	25,927.09	6,481.77	14.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	24,983.89	6,245.97	14.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	21,087.27	5,271.82	11.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	18,444.82	4,611.21	10.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	11,809.23	2,952.31	6.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	6,796.97	1,699.24	3.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	2,759.61	689.90	1.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	375.81	93.95	0.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	168.75	42.19	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	5,675.44	1,418.86	3.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	13,179.82	3,294.96	7.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	22,314.91	5,578.73	12.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	30,161.20	7,540.30	17.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	36,331.09	9,082.77	20.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	40,931.43	10,232.86	23.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	39,014.80	9,753.70	22.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	40,711.10	10,177.78	22.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:15 PM	45,197.96	11,299.49	25.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:30 PM	61,276.66	15,319.17	34.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:45 PM	95,248.27	23,812.07	53.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 PM	142,508.75	35,627.19	80.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 PM	171,462.94	42,865.74	96.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 PM	177,576.83	23,084.99	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



JULY 26

Mirror date: May 17
Analysis hours: 7:07 AM-7:25 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:07 AM	2,735.30	164.12	1.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 AM	36.84	7.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	27.26	6.82	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	17.69	4.42	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	7.37	1.84	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	5.16	1.29	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	15.47	3.87	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	1,010.26	252.57	0.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	4,491.28	1,122.82	2.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	9,338.47	2,334.62	5.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	14,232.82	3,558.21	8.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	19,564.14	4,891.04	11.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	24,660.40	6,165.10	13.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	29,590.86	7,397.71	16.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	33,139.67	8,284.92	18.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	35,966.34	8,991.58	20.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	35,252.30	8,813.07	19.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	33,946.55	8,486.64	19.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	31,912.03	7,978.01	18.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	31,554.64	7,888.66	17.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	30,354.26	7,588.57	17.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	31,066.09	7,766.52	17.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	33,147.04	8,286.76	18.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	37,944.86	9,486.21	21.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	39,366.30	9,841.57	22.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	39,004.49	9,751.12	22.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	35,897.07	8,974.27	20.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	34,661.32	8,665.33	19.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	31,840.55	7,960.14	17.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	31,373.37	7,843.34	17.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	28,153.94	7,038.49	15.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	25,696.45	6,424.11	14.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	18,712.31	4,678.08	10.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	12,442.20	3,110.55	7.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	5,408.69	1,352.17	3.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	2,055.89	513.97	1.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	733.93	183.48	0.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	7,440.27	1,860.07	4.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	15,289.51	3,822.38	8.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	24,790.09	6,197.52	14.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	34,754.17	8,688.54	19.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	41,528.30	10,382.07	23.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	46,207.48	11,551.87	26.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	42,219.49	10,554.87	23.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	46,502.97	11,625.74	26.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:15 PM	51,493.85	12,873.46	29.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:30 PM	65,402.45	16,350.61	36.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:45 PM	102,743.80	25,685.95	57.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 PM	150,204.71	37,551.18	84.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 PM	173,216.71	36,375.51	97.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:25 PM	177,576.83	15,981.91	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



AUGUST 2

Mirror date: May 10
Analysis hours: 7:12 AM-7:18 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:12 AM	2,481.07	49.62	1.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 AM	990.37	148.55	0.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	21.37	5.34	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	10.32	2.58	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	3.68	0.92	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	12.53	3.13	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	433.28	108.32	0.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	3,503.86	875.97	2.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	8,015.77	2,003.94	4.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	13,128.24	3,282.06	7.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	17,951.11	4,487.78	10.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	23,978.05	5,994.51	13.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	29,688.13	7,422.03	16.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	35,089.45	8,772.36	19.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	39,078.18	9,769.54	22.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	42,204.02	10,551.00	23.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	40,969.75	10,242.44	23.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	38,986.80	9,746.70	22.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	36,587.52	9,146.88	20.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	36,098.24	9,024.56	20.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	34,843.33	8,710.83	19.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	35,935.39	8,983.85	20.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	38,986.07	9,746.52	22.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	44,355.70	11,088.93	25.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	46,055.69	11,513.92	25.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	45,621.66	11,405.42	25.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	42,487.72	10,621.93	23.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	41,341.87	10,335.47	23.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	39,057.54	9,764.39	22.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	39,248.40	9,812.10	22.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	36,933.12	9,233.28	20.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	34,544.16	8,636.04	19.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	27,047.15	6,761.79	15.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	20,466.08	5,116.52	11.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	11,666.27	2,916.57	6.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	4,539.18	1,134.79	2.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	3,505.33	876.33	2.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	9,981.77	2,495.44	5.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	18,546.51	4,636.63	10.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	28,193.00	7,048.25	15.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	39,173.97	9,793.49	22.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	48,179.37	12,044.84	27.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	49,930.93	12,482.73	28.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	47,519.86	11,879.97	26.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	54,870.23	13,717.56	30.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:15 PM	61,267.08	15,316.77	34.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:30 PM	76,407.74	19,101.93	43.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:45 PM	115,412.96	28,853.24	65.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:00 PM	155,481.51	38,870.38	87.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:15 PM	176,097.91	26,414.69	99.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:18 PM	177,573.88	5,327.22	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



AUGUST 9

Mirror date: May 3
Analysis hours: 7:19 AM-7:10 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:19 AM	1,982.94	178.46	1.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	12.53	2.63	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	2.95	0.74	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	10.32	2.58	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	212.22	53.06	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	2,940.88	735.22	1.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	7,377.63	1,844.41	4.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	12,271.25	3,067.81	6.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	17,207.60	4,301.90	9.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	22,761.46	5,690.37	12.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	29,321.90	7,330.47	16.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	35,726.11	8,931.53	20.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	41,736.10	10,434.02	23.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	46,236.22	11,559.06	26.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	49,437.22	12,359.31	27.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	47,614.92	11,903.73	26.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	44,805.20	11,201.30	25.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	41,998.43	10,499.61	23.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	41,401.56	10,350.39	23.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	40,110.54	10,027.64	22.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	42,010.22	10,502.55	23.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	45,908.31	11,477.08	25.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	51,988.30	12,997.07	29.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	53,683.86	13,420.96	30.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	53,290.36	13,322.59	30.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	50,103.36	12,525.84	28.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	49,220.58	12,305.15	27.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	47,522.81	11,880.70	26.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	48,507.28	12,126.82	27.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	47,190.48	11,797.62	26.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	44,833.94	11,208.48	25.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	37,185.87	9,296.47	20.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	30,433.11	7,608.28	17.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	21,096.11	5,274.03	11.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	12,885.07	3,221.27	7.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	8,009.88	2,002.47	4.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	12,766.43	3,191.61	7.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	22,787.99	5,697.00	12.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	32,247.31	8,061.83	18.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	42,112.64	10,528.16	23.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	55,867.97	13,966.99	31.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	53,648.49	13,412.12	30.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	57,210.56	14,302.64	32.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	66,000.79	16,500.20	37.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:15 PM	74,704.07	18,676.02	42.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:30 PM	92,044.31	23,011.08	51.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:45 PM	123,923.92	42,134.13	69.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:10 PM	176,812.68	37,130.66	99.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



AUGUST 16

Mirror date: April 26
Analysis hours: 7:25 AM-7:02 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:25 AM	1,036.05	41.44	0.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:30 AM	3.68	0.63	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	10.32	2.58	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	120.85	30.21	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	2,677.82	669.45	1.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	6,992.98	1,748.25	3.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	11,994.18	2,998.55	6.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	16,681.47	4,170.37	9.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	22,351.02	5,587.75	12.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	28,407.43	7,101.86	16.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	35,519.05	8,879.76	20.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	42,680.04	10,670.01	24.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	49,446.07	12,361.52	27.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	54,501.79	13,625.45	30.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	56,948.97	14,237.24	32.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	53,461.32	13,365.33	30.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	49,844.72	12,461.18	28.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	47,115.32	11,778.83	26.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	46,566.34	11,641.59	26.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	46,377.70	11,594.43	26.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	49,692.18	12,423.05	28.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	54,529.06	13,632.26	30.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	61,425.51	15,356.38	34.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	62,821.16	15,705.29	35.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	62,085.02	15,521.25	35.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	58,764.64	14,691.16	33.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	58,232.61	14,558.15	32.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	57,170.77	14,292.69	32.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	59,043.92	14,760.98	33.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	57,917.23	14,479.31	32.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	55,580.59	13,895.15	31.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	48,460.12	12,115.03	27.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	41,909.27	10,477.32	23.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	32,517.00	8,129.25	18.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	25,445.17	6,361.29	14.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	20,850.73	5,212.68	11.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	18,481.67	4,620.42	10.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	25,848.98	6,462.25	14.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	36,199.19	9,049.80	20.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	44,926.05	11,231.51	25.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	53,913.76	13,478.44	30.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	59,377.72	14,844.43	33.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	70,282.06	17,570.52	39.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	81,543.05	20,385.76	45.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:15 PM	95,349.95	23,837.49	53.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:30 PM	110,013.11	27,503.28	62.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:45 PM	124,651.95	33,656.03	70.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:02 PM	168,352.57	23,569.36	94.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



AUGUST 23

Mirror date: April 19
Analysis hours: 7:31 AM-6:52 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:31 AM	465.71	51.23	0.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	133.38	30.68	0.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	2,713.93	678.48	1.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	7,121.20	1,780.30	4.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	11,991.23	2,997.81	6.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	16,797.90	4,199.47	9.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	22,188.17	5,547.04	12.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	28,396.38	7,099.09	16.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	34,973.02	8,743.26	19.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	42,702.88	10,675.72	24.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	50,691.39	12,672.85	28.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	58,297.46	14,574.36	32.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	62,810.11	15,702.53	35.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	61,830.79	15,457.70	34.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	57,405.10	14,351.27	32.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	53,498.90	13,374.73	30.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	50,859.40	12,714.85	28.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	50,779.82	12,694.95	28.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	52,630.86	13,157.71	29.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	58,640.84	14,660.21	33.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	64,871.16	16,217.79	36.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	72,769.03	18,192.26	41.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	73,416.75	18,354.19	41.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	71,803.72	17,950.93	40.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	68,397.12	17,099.28	38.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	68,578.40	17,144.60	38.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	68,324.91	17,081.23	38.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	70,240.06	17,560.01	39.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	68,757.46	17,189.36	38.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	66,800.31	16,700.08	37.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	60,513.99	15,128.50	34.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	54,285.89	13,571.47	30.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	45,168.48	11,292.12	25.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	40,808.37	10,202.09	23.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	36,255.19	9,063.80	20.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	33,552.32	8,388.08	18.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	30,997.56	7,749.39	17.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	37,102.60	9,275.65	20.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	48,085.05	12,021.26	27.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	50,699.50	12,674.87	28.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	70,265.85	17,566.46	39.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	87,142.59	21,785.65	49.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	102,012.08	25,503.02	57.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:15 PM	120,027.30	30,006.83	67.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:30 PM	120,763.44	30,190.86	68.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:45 PM	130,855.00	24,862.45	73.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:52 PM	154,962.01	9,297.72	87.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



AUGUST 30

Mirror date: April 12
Analysis hours: 7:37 AM-6:42 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:37 AM	1,363.23	81.79	0.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	2,951.20	560.73	1.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	7,387.95	1,846.99	4.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	12,350.83	3,087.71	7.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	16,991.70	4,247.92	9.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	22,515.34	5,628.84	12.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	28,398.59	7,099.65	16.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	35,135.87	8,783.97	19.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	42,266.65	10,566.66	23.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	50,661.18	12,665.30	28.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	59,505.20	14,876.30	33.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	67,277.81	16,819.45	37.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	68,808.30	17,202.08	38.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	66,095.11	16,523.78	37.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	60,995.17	15,248.79	34.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	56,722.75	14,180.69	31.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	53,784.81	13,446.20	30.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	56,111.14	14,027.78	31.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	61,116.76	15,279.19	34.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	69,712.45	17,428.11	39.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	76,919.13	19,229.78	43.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	85,992.33	21,498.08	48.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	85,016.70	21,254.17	47.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	82,629.95	20,657.49	46.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	79,386.94	19,846.74	44.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	80,445.84	20,111.46	45.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	81,071.45	20,267.86	45.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	82,394.14	20,598.54	46.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	80,382.46	20,095.62	45.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	78,748.80	19,687.20	44.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	73,096.94	18,274.24	41.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	67,390.55	16,847.64	38.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	60,283.35	15,070.84	33.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	57,135.40	14,283.85	32.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	52,580.75	13,145.19	29.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	50,299.37	12,574.84	28.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	45,307.02	11,326.75	25.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	42,175.28	10,543.82	23.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	44,683.62	11,170.90	25.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	56,939.39	14,234.85	32.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	81,379.46	20,344.87	45.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	111,010.11	27,752.53	62.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	130,171.92	32,542.98	73.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:15 PM	128,334.88	32,083.72	72.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:30 PM	126,707.85	29,142.80	71.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:42 PM	150,061.02	16,506.71	84.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



SEPTEMBER 6

Mirror date: April 5
Analysis hours: 7:44 AM-6:31 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:44 AM	7,933.24	1,031.32	<div></div> 4.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	13,591.00	3,397.75	<div></div> 7.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	18,242.92	4,560.73	<div></div> 10.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	23,360.54	5,840.14	<div></div> 13.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	29,142.83	7,285.71	<div></div> 16.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	35,381.99	8,845.50	<div></div> 19.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	42,558.46	10,639.61	<div></div> 24.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	50,219.05	12,554.76	<div></div> 28.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	59,239.19	14,809.80	<div></div> 33.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	66,607.25	16,651.81	<div></div> 37.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	68,991.79	17,247.95	<div></div> 38.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	67,722.14	16,930.54	<div></div> 38.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	64,522.61	16,130.65	<div></div> 36.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	61,040.86	15,260.22	<div></div> 34.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	58,270.19	14,567.55	<div></div> 32.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	57,564.26	14,391.07	<div></div> 32.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	62,740.84	15,685.21	<div></div> 35.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	70,307.12	17,576.78	<div></div> 39.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	81,173.14	20,293.28	<div></div> 45.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	90,843.20	22,710.80	<div></div> 51.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	100,222.20	25,055.55	<div></div> 56.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	97,999.04	24,499.76	<div></div> 55.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	94,941.72	23,735.43	<div></div> 53.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	92,187.27	23,046.82	<div></div> 51.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	93,960.20	23,490.05	<div></div> 52.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	94,176.11	23,544.03	<div></div> 53.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	94,882.77	23,720.69	<div></div> 53.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	92,878.46	23,219.62	<div></div> 52.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	91,768.72	22,942.18	<div></div> 51.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	86,942.90	21,735.72	<div></div> 49.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	82,044.13	20,511.03	<div></div> 46.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	77,329.57	19,332.39	<div></div> 43.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	74,578.07	18,644.52	<div></div> 42.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	70,037.42	17,509.35	<div></div> 39.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	66,609.46	16,652.36	<div></div> 37.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	60,641.47	15,160.37	<div></div> 34.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	55,037.51	13,759.38	<div></div> 31.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	49,759.24	12,439.81	<div></div> 28.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	65,854.89	16,463.72	<div></div> 37.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	98,791.92	24,697.98	<div></div> 55.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	134,911.52	33,727.88	<div></div> 76.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	139,403.54	34,850.88	<div></div> 78.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:15 PM	133,771.57	36,118.32	<div></div> 75.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:31 PM	150,015.34	21,002.15	<div></div> 84.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



SEPTEMBER 13

Mirror date: March 29
Analysis hours: 7:50 AM-6:21 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:50 AM	23,516.76	1,881.34	13.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	25,482.02	5,351.22	14.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	28,827.45	7,206.86	16.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	32,588.48	8,147.12	18.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	37,812.22	9,453.05	21.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	43,425.03	10,856.26	24.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	50,490.22	12,622.56	28.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	58,709.37	14,677.34	33.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	66,399.45	16,599.86	37.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	69,021.26	17,255.32	38.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	67,941.73	16,985.43	38.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	66,008.90	16,502.22	37.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	62,781.37	15,695.34	35.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	60,686.42	15,171.61	34.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	60,046.81	15,011.70	33.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	63,264.76	15,816.19	35.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	70,890.72	17,722.68	39.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	79,858.54	19,964.64	45.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	90,673.72	22,668.43	51.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	100,402.73	25,100.68	56.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	107,245.39	26,811.35	60.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	106,329.45	26,582.36	59.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	104,401.78	26,100.44	58.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	104,857.91	26,214.48	59.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	107,438.46	26,859.61	60.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	107,652.89	26,913.22	60.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	108,123.75	27,030.94	60.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	106,084.81	26,521.20	59.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	105,346.46	26,336.61	59.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	102,054.82	25,513.70	57.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	99,790.39	24,947.60	56.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	95,229.11	23,807.28	53.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	92,569.71	23,142.43	52.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	88,116.01	22,029.00	49.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	83,208.40	20,802.10	46.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	75,995.09	18,998.77	42.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	69,417.70	17,354.43	39.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	69,828.14	17,457.04	39.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	82,486.99	20,621.75	46.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	112,811.04	28,202.76	63.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	136,102.32	34,025.58	76.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	145,487.21	36,371.80	81.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:15 PM	141,903.03	25,542.55	79.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:21 PM	150,019.02	7,500.95	84.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



SEPTEMBER 20

Fall equinox (Spring equinox on March 22 similar)
Analysis hours: 7:57 AM-6:09 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:57 AM	39,637.47	792.75	22.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	39,874.74	5,981.21	22.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	41,573.99	10,393.50	23.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	43,505.35	10,876.34	24.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	47,116.05	11,779.01	26.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	51,636.07	12,909.02	29.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	58,805.91	14,701.48	33.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	65,975.74	16,493.93	37.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	69,008.00	17,252.00	38.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	68,218.80	17,054.70	38.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	66,376.60	16,594.15	37.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	64,140.17	16,035.04	36.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	61,827.85	15,456.96	34.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	61,692.26	15,423.07	34.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	64,258.07	16,064.52	36.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	70,515.65	17,628.91	39.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	79,969.81	19,992.45	45.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	89,030.48	22,257.62	50.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	98,766.13	24,691.53	55.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	108,199.65	27,049.91	60.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	111,787.52	27,946.88	63.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	109,420.66	27,355.17	61.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	107,565.20	26,891.30	60.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	109,401.50	27,350.38	61.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	113,519.18	28,379.80	63.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	116,770.30	29,192.57	65.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	119,289.69	29,822.42	67.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	119,194.63	29,798.66	67.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	119,951.40	29,987.85	67.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	119,361.90	29,840.47	67.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	118,478.38	29,619.60	66.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	113,866.99	28,466.75	64.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	111,600.35	27,900.09	62.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	106,792.21	26,698.05	60.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	100,760.86	25,190.21	56.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	92,411.28	23,102.82	52.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	88,693.72	22,173.43	49.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	91,295.65	22,823.91	51.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	102,331.15	25,582.79	57.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	113,188.33	28,297.08	63.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	126,188.35	31,547.09	71.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
6:00 PM	139,034.36	29,197.22	78.3%	344.12	72.27	0.2%	314.65	66.08	0.2%	344.12	72.27	0.2%	314.65	66.08	0.2%
6:09 PM	150,817.06	12,065.36	84.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



SEPTEMBER 27

Mirror date: March 15
Analysis hours: 8:03 AM-5:58 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:03 AM	51,832.08	5,183.21	29.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	53,713.33	11,816.93	30.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	54,371.37	13,592.84	30.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	56,340.31	14,085.08	31.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	59,986.39	14,996.60	33.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	65,906.47	16,476.62	37.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	68,954.21	17,238.55	38.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	68,358.81	17,089.70	38.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	66,792.94	16,698.23	37.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	64,597.04	16,149.26	36.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	62,300.92	15,575.23	35.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	61,718.79	15,429.70	34.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	63,269.92	15,817.48	35.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	69,271.06	17,317.77	39.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	77,936.03	19,484.01	43.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	88,157.28	22,039.32	49.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	97,507.54	24,376.88	54.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	106,665.47	26,666.37	60.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	115,295.06	28,823.77	64.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	115,015.05	28,753.76	64.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	111,179.59	27,794.90	62.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	110,623.25	27,655.81	62.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	113,651.09	28,412.77	64.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	119,557.91	29,889.48	67.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	125,055.03	31,263.76	70.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	130,031.91	32,507.98	73.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	131,991.27	32,997.82	74.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	134,338.97	33,584.74	75.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	135,572.50	33,893.13	76.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	136,377.91	34,094.48	76.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	133,529.88	33,382.47	75.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	132,582.99	33,145.75	74.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	126,564.89	31,641.22	71.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	118,935.25	29,733.81	67.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	111,010.85	27,752.71	62.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	107,021.38	26,755.35	60.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	108,268.18	27,067.05	61.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	110,839.15	27,709.79	62.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	115,075.47	28,768.87	64.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:45 PM	121,726.54	27,997.11	68.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:58 PM	132,718.57	14,599.04	74.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



OCTOBER 4

Mirror date: March 8
Analysis hours: 8:09 AM-5:47 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:09 AM	63,843.21	2,553.73	36.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	64,860.84	11,026.34	36.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	64,356.82	16,089.20	36.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	65,269.81	16,317.45	36.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	67,184.22	16,796.06	37.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	68,974.84	17,243.71	38.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	68,573.98	17,143.49	38.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	67,093.59	16,773.40	37.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	65,143.07	16,285.77	36.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	62,830.00	15,707.50	35.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	61,606.05	15,401.51	34.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	62,473.35	15,618.34	35.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	66,142.27	16,535.57	37.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	73,662.13	18,415.53	41.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	82,822.27	20,705.57	46.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	92,252.11	23,063.03	52.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	101,023.19	25,255.80	56.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	110,437.56	27,609.39	62.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	118,055.41	29,513.85	66.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	116,434.28	29,108.57	65.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	112,950.31	28,237.58	63.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	113,343.07	28,335.77	63.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	118,098.15	29,524.54	66.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	126,298.88	31,574.72	71.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	134,724.36	33,681.09	75.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	142,296.53	35,574.13	80.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	145,519.64	36,379.91	81.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	148,890.86	37,222.71	83.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	151,170.03	37,792.51	85.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	154,750.52	38,687.63	87.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	155,355.50	38,838.87	87.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	154,023.22	38,505.81	86.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	147,635.95	36,908.99	83.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	139,914.20	34,978.55	78.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	130,527.09	32,631.77	73.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	121,390.53	30,347.63	68.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	114,749.77	28,687.44	64.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	114,963.47	28,740.87	64.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	130,789.42	35,313.14	73.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:47 PM	148,563.68	20,798.92	83.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



OCTOBER 11

Mirror date: March 1
Analysis hours: 8:16 AM-5:37 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:16 AM	73,152.94	8,778.35	41.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	73,564.86	17,655.57	41.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	73,297.37	18,324.34	41.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	71,058.73	17,764.68	40.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	68,816.41	17,204.10	38.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	67,485.61	16,871.40	38.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	65,629.41	16,407.35	37.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	63,625.10	15,906.27	35.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	61,763.00	15,440.75	34.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	61,933.22	15,483.31	34.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	64,037.01	16,009.25	36.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	69,626.98	17,406.74	39.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	78,012.66	19,503.17	43.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	86,717.41	21,679.35	48.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	95,652.07	23,913.02	53.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	103,940.49	25,985.12	58.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	112,997.47	28,249.37	63.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	117,310.43	29,327.61	66.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	115,771.82	28,942.96	65.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	112,519.98	28,129.99	63.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	114,555.24	28,638.81	64.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	119,609.49	29,902.37	67.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	128,230.98	32,057.74	72.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	139,750.61	34,937.65	78.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	150,030.81	37,507.70	84.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	155,676.78	38,919.19	87.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	160,689.77	40,172.44	90.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	165,400.64	41,350.16	93.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	172,266.14	43,066.53	97.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	175,996.96	43,999.24	99.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	172,510.78	43,127.70	97.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	167,343.05	41,835.76	94.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	162,439.12	40,609.78	91.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	148,841.49	37,210.37	83.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	134,590.24	33,647.56	75.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	120,260.15	30,065.04	67.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	124,299.73	31,074.93	70.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:30 PM	143,604.49	27,284.85	80.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:37 PM	160,213.74	9,612.82	90.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



OCTOBER 18

Mirror date: February 22
Analysis hours: 8:22 AM-5:27 PM (PDT)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:22 AM	78,860.81	4,731.65	44.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	79,531.37	14,315.65	44.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	77,633.17	19,408.29	43.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	71,948.15	17,987.04	40.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	67,905.63	16,976.41	38.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	66,234.38	16,558.60	37.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	64,259.55	16,064.89	36.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	62,239.76	15,559.94	35.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	62,399.67	15,599.92	35.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	62,687.79	15,671.95	35.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	66,658.09	16,664.52	37.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	73,186.84	18,296.71	41.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	81,856.96	20,464.24	46.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	90,046.64	22,511.66	50.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	98,417.58	24,604.40	55.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	106,456.93	26,614.23	59.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	115,058.52	28,764.63	64.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	117,276.53	29,319.13	66.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	115,341.49	28,835.37	65.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	113,149.27	28,287.32	63.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	115,506.55	28,876.64	65.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	120,582.17	30,145.54	67.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	128,880.17	32,220.04	72.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	142,143.99	35,536.00	80.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	153,045.38	38,261.35	86.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	158,658.93	39,664.73	89.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	163,045.57	40,761.39	91.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	166,224.47	41,556.12	93.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	171,311.88	42,827.97	96.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	177,495.03	44,373.76	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	175,237.97	43,809.49	98.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	170,194.77	42,548.69	95.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	165,797.08	41,449.27	93.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:30 PM	158,191.01	39,547.75	89.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:45 PM	144,592.64	36,148.16	81.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:00 PM	130,542.57	32,635.64	73.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:15 PM	133,488.61	29,367.49	75.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
5:27 PM	153,934.06	15,393.41	86.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



OCTOBER 25

Mirror date: February 15
Analysis hours: 7:30 AM-4:18 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:30 AM	80,756.06	10,498.29	45.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	78,488.69	19,622.17	44.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	71,839.82	17,959.96	40.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	67,441.39	16,860.35	38.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	65,144.54	16,286.14	36.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	62,994.33	15,748.58	35.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	62,561.78	15,640.44	35.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	68,730.19	17,182.55	38.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	65,852.68	16,463.17	37.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	69,336.65	17,334.16	39.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	76,468.16	19,117.04	43.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	84,859.74	21,214.94	47.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	92,688.35	23,172.09	52.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	100,572.95	25,143.24	56.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	108,408.93	27,102.23	61.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	116,535.23	29,133.81	65.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	117,335.48	29,333.87	66.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	115,038.63	28,759.66	64.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	113,357.81	28,339.45	63.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	115,765.93	28,941.48	65.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	120,744.28	30,186.07	68.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	130,892.58	32,723.15	73.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	144,958.87	36,239.72	81.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	156,139.54	39,034.88	87.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	161,815.72	40,453.93	91.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	165,843.50	41,460.88	93.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	168,433.63	42,108.41	94.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	169,523.48	42,380.87	95.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	176,085.38	44,021.35	99.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	176,718.36	44,179.59	99.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	172,248.45	43,062.11	97.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	168,216.99	42,054.25	94.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	163,715.39	40,928.85	92.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	152,712.31	38,178.08	86.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	148,148.08	37,037.02	83.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:15 PM	168,257.52	25,238.63	94.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:18 PM	177,532.61	5,325.98	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



NOVEMBER 1

Mirror date: February 8
Analysis hours: 7:36 AM-4:10 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:36 AM	78,964.71	5,527.53	44.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	76,924.29	14,615.62	43.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	71,919.41	17,979.85	40.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	69,283.59	17,320.90	39.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	64,484.30	16,121.07	36.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	62,258.18	15,564.55	35.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	71,380.75	17,845.19	40.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	75,751.92	18,937.98	42.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	71,156.00	17,789.00	40.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	71,777.19	17,944.30	40.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	79,195.35	19,798.84	44.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	88,543.40	22,135.85	49.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	95,688.92	23,922.23	53.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	102,281.78	25,570.44	57.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	109,839.21	27,459.80	61.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	117,503.49	29,375.87	66.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	117,319.27	29,329.82	66.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	114,903.78	28,725.95	64.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	113,421.92	28,355.48	63.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	115,727.61	28,931.90	65.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	120,330.90	30,082.72	67.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	132,882.16	33,220.54	74.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	147,764.17	36,941.04	83.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	158,826.20	39,706.55	89.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	164,949.67	41,237.42	92.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	168,667.96	42,166.99	95.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	171,628.00	42,907.00	96.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	169,298.73	42,324.68	95.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	174,289.61	43,572.40	98.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	177,481.03	44,370.26	99.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	174,542.36	43,635.59	98.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	170,074.66	42,518.67	95.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	166,598.80	41,649.70	93.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	162,056.68	40,514.17	91.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	166,056.46	34,871.86	93.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:10 PM	177,576.83	15,981.91	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



NOVEMBER 8

Mirror date: February 1
Analysis hours: 7:43 AM-4:03 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:43 AM	75,645.81	756.46	42.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
7:45 AM	75,377.58	9,799.09	42.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	74,343.74	18,585.93	41.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	74,683.44	18,670.86	42.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	67,080.32	16,770.08	37.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	62,776.21	15,694.05	35.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	80,098.77	20,024.69	45.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	83,875.27	20,968.82	47.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	74,431.43	18,607.86	41.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	73,837.50	18,459.38	41.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	82,253.40	20,563.35	46.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	95,663.13	23,915.78	53.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	103,907.33	25,976.83	58.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	109,010.96	27,252.74	61.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	113,296.65	28,324.16	63.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	119,447.38	29,861.84	67.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	117,293.48	29,323.37	66.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	115,351.80	28,837.95	65.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	114,092.48	28,523.12	64.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	115,618.55	28,904.64	65.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	119,725.18	29,931.30	67.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	134,011.06	33,502.76	75.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	150,329.25	37,582.31	84.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	161,408.22	40,352.06	90.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	167,847.81	41,961.95	94.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	170,803.43	42,700.86	96.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	172,992.70	43,248.18	97.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	172,168.13	43,042.03	97.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	172,521.84	43,130.46	97.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	176,829.63	44,207.41	99.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	176,257.08	44,064.27	99.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	172,270.56	43,067.64	97.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	169,410.00	42,352.50	95.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	166,967.98	41,741.99	94.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:00 PM	168,719.54	25,307.93	95.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
4:03 PM	173,253.56	5,197.61	97.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



NOVEMBER 15

Mirror date: January 25
Analysis hours: 7:51 AM-3:57 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:51 AM	74,752.71	5,980.22	42.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	75,264.10	15,052.82	42.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	76,462.27	19,115.57	43.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	71,389.59	17,847.40	40.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	70,038.89	17,509.72	39.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	82,526.78	20,631.70	46.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	85,738.10	21,434.53	48.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	73,537.59	18,384.40	41.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	75,933.93	18,983.48	42.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	87,206.70	21,801.68	49.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	104,449.68	26,112.42	58.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	115,212.53	28,803.13	64.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	120,887.98	30,221.99	68.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	123,241.57	30,810.39	69.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	124,256.25	31,064.06	70.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	118,378.90	29,594.73	66.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	116,647.97	29,161.99	65.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	115,681.92	28,920.48	65.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	116,765.87	29,191.47	65.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	119,186.52	29,796.63	67.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	134,076.64	33,519.16	75.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	152,024.07	38,006.02	85.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	161,946.15	40,486.54	91.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	167,511.06	41,877.76	94.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	170,135.08	42,533.77	95.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	173,784.11	43,446.03	97.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	174,943.96	43,735.99	98.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	170,777.64	42,694.41	96.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	175,167.97	43,791.99	98.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	177,253.34	44,313.33	99.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	174,644.79	43,661.20	98.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	171,914.65	42,978.66	96.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	170,437.94	39,200.73	96.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:57 PM	171,443.78	18,858.82	96.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



NOVEMBER 22

Mirror date: January 18
Analysis hours: 7:57 AM-3:54 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
7:57 AM	75,953.82	1,519.08	42.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:00 AM	76,073.93	11,411.09	42.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	77,205.78	19,301.44	43.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	77,505.69	19,376.42	43.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	74,747.55	18,686.89	42.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	83,237.13	20,809.28	46.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	84,770.58	21,192.65	47.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	73,358.53	18,339.63	41.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	78,274.99	19,568.75	44.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	92,997.10	23,249.27	52.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	112,616.51	28,154.13	63.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	126,214.88	31,553.72	71.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	132,626.46	33,156.62	74.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	133,224.07	33,306.02	75.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	128,827.85	32,206.96	72.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	120,321.32	30,080.33	67.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	117,470.33	29,367.58	66.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	116,855.77	29,213.94	65.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	118,274.27	29,568.57	66.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	118,560.91	29,640.23	66.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	132,698.68	33,174.67	74.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	152,221.55	38,055.39	85.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	161,313.90	40,328.48	90.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	166,731.44	41,682.86	93.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	169,418.10	42,354.53	95.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	175,162.07	43,790.52	98.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	177,367.55	44,341.89	99.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	170,557.32	42,639.33	96.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	173,549.78	43,387.45	97.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	177,576.09	44,394.02	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	176,473.72	44,118.43	99.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	173,860.75	43,465.19	97.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	173,560.84	34,712.17	97.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:54 PM	173,585.89	13,886.87	97.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



NOVEMBER 29

Mirror date: January 11
Analysis hours: 8:04 AM-3:51 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:04 AM	76,984.71	6,928.62	43.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	77,756.23	16,328.81	43.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	78,492.37	19,623.09	44.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	77,487.27	19,371.82	43.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	83,651.26	20,912.82	47.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	87,109.43	21,777.36	49.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	77,168.93	19,292.23	43.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	80,456.89	20,114.22	45.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	96,559.91	24,139.98	54.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	117,362.75	29,340.69	66.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	134,840.78	33,710.20	75.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	142,445.38	35,611.34	80.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	140,496.33	35,124.08	79.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	132,303.71	33,075.93	74.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	121,823.81	30,455.95	68.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	118,921.25	29,730.31	67.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	118,983.14	29,745.79	67.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	120,070.04	30,017.51	67.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	117,622.86	29,405.72	66.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	130,093.07	32,523.27	73.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	149,585.74	37,396.43	84.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	160,019.94	40,004.99	90.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	165,544.33	41,386.08	93.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	168,866.92	42,216.73	95.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	175,202.60	43,800.65	98.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	177,576.09	44,394.02	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	172,793.01	43,198.25	97.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	172,453.31	43,113.33	97.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	176,618.88	44,154.72	99.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	177,332.92	44,333.23	99.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	175,612.31	43,903.08	98.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	175,987.38	31,677.73	99.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:51 PM	176,608.57	8,830.43	99.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



DECEMBER 6

Mirror date: January 4
Analysis hours: 8:10 AM-3:51 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:10 AM	77,801.18	3,112.05	43.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:15 AM	78,111.40	13,278.94	44.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	79,448.84	19,862.21	44.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	79,260.20	19,815.05	44.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	83,767.69	20,941.92	47.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	90,558.03	22,639.51	51.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	82,825.96	20,706.49	46.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	84,929.75	21,232.44	47.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	96,830.34	24,207.59	54.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	117,870.46	29,467.61	66.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	137,521.55	34,380.39	77.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	149,430.99	37,357.75	84.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	146,205.67	36,551.42	82.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	135,325.65	33,831.41	76.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	123,416.95	30,854.24	69.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	120,004.46	30,001.11	67.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	121,032.40	30,258.10	68.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	121,849.60	30,462.40	68.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	117,068.73	29,267.18	65.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	127,917.80	31,979.45	72.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	146,144.51	36,536.13	82.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	158,532.92	39,633.23	89.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	164,153.84	41,038.46	92.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	168,368.79	42,092.20	94.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	175,231.34	43,807.84	98.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	177,576.83	44,394.21	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	174,932.91	43,733.23	98.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	171,442.31	42,860.58	96.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	175,974.85	43,993.71	99.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	177,576.09	44,394.02	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	176,866.48	44,216.62	99.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	177,058.80	30,100.00	99.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:51 PM	177,402.19	8,870.11	99.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



DECEMBER 13

Mirror date: December 28
Analysis hours: 8:15 AM-3:52 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:15 AM	78,340.57	9,400.87	44.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	79,478.31	19,869.58	44.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	80,112.77	20,028.19	45.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	83,587.15	20,896.79	47.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	93,032.47	23,258.12	52.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	87,457.98	21,864.49	49.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	89,446.82	22,361.70	50.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	96,007.99	24,002.00	54.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	115,734.98	28,933.74	65.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	135,564.40	33,891.10	76.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	151,649.73	37,912.43	85.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	150,853.17	37,713.29	85.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	138,407.28	34,601.82	77.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	125,577.48	31,394.37	70.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	118,926.40	29,731.60	67.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	122,316.05	30,579.01	68.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	122,988.82	30,747.20	69.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	119,192.42	29,798.10	67.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	125,478.00	31,369.50	70.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	142,267.79	35,566.95	80.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	157,001.69	39,250.42	88.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	162,758.19	40,689.55	91.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	167,525.80	41,881.45	94.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	175,130.39	43,782.60	98.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	177,576.83	44,394.21	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	176,949.74	44,237.44	99.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	171,794.54	42,948.63	96.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	175,302.82	43,825.70	98.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	177,310.08	44,327.52	99.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	177,402.19	44,350.55	99.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	177,576.83	31,963.83	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:52 PM	177,547.35	10,652.84	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%



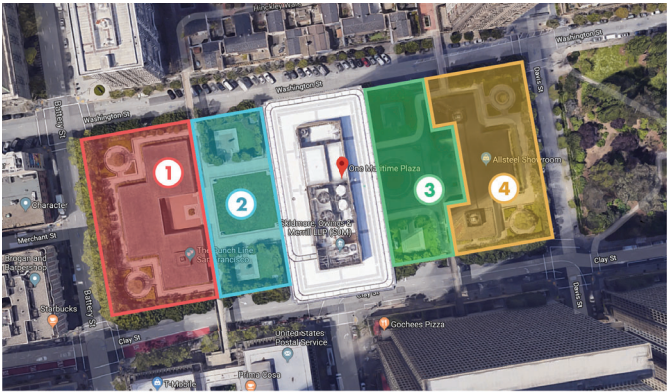
DECEMBER 20

Winter solstice (December 21 similar)
Analysis hours: 8:19 AM-3:54 PM (PST)

Analysis Time	EXISTING SHADOW			530 SANSOME PROJECT NET NEW SHADOW			530 SANSOME VARIANT NET NEW SHADOW			PROJECT CUMULATIVE NET NEW SHADOW			VARIANT CUMULATIVE NET NEW SHADOW		
	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage	Shadow Area (sf)	Area/Time (sfh)	Coverage
8:19 AM	78,543.95	6,283.52	44.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:30 AM	79,298.52	16,652.69	44.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
8:45 AM	80,633.00	20,158.25	45.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:00 AM	83,154.60	20,788.65	46.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:15 AM	92,813.62	23,203.40	52.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:30 AM	90,166.75	22,541.69	50.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
9:45 AM	90,772.46	22,693.12	51.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:00 AM	94,505.49	23,626.37	53.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:15 AM	112,043.22	28,010.80	63.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:30 AM	131,728.21	32,932.05	74.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
10:45 AM	150,999.07	37,749.77	85.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:00 AM	153,400.56	38,350.14	86.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:15 AM	141,312.79	35,328.20	79.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:30 AM	129,779.90	32,444.97	73.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
11:45 AM	118,453.33	29,613.33	66.7%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:00 PM	122,660.17	30,665.04	69.1%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:15 PM	123,512.74	30,878.18	69.6%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:30 PM	121,461.27	30,365.32	68.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
12:45 PM	122,940.92	30,735.23	69.2%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:00 PM	138,310.75	34,577.69	77.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:15 PM	155,399.71	38,849.93	87.5%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:30 PM	161,497.39	40,374.35	90.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
1:45 PM	166,584.80	41,646.20	93.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:00 PM	173,675.79	43,418.95	97.8%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:15 PM	177,576.83	44,394.21	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:30 PM	177,576.83	44,394.21	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
2:45 PM	173,005.97	43,251.49	97.4%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:00 PM	174,547.52	43,636.88	98.3%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:15 PM	177,345.45	44,336.36	99.9%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:30 PM	177,551.77	44,387.94	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:45 PM	177,576.83	37,291.13	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%
3:54 PM	177,576.83	14,206.15	100.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%	0.00	0.00	0.0%

EXHIBIT J: 2019 MARITIME PLAZA PARK USER SURVEY

Park survey data taken from the 447 Battery Street shadow study provided courtesy of Fastcast

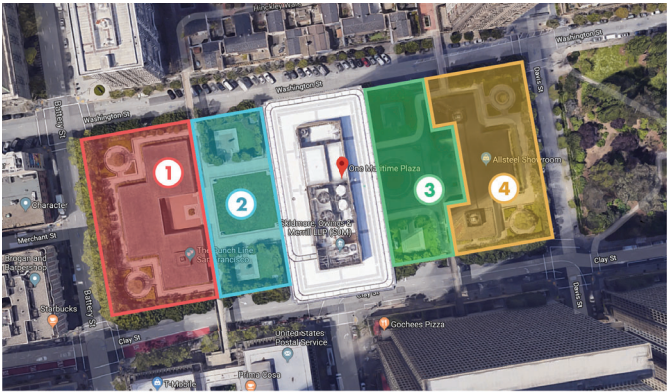


- Zone 1**
The Punch Line SF + pathway w/ trees
Corner pavilions & sitting areas
- Zone 2**
Grassy area (center)
Corner pavilions & sitting areas
- Zone 3**
Fountian & paved open space (center)
Corner pavilions & sitting areas
- Zone 4**
Office space + pathway w/ trees
Corner pavilions & sitting areas

Maritime Plaza

weather: sunny, 85° | spec: weekday (12:00 - 6:00) | date: 8/13/19

	Adults	Children		Adults	Children		Adults	Children		Adults	Children		Segment Totals
12:00	1	0	Sitting areas active	1	0	Light activity; break takers	1	0	Sitting areas active	2	0	Light activity in sitting area	5
12:15	3	0	Pavilions & sitting areas active; break takers	4	0	Light activity; break takers in sitting areas	5	0	Sitting areas active, passersby around One MP. doors	4	0	Passersby; activity in sitting area	16
12:30	9	0	Pavilions & sitting areas active	11	0	Passersby in grassy area, traffic around doors to One MP.	11	0	Pavilions & sitting areas active	7	0	Sitting areas/pavilions active, people taking breaks	38
12:45	16	0	Pavilions & sitting areas active, increased activity	14	0	Grassy area & corner pavilions active, break takers	12	0	Pavilions & sitting areas active; working groups sitting	7	0	Sitting areas/pavilions active, people taking breaks	49
1:00	11	0	Breaktakers, sitting areas & pavilions active	14	0	Grassy area & corner pavilions active, break takers	8	0	Pavilions & sitting areas active	8	0	Sitting areas/pavilions active, people taking breaks	41
1:15	9	0	Breaktakers, sitting areas & pavilions active	6	0	Sitting areas active; passersby	9	0	Pavilions & sitting areas active, traffic around doors to One MP.	10	0	Sitting areas/pavilions active, people taking breaks	34
1:30	5	0	Pavilions & sitting areas active; break takers	5	0	Corner pavilions & sitting areas active; foot traffic	12	0	Working groups sitting by fountain/paved open space	10	0	Sitting areas/pavilions active, people taking breaks	32
1:45	1	0	Sitting area active	6	0	Corner pavilions & sitting areas active; foot traffic	5	0	Reduced activity, dog walkers spotted	5	0	Sitting areas/pavilions active, people taking breaks	17
2:00	5	0	Pavilions & sitting areas active	8	0	Corner pavilions & sitting areas active; foot traffic	3	0	Pavilions & sitting areas active	2	0	Sitting areas active, light activity & passersby	18
2:15	3	0	Pavilions & sitting areas active	5	0	Reduced activity, passersby & foot traffic around One MP.	4	0	Pavilions & sitting areas active, passersby coming and going	2	0	Sitting areas active, light activity & passersby	14
2:30	3	0	Pavilions & sitting areas active	2	0	Person sitting; person walking between offices	4	0	Light activity at pavilions, passersby coming & going	4	0	Sitting areas active, light activity & passersby	13
2:45	4	0	Pavilions & sitting areas active; break takers	4	0	Scattered activity around sitting areas	5	0	Light activity at pavilions, passersby coming & going	1	0	Light activity in sitting area	14
3:00	4	0	People sitting on benches	6	0	Groups talking around One MP. doors; passersby	5	0	Light activity at pavilions, passersby coming & going	1	0	Light activity in sitting area	16
3:15	1	0	Reduced activity, sitting area active	4	0	Scattered activity around sitting areas	5	0	Passersby coming & going	3	0	Break takers in sitting areas; passersby	13
3:30	2	0	Sitting area active	2	0	Sitting areas active, passersby in grass & on pathway	3	0	Passersby coming & going	1	0	Light activity in sitting area	8
3:45	1	0	Sitting area active	5	0	Sitting areas active, passersby in grass & on pathway	4	0	Passersby coming & going	2	0	Sitting areas active, light activity & passersby	12
4:00	1	2	People sitting	3	0	Passersby in grassy area, traffic around doors One MP.	3	0	Passersby coming & going	1	0	Sitting area active	10
4:15	2	0	People sitting, walking through	4	0	Passersby in grassy area, traffic around doors One MP.	1	0	Person sitting in pavilion	1	0	Sitting area active	8
4:30	1	0	People sitting	5	0	People talking, walking through grassy area	2	0	Walkers around doors to One MP.	4	0	Passersby; sitting area active	12
4:45	2	0		4	0		0	0		1	0		7
5:00	1	0		1	0		0	0		0	0		2
5:15	0	0		0	0		1	0		1	0		2
5:30	1	0		0	0		2	0		1	0		4
5:45	1	0		1	0		1	0		0	0		3
6:00	0	0		0	0		0	0		0	0		0
Totals	87	2		115	0		106	0		78	0		388

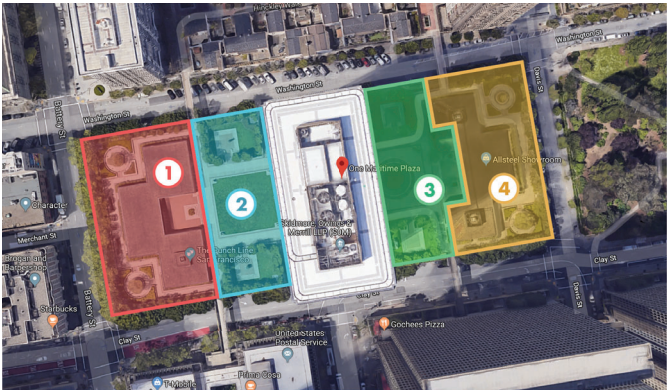


- Zone 1**
The Punch Line SF + pathway w/ trees
Corner pavilions & sitting areas
- Zone 2**
Grassy area (center)
Corner pavilions & sitting areas
- Zone 3**
Fountain & paved open space (center)
Corner pavilions & sitting areas
- Zone 4**
Office space + pathway w/ trees
Corner pavilions & sitting areas

Maritime Plaza

weather: sunny, scattered clouds, 70° | spec: weekday (12:00 - 6:00) | date: 8/12/19

	Adults	Children		Adults	Children		Adults	Children		Adults	Children		Segment Totals
12:00	3	0	Brake takers in sitting area	3	0	Corner pavilion active, persons eating	6	0	Persons sitting, group talking by fountain	4	0	Sitting areas active, break takers eating	16
12:15	3	0	Brake takers in sitting area	2	0	Corner pavilion active, persons eating	6	0	Persons sitting, group talking by fountain	3	0	Sitting areas active, break takers eating	14
12:30	8	0	Pavilians active, people eating	9	0	Passersby in grassy area, traffic around doors of One MP.	7	0	Persons sitting, group talking by fountain, passersby walking	3	0	Sitting areas active, break takers eating	27
12:45	11	0	Pavilians & sitting areas active; passersby	11	0	Passersby in grassy area, traffic around doors of One MP.	10	0	Persons sitting, group talking by fountain, passersby walking	11	0	Activity at sitting areas & pavilions, groups	43
1:00	9	0	Pavilions & sitting areas active; passersby	9	0	Passersby in grassy area, traffic around doors of One MP.	8	0	Dynamic activity, people on phones, sitting, and reading	6	0	Activity at sitting areas & pavilions	32
1:15	10	0	Pavilions & sitting areas active; passersby	8	0	Passersby in grassy area, traffic around doors of One MP.	9	0	Corner pavilions & sitting areas active	10	0	Activity at sitting areas & pavilions; foot traffic	37
1:30	10	0	Pavilions & sitting areas active; passersby	6	0	Passersby walking, people sitting on steps	9	0	Corner pavilions & sitting areas active	9	0	Activity at sitting areas & pavilions; foot traffic	34
1:45	2	0	Reduced activity, people taking breaks	6	0	Corner pavilions & sitting areas active; foot traffic	7	0	Corner pavilions & sitting areas active	4	0	Passersby, people taking breaks	19
2:00	1	0	Passersby on path	2	0	Person walking, person sitting	8	0	Corner pavilions & sitting areas active, person eating	4	0	Passersby, people taking breaks	15
2:15	3	0	Passersby on path	2	0	Person walking, person sitting	4	0	Foot traffic, activity at sitting areas	3	0	Passersby, people taking breaks	12
2:30	5	0	Pavilions & sitting area active	5	0	Foot traffic, dog walker	5	0	Foot traffic, activity at sitting areas	2	0	Activity at sitting areas	17
2:45	8	0	Activity at sitting areas, person reading	4	0	Foot traffic, dog walker	5	2	Scattered activity at sitting areas, person w/ stroller in grass	1	0	Person on phone	20
3:00	1	0	Person reading	4	0	Brake takers, person reading, light activity	2	2	Scattered activity at sitting areas, person w/ stroller in grass	1	0	Person on phone	10
3:15	1	0	Person reading	2	0	Brake takers, person reading, light activity	5	0	Scattered activity at sitting areas	2	0	Sitting areas active	10
3:30	0	0	No activity	5	0	Sitting areas active, passersby in grass & on pathway	6	0	Groups walking; traffic around doors of One MP.	3	0	Sitting areas active	14
3:45	2	0	Sitting area active	2	0	Sitting areas active, passersby in grass & on pathway	2	0	Person standing, person walking dog	1	0	Scattered activity at sitting areas	7
4:00	1	0	Passersby, break takers walking	4	0	Sitting area active, standing persons talking	1	0	Sitting area active	1	0	Scattered activity at sitting areas	7
4:15	0	0	No activity	3	0	Sitting area active, standing persons talking	2	0	Sitting area active	2	0	Scattered activity at sitting areas, dog walker	7
4:30	2	0	Sitting areas active	2	0	Sitting area active	3	0	Persons walking, sitting area active	2	0	Scattered activity at sitting areas, dog walker	9
4:45	2	0		1	0		1	0		2	0		6
5:00	1	0		2	0		2	0		1	0		6
5:15	0	0		0	0		1	0		1	0		2
5:30	1	0		1	0		0	0		1	0		3
5:45	0	0		1	0		0	0		1	0		2
6:00	0	0		0	0		0	0		0	0		0
Totals	84	0		94	0		109	4		78	0		369

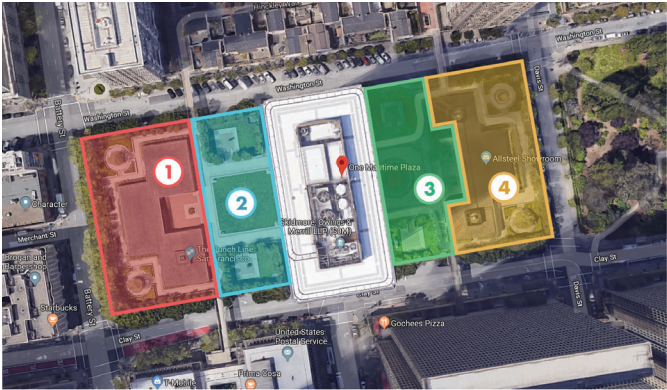


- Zone 1**
The Punch Line SF + pathway w/ trees
Corner pavilions & sitting areas
- Zone 2**
Grassy area (center)
Corner pavilions & sitting areas
- Zone 3**
Fountain & paved open space (center)
Corner pavilions & sitting areas
- Zone 4**
Office space + pathway w/ trees
Corner pavilions & sitting areas

Maritime Plaza

weather: sunny, 78° | spec: weekday (12:00 - 6:00) | date: 8/15/19

	Adults	Children		Adults	Children		Adults	Children		Adults	Children		Segment Totals
12:00	1	0	Break taker(s) sitting	4	0	Break taker(s) sitting	5	0	Persons sitting, persons walking	4	0	Persons sitting, persons walking	14
12:15	3	0	Break taker(s) sitting	7	0	Sitting area active; persons standing around One MP.	4	0	Persons sitting, persons walking	5	0	Persons sitting, persons walking	19
12:30	10	0	Activity at sitting areas & pavilions	11	0	Sitting area active; persons standing & walking around One MP.	6	0	Persons sitting, persons walking	4	0	Activity at sitting areas & pavilion	31
12:45	11	0	Activity at sitting areas & pavilions	9	0	Sitting area active; persons standing & walking around One MP.	15	0	Sitting area active; persons standing & walking around One MP.	4	0	Activity at sitting areas & pavilion	39
1:00	1	0	Person sitting	13	0	Sitting area active; persons standing & walking around One MP.	9	0	Sitting area active; persons standing & walking around One MP.	9	0	Activity at sitting areas & pavilion	32
1:15	9	0	Passersby walking, sitting area active	12	0	Sitting area active; persons standing & walking around One MP.	10	0	Sitting area active; foot traffic around One MP.	9	0	Activity at sitting areas & pavilion, group walking	40
1:30	5	0	Passersby walking, sitting area active	8	0	Passersby walking through, persons standing, sitting	7	0	Persons standing, walking through	8	0	Activity at sitting areas & pavilion, group walking	28
1:45	2	0	Sitting area active, light activity	3	0	Passersby walking through, persons standing, sitting	5	0	Sitting area active; foot traffic around One MP.	7	0	Persons sitting, eating, others walking through	17
2:00	5	0	Sitting area active, light activity	2	0	Light activity, couple sitting by grassy area	6	0	Sitting area active; foot traffic around One MP.	6	0	Person with dog, sitting areas active	19
2:15	3	0	Pavilions & sitting areas active	5	0	Light activity, couple sitting others walking by grassy area	4	0	Pavilions & sitting areas active	3	0	People taking breaks, sitting area active	15
2:30	3	0	Pavilions & sitting areas active	2	0	Foot traffic	4	0	Pavilions & sitting areas active	4	0	People taking breaks, sitting area active	13
2:45	4	0	Pavilions & sitting areas active	5	0	Persons standing & walking around One MP.	4	0	Pavilions & sitting areas active	4	0	Sitting area active	17
3:00	1	0	Sitting area active	5	0	Foot traffic, person eating at sitting area	2	0	Sitting area active, persons reading	1	0	Person walking dog	9
3:15	1	0	Sitting area active	1	0	Foot traffic w/ dog in grass	2	0	Sitting area active, persons reading	0	0	No activity	4
3:30	2	0	Persons sitting on steps @ Punchline	3	0	Foot traffic w/ dog; people standing around One MP.	4	0	Persons at fountain area	0	0	No activity	9
3:45	3	0	Persons walking, standing around building	4	0	Pavilion active, persons talking & walking in grassy area	5	0	Persons at fountain area	2	0	Scattered activity, person sitting	14
4:00	3	0	Person reading, walking, sitting	5	0	Pavilion active, persons talking & walking in grassy area	3	0	Person walking dog, others standing	2	0	Scattered activity, person sitting	13
4:15	2	0	Persons talking, walking	2	0	Passersby in grassy area, traffic around doors One MP.	4	0	Persons standing around One MP, break taking	2	0	Scattered activity, persons sitting	10
4:30	2	0	Persons talking, walking	2	0	People talking, walking through grassy area	4	0	Persons standing around One MP	3	0	Persons eating, talking	11
4:45	2	0		0	0		3	0		1	0		6
5:00	1	0		1	0		0	0		2	0		4
5:15	0	0		1	0		1	0		0	0		2
5:30	1	0		2	0		1	0		1	0		5
5:45	0	0		0	0		3	0		3	0		6
6:00	0	0		0	0		0	0		1	0		1
Totals	75	0		107	0		111	0		85	0		378



- Zone 1

The Punch Line SF + pathway w/ trees
Corner pavilions & sitting areas
- Zone 2

Grassy area (center)
Corner pavilions & sitting areas
- Zone 3

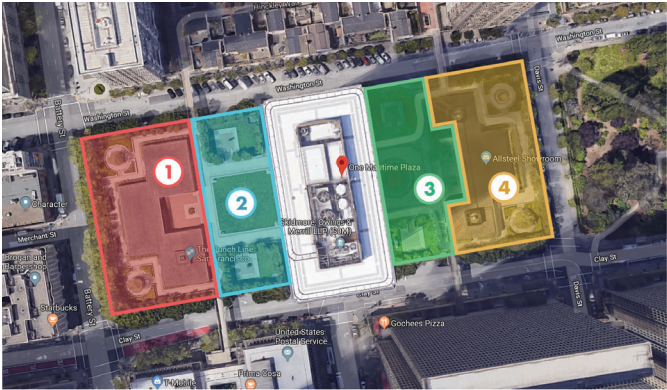
Fountain & paved open space (center)
Corner pavilions & sitting areas
- Zone 4

Office space + pathway w/ trees
Corner pavilions & sitting areas

Maritime Plaza

weather: sunny, 69° | spec: weekend (12:00 - 4:30) | date: 8/17/19

	Adults	Children		Adults	Children		Adults	Children		Adults	Children		Segment Totals
12:00	0	0	No activity	1	0	Person in grassy area, walking	3	0	Persons walking along periphery, dogs	1	0	Back sitting area active	5
12:15	0	0	No activity	2	0	Person in grassy area	1	0	Dog walker	1	0	Back sitting area active	4
12:30	0	0	No activity	0	0	No activity	2	0	Persons walking, dogs	2	0	Back sitting area & pathway active	4
12:45	3	0	Persons walking along pathway, dog walker	1	2	Family walking	0	0	No activity	0	0	No activity	6
1:00	4	2	Family walking, person sitting in pavilion	2	0	Pavilion, grassy area active	0	0	No activity	2	0	Pathway active, dog walkers	10
1:15	0	0	No activity	3	0	Light activity, persons strolling through areas	3	0	Sitting area active, persons walking	2	0	Back sitting area & pathway active	8
1:30	2	0	Pathway, pavilion in use	4	1	Light activity, persons strolling through areas	1	0	Sitting area active	0	0	No activity	8
1:45	0	0	No activity	0	0	No activity	2	0	Sitting area active, persons walking	2	0	Pavilion, sitting area active	4
2:00	0	0	No activity	2	0	Grassy area active	1	0	Sitting area active	0	0	No activity	3
2:15	2	0	Pathway, pavilion active; dogs	1	0	Grassy area active	2	0	Dog walkers	1	0	Pathway active, dogs	6
2:30	1	0	Pavilion active; dogs	3	0	Grassy area, pavilion active	2	0	Person walking dog, person sitting	4	0	Group walking	10
2:45	3	0	Persons walking along pathway	0	0	No activity	1	0	Pavilions & sitting areas active	0	0	No activity	4
3:00	2	0	Persons walking along pathway	3	0	Persons walking, person sitting in pavilion	0	0	Sitting area active, persons reading	0	0	No activity	5
3:15	5	0	Persons on stairway, talking	3	0	Grassy area, pavilion active	1	0	Sitting area active, persons reading	0	0	No activity	9
3:30	3	0	Persons on stairway, talking	3	0	Grassy area, pavilion active; dog walkers	0	0	Persons at fountain area	2	0	Back sitting area & pathway active	8
3:45	4	0	Persons on stairway, talking	0	0	No activity	3	0	Group walking by fountain	1	0	Back sitting area active	8
4:00	2	0	Persons walking	5	0	Light activity, persons strolling through areas & sitting	4	0	Group standing by fountain	0	0	No activity	11
4:15	1	0	Persons walking	2	0	Person sitting, walking	0	0	No activity	0	0	No activity	3
4:30	0	0	No activity	1	0	Persons walking	2	0	Persons walking	0	0	No activity	3
Totals	32	2		36	3		28	0		18	0		119



- Zone 1

The Punch Line SF + pathway w/ trees
Corner pavilions & sitting areas
- Zone 2

Grassy area (center)
Corner pavilions & sitting areas
- Zone 3

Fountain & paved open space (center)
Corner pavilions & sitting areas
- Zone 4

Office space + pathway w/ trees
Corner pavilions & sitting areas

Maritime Plaza

weather: sunny, 69° | spec: weekend (12:00 - 4:30) | date: 8/26/19

	Adults	Children		Adults	Children		Adults	Children		Adults	Children		Segment Totals
12:00	1	0	Persons walking	0	0	No activity	1	0	Person walking	0	0	No activity	2
12:15	0	0	No activity	0	0	No activity	0	0	No activity	0	0	No activity	0
12:30	2	0	Pathway active, dogs	1	0	Person walking	0	0	No activity	1	0	Pathway active with dog walker	4
12:45	2	0	Sitting area in use; dog walker	0	0	No activity	2	0	Person walking	0	0	No activity	4
1:00	0	0	No activity	3	2	Grassy area in use, pavilion active	0	0	No activity	2	0	Pathway active with dog walker, person passing through	7
1:15	0	0	No activity	2	2	Grassy area in use	1	0	Pavilion in use, person sitting	1	0	Person passing through	6
1:30	2	0	Pathway active	4	3	Grassy area in use, people with kids	1	0	Pavilion in use, person sitting	0	0	No activity	10
1:45	1	0	Sitting area in use	0	0	No activity	0	0	No activity	2	0	Sitting area, pathway active	3
2:00	0	0	No activity	0	0	No activity	1	0	Person walking, dog	0	0	No activity	1
2:15	0	0	No activity	1	1	Mother & child walking	0	0	No activity	1	0	Person sitting with dog	3
2:30	0	0	No activity	1	0	Person walking	0	0	No activity	1	0	Person sitting with dog	2
2:45	1	0	Pavilion active, person reading	0	0	No activity	1	0	Person sitting at sitting area	1	0	Person sitting with dog	3
3:00	1	0	Pavilion active, person reading	0	0	No activity	0	0	No activity	2	0	Persons walking	3
3:15	1	0	Sitting area active	1	0	Sitting area in use	3	0	Group on pathway	0	0	No activity	5
3:30	3	0	Pavilion, pathway active	2	0	Sitting area in use	1	0	Person walking with dog	0	0	No activity	6
3:45	0	0	No activity	0	0	No activity	0	0	No activity	0	0	No activity	0
4:00	0	0	No activity	1	0	Person walking through grass	0	0	No activity	0	0	No activity	1
4:15	2	0	Pathway active	0	0	No activity	0	0	No activity	1	0	Pavilion active, person on the phone	3
4:30	0	0	No activity	0	0	No activity	2	0	Person walking with dog, person at sitting area	0	0	No activity	2
Totals	16	0		16	8		13	0		12	0		65



Maritime Plaza

weather: morning fog, clear skies; 60° | spec: weekday | date: 11/21/19

	Adults	Children		Adults	Children		Adults	Children		Adults	Children		Segment Totals
7:00	0	0	Minimal activity	2	0	Walking activity (active)	0	0	Minimal activity	0	0	Minimal activity	2
7:15	0	0	Minimal activity	0	0	Minimal activity	2	0	Active foot traffic around structure	0	0	Minimal activity	2
7:30	0	0	Minimal activity	4	0	People entering structure, walkers (active)	2	0	Active foot traffic around structure	0	0	Minimal activity	6
7:45	2	0	Walking activity from breezeway (active)	6	0	People entering structure, walkers (active)	5	0	People entering / around structure (active)	5	0	Walking activity (active); passive activity in sitting area	18
8:00	3	0	Walking activity from breezeway (active)	3	0	People entering / around structure (active)	3	0	People entering / around structure (active)	2	0	Through foot traffic from breezeway	11
8:15	2	0	Walking activity (active)	4	0	People entering structure, walkers (active)	7	0	People entering / around structure (active); activity in sitting areas	5	0	Walking activity (active); passive activity in sitting area	18
8:30	0	0	Minimal activity	5	0	People around entrance to structure, walkers (active)	3	0	People entering / around structure (active); activity in sitting areas	0	0	Minimal activity	8
8:45	2	0	Walking activity (active); sitting areas active (passive)	2	0	Passive activity in pavilions, break takers; walkers	2	0	Active foot traffic around structure	2	0	Passive activity in pavilions, break takers	8
9:00	1	0	Sitting areas active (passive)	4	0	Passive activity in pavilions / sitting areas, break takers; walkers	1	0	Active foot traffic around structure	2	0	Passive activity in pavilions, break takers	8
9:15	0	0	Minimal activity	2	0	Walking activity	3	0	Active foot traffic around structure	1	0	Passive activity in pavilion, break taker	6
9:30	1	0	Walking activity (active)	3	0	People entering / around structure (active)	4	0	Passive activity, break takers in pavilions / sitting areas	2	0	Passive activity in pavilion, break taker; foot traffic (active)	10
9:45	2	0	Walking activity (active)	5	0	People entering / around structure (active)	1	0	Passive activity around pavilion	0	0	Minimal activity	8
10:00	5	0	Passthrough walking activity (active); sitting areas / pavilions active (passive)	5	0	People entering / around structure (active)	4	0	Working group standing around fountain (active)	1	0	Through foot traffic from breezeway	15
11:00	3	0	Passive activity, break takers in sitting areas	3	0	Passive activity in pavilions, break takers; passersby in grassy area	5	0	Passive activity in pavilions, break takers	3	0	Passive activity in pavilions / sitting area, break takers	14
11:15	2	0	Passive activity, break takers in sitting areas / pavilions	4	0	Passive activity in pavilions, break takers; people entering / around structure (active)	3	0	Passive activity in pavilions, break takers	3	0	Passive activity in pavilions / sitting area, break takers	12
11:30	4	0	Passive activity, break takers in sitting areas / pavilions	2	0	Passive activity in pavilions	4	0	Passive activity in pavilions, break takers; through foot traffic	3	0	Passive activity in pavilions / sitting area, break takers; through foot traffic	13
11:45	2	0	Passive activity, break takers in sitting areas	3	0	Passive activity in pavilions	1	0	Through foot traffic	0	0	Minimal activity	6
12:00	2	0	Passive activity, break takers in sitting areas	2	0	Passive activity in pavilions	2	1	Through foot traffic including a mother & stroller	2	0	Break takers in sitting area (passive)	9
12:15	7	0	Passive activity, break takers in sitting areas / pavilions eating; through foot traffic	4	0	Passive activity, break takers in pavilions / sitting areas	7	0	Passive activity in pavilions, break takers; through foot traffic	2	0	Break takers in sitting area (passive)	20
12:30	6	0	Passive activity, break takers in sitting areas / pavilions eating; through foot traffic	11	0	Passive activity, break takers in pavilions / sitting areas / grassy area eating, talking	9	0	Passive activity in pavilions / sitting areas, break takers eating, talking; through foot traffic	4	0	Break takers in sitting area (passive); through foot traffic	30
12:45	9	0	Passive activity, break takers in sitting areas / pavilions eating; through foot traffic	11	0	Passive activity, break takers in pavilions / sitting areas / grassy area eating, talking	14	0	Passive activity in pavilions / sitting areas, break takers eating, talking; through foot traffic	4	0	Break takers in sitting area (passive); through foot traffic	38
1:00	9	0	Passive activity, break takers in sitting areas / pavilions eating; through foot traffic	8	0	Passive activity, break takers in pavilions / sitting areas / grassy area eating, talking	7	0	Passive activity in pavilions / sitting areas, break takers eating, talking; through foot traffic	5	0	Break takers in sitting area (passive); through foot traffic	29
1:15	5	0	Passive activity, break takers in sitting areas / pavilions	7	0	Sitting areas active; passersby	8	0	Passive activity in pavilions / sitting areas, break takers eating, talking; through foot traffic	5	0	Meeting group in pavilion (active)	25
1:30	7	0	Active group activity in sitting areas – people talking	7	0	Corner pavilions & sitting areas active; foot traffic	7	0	Minimal activity	6	0	Meeting group in pavilion (active)	27
1:45	2	0	Passive activity, break takers in sitting areas / pavilions	7	0	Corner pavilions & sitting areas active; foot traffic	2	0	Through foot traffic	5	0	Break takers in sitting area (passive); through foot traffic	16
2:00	2	0	Passive activity, break takers in sitting areas / pavilions	4	0	Corner pavilions & sitting areas active; foot traffic	4	0	Through foot traffic; passive activity in pavilions	1	0	Break takers in sitting area (passive)	11
3:00	3	0	Passive activity, break takers in sitting areas / pavilions	4	0	Corner pavilions & sitting areas active; foot traffic	2	0	Passive activity in pavilions	2	0	Passive activity in pavilion / sitting area, break takers	11
3:15	4	0	Passive activity, break takers in sitting areas / pavilions	3	0	Corner pavilions & sitting areas active; foot traffic	1	0	Passive activity in pavilion	2	0	Passive activity in pavilion / sitting area, break takers	10
3:30	2	0	Passive activity, break takers in sitting areas; dog walking	1	0	Reduced activity, walker in grassy area	1	0	Passive activity in pavilion	4	0	Passive activity in pavilions / sitting areas, break takers	8
3:45	1	0	Through foot traffic	4	0	Corner pavilions & sitting areas active; foot traffic	2	0	Passive activity in pavilions / sitting areas	5	0	Passive activity in pavilions / sitting areas, break takers	12
4:00	3	2	Through foot traffic; family	3	0	Corner pavilions & sitting areas active; foot traffic	3	0	Passive activity in pavilions / sitting areas	2	0	Through foot traffic	13
4:15	4	0	Through foot traffic; passive activity, break takers in pavilions	2	0	Corner pavilions & sitting areas active; foot traffic	6	0	Group standing around fountain (active); passive activity in pavilions	4	0	Through foot traffic from breezeway	16
4:30	2	0	Through foot traffic; passive activity, break takers in pavilions	4	0	Light, passive activity in corner pavilions & sitting areas; walker in grass	0	0	Minimal activity	0	0	Minimal activity	6
4:45	3	0	Through foot traffic; passive activity, break takers in pavilions / sitting areas	7	0	Passive activity in corner pavilions & sitting areas; group standing in grassy area	2	0	Passive activity in pavilions / sitting areas	0	0	Minimal activity	12
5:00	2	0	Through foot traffic	6	0	Passive activity in pavilions, break takers; people entering / around structure (active)	4	0	Active foot traffic around structure, reduced activity in sitting areas / pavilions	2	0	Through foot traffic to breezeway	14
5:15	4	0	Through foot traffic	9	0	Active foot traffic around structure, reduced activity in sitting areas / pavilions	5	0	Active foot traffic around structure, reduced activity in sitting areas / pavilions	2	0	Through foot traffic; passive activity by sitting area	20
5:30	10	0	Through foot traffic, increased activity; passive activity in sitting areas	12	0	Active foot traffic around structure, reduced activity in sitting areas / pavilions	9	0	Active foot traffic around structure, reduced activity in sitting areas / pavilions	3	0	Through foot traffic to breezeway	34
5:45	6	0	Through foot traffic to breezeway, increased activity; passive activity in sitting areas	11	0	Active foot traffic around structure, reduced activity in sitting areas / pavilions	10	0	Active foot traffic around structure, reduced activity in sitting areas / pavilions	6	0	Through foot traffic to breezeway, group walking	33
6:00	5	0	Through foot traffic to breezeway	9	0	Active foot traffic around structure, reduced activity in sitting areas / pavilions	11	0	Active foot traffic around structure, reduced activity in sitting areas / pavilions	5	0	Through foot traffic to breezeway	30
Totals	127	2		193	193		166	1		100	0		589



- Zone 1

The Punch Line SF + pathway w/ trees
Corner pavilions & sitting areas
- Zone 2

Grassy area (center)
Corner pavilions & sitting areas
- Zone 3

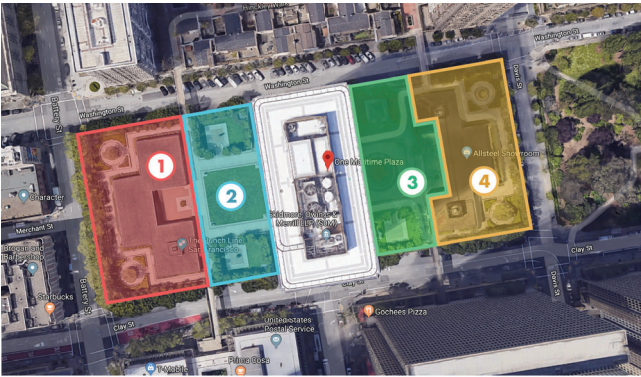
Fountain & paved open space (center)
Corner pavilions & sitting areas
- Zone 4

Office space + pathway w/ trees
Corner pavilions & sitting areas

Maritime Plaza

weather: clear skies; 51 | spec: weekend | date: 11/23/19

	Adults	Children		Adults	Children		Adults	Children		Adults	Children		Segment Totals
7:00	0	0	Minimal activity	0	0	Minimal activity	0	0	Minimal activity	0	0	Minimal activity	0
7:15	0	0	Minimal activity	1	0	Through foot traffic, dog walker in grassy area	0	0	Minimal activity	0	0	Minimal activity	1
7:30	0	0	Minimal activity	3	0	Through foot traffic, dog walkers in grassy area	1	0	Through foot traffic, dog walker	0	0	Minimal activity	4
7:45	0	0	Minimal activity	2	0	Through foot traffic, dog walkers in grassy area	2	0	Through foot traffic, dog walker	0	0	Minimal activity	4
8:00	2	0	Active through foot traffic	0	0	Minimal activity	0	0	Minimal activity	0	0	Minimal activity	2
8:15	2	0	Active through foot traffic from breezeway	2	0	Passive through traffic, people talking in pavilions	1	0	Passive activity in sitting area, person walking & stopping at fountain	0	0	Minimal activity	5
8:30	0	0	Minimal activity	2	0	Passive through traffic, people talking in pavilions	0	0	Minimal activity	1	0	Passive activity in sitting area / pavilion	3
8:45	0	0	Minimal activity	0	0	Minimal activity	2	0	Through foot traffic, dog walker	2	0	Passive activity in sitting area / pavilion	4
9:00	0	0	Minimal activity	0	0	Minimal activity	0	0	Minimal activity	2	0	Passive activity in sitting area / pavilion	2
9:15	1	0	Passive activity in sitting area	1	0	Through foot traffic	1	0	Through foot traffic	0	0	Minimal activity	3
9:30	1	0	Passive activity in sitting area	1	0	Through foot traffic	0	0	Minimal activity	1	0	Through foot traffic from breezeway	3
9:45	1	0	Passive activity in sitting area	0	0	Minimal activity	2	0	Through foot traffic	0	0	Minimal activity	3
10:00	3	0	Active through foot traffic; passive activity in sitting area	2	2	Family in grassy area (active)	0	0	Minimal activity	0	0	Minimal activity	7
11:00	0	0	Minimal activity	0	0	Minimal activity	0	0	Minimal activity	0	0	Minimal activity	0
11:15	1	1	Through foot traffic (family)	2	0	Through foot traffic	0	0	Minimal activity	0	0	Minimal activity	4
11:30	0	0	Minimal activity	0	0	Minimal activity	1	0	Through foot traffic, dog walker	0	0	Minimal activity	1
11:45	2	0	Through foot traffic from breezeway	2	1	Family in grassy area (active); walking through	0	0	Minimal activity	3	0	Passive activity in sitting area; though foot traffic	8
12:00	1	0	Through foot traffic	1	0	Through foot traffic	0	0	Minimal activity	4	0	Passive activity in sitting area; though foot traffic (dog walker)	6
12:15	2	0	Passive activity in pavilion sitting area	0	0	Minimal activity	0	0	Minimal activity	0	0	Minimal activity	2
12:30	3	0	Passive activity in pavilion sitting area; foot traffic from breezeway	2	0	Through foot traffic, dog walker	3	0	Through foot traffic; passive activity in pavilion / sitting area	1	0	Passive activity in sitting area	9
12:45	0	0	Minimal activity	1	0	Through foot traffic, dog walker	2	2	Family walking through; passive activity in pavilion / sitting area	1	0	Passive activity in sitting area	6
1:00	0	0	Minimal activity	4	2	Active through foot traffic, family	1	1	Family walking through; passive activity in pavilion / sitting area	1	0	Through foot traffic, passive activity in sitting area	9
1:15	0	0	Minimal activity	5	3	Active through foot traffic, family in grassy area	0	0	Minimal activity	0	0	Minimal activity	8
1:30	2	2	Family in pavilion sitting area	2	1	Active through foot traffic, family in grassy area	1	0	Through foot traffic	0	0	Minimal activity	8
1:45	3	2	Family in pavilion sitting area; foot traffic	1	0	Passive activity in sitting area / pavilion	0	0	Minimal activity	0	0	Minimal activity	6
2:00	0	0	Minimal activity	0	0	Minimal activity	1	0	Through foot traffic	2	0	Through foot traffic, passive activity in sitting area	3
3:00	0	0	Minimal activity	0	0	Minimal activity	1	0	Passive activity in sitting area	0	0	Minimal activity	1
3:15	2	0	Through foot traffic, dog walker	1	0	Passive activity in sitting area	0	0	Minimal activity	0	0	Minimal activity	3
3:30	2	0	Through foot traffic from breezeway	2	1	Passive activity in sitting area (family)	0	0	Minimal activity	1	1	Active through traffic, family	7
3:45	2	0	Minimal activity	2	0	Passive activity in sitting area	3	0	Passive activity in sitting area; active foot traffic	0	0	Minimal activity	7
4:00	1	6	Through foot traffic (children); passive activity in sitting area	1	0	Passive activity in sitting area	2	0	Passive activity in sitting area	0	0	Minimal activity	10
4:15	1	0	Passive activity in sitting area	0	0	Minimal activity	2	0	Passive activity in sitting area	1	0	Foot traffic from breezeway, dog walker	4
4:30	0	0	Minimal activity	2	0	Through foot traffic	0	0	Minimal activity	0	0	Minimal activity	2
4:45	2	0	Through foot traffic from breezeway	0	0	Minimal activity	1	0	Through foot traffic	0	0	Minimal activity	3
5:00	0	0	Minimal activity	1	0	Through foot traffic, dog walker	0	0	Minimal activity	0	0	Minimal activity	1
5:15	3	0	Through foot traffic, dog walker	1	0	Through foot traffic, dog walker	1	0	Through foot traffic, walking around fountain	1	1	Through foot traffic (family)	7
5:30	0	0	Minimal activity	0	0	Minimal activity	2	2	Through foot traffic (family)	3	0	Through foot traffic	7
5:45	0	0	Minimal activity	0	0	Minimal activity	2	2	Through foot traffic (family)	1	0	Through foot traffic	5
6:00	0	0	Minimal activity	2	0	Active through foot traffic	0	0	Minimal activity	0	0	Minimal activity	2
Totals	37	11		46	56		32	7		25	2		170



- Zone 1

The Punch Line SF + pathway w/ trees
Corner pavilions & sitting areas
- Zone 2

Grassy area (center)
Corner pavilions & sitting areas
- Zone 3

Fountain & paved open space (center)
Corner pavilions & sitting areas
- Zone 4

Office space + pathway w/ trees
Corner pavilions & sitting areas

Maritime Plaza

weather: sunny, 61° | spec: (1:30 - 5:00) | date: 11/10/19

	Adults	Children		Adults	Children		Adults	Children		Adults	Children		Segment Totals
1:30	0	0	no activity	2	0	dog walkers	1	0	dog walker	2	0	passer-by; dog walker	5
1:45	2	0	light activity in north and south corner pavilions	0	0	no activity	0	0	no activity	1	0	light activity south pathway	3
2:00	2	0	light activity in north and south corner pavilions	1	0	light activity south corner pavilion	0	0	no activity	2	0	light activity south pathway; passer-by	5
2:15	2	0	light activity in north and south corner pavilions	6	0	passers-by; light activity grassy area, south corner pavilion	1	0	light activity south corner pavilion	1	0	light activity south pathway	10
2:30	2	0	light activity in north and south corner pavilions	1	0	light activity south corner pavilion	2	0	passer-by; dog walker	1	0	light activity south pathway	6
2:45	3	0	light activity in north and south corner pavilions, dog walker	0	0	no activity	4	2	passerby; light activity at fountain	1	0	light activity south pathway	10
3:00	0	0	no activity	0	0	no activity	2	1	dog walkers north corner pavilion	0	0	no activity	3
3:15	0	0	no activity	1	0	comedy club worker working	1	0	passer-by	0	0	no activity	2
3:30	1	0	passer-by	1	0	comedy club worker on break	1	0	passer-by	1	0	worker on break south pathway	4
3:45	0	0	no activity	1	1	passers-by	1	0	dog walker	0	0	no activity	3
4:00	0	0	no activity	3	0	passer-by; light activity grassy area	0	0	no activity	1	0	passer-by	4
4:15	0	0	no activity	2	0	dog walker; comedy club worker on break	3	1	passers-by	0	0	no activity	6
4:30	0	0	no activity	3	0	dog walker grassy area; passers-by	0	0	no activity	0	0	no activity	3
4:45	0	0	no activity	0	0	no activity	1	0	passers-by	1	0	medium activity east pathway	2
5:00	0	0	no activity	2	0	dog walkers grassy area	3	1	passers-by	1	0	light activity south corner pavilion	7
Totals	12	0		23	1		20	5		12	0		73



- Zone 1

The Punch Line SF + pathway w/ trees
Corner pavilions & sitting areas
- Zone 2

Grassy area (center)
Corner pavilions & sitting areas
- Zone 3

Fountain & paved open space (center)
Corner pavilions & sitting areas
- Zone 4

Office space + pathway w/ trees
Corner pavilions & sitting areas

Maritime Plaza

weather: sunny, 71° | spec: (1:30 - 5:00) | date: 11/11/19

	Adults	Children		Adults	Children		Adults	Children		Adults	Children		Segment Totals
1:30	1	0	light activity south pavillion	5	0	passers-by; dog walkers; light activity south pavilion passer-by	10	0	light activity fountain area, light activity both pavilions; passers- by	3	0	passers-by	19
1:45	1	0	light activity south pavilion	1	0	light activity both pavilions	6	1	passers-by, light activity south pavilion	2	0	light activity south pavilion; light activity north path area	11
2:00	3	0	light activity both pavilions	2	0	passer-by; dog walker; light activity south pavilion	8	2	passers-by, medium activity fountain area	3	0	light activity north pavilion	18
2:15	1	0	light activity north pavilion	3	0	Photographer working north pavilion area, workers on break on comedy club steps	7	1	passers-by	3	0	passer-by; light activity both pavilions	15
2:30	3	0	passer-by; light activity south pavilion	3	0	passers-by; dog walkers on grassy area light activity both pavilions; dog walker light activity both pavilions; passer-by	5	0	passers-by; light activity both pavilions; dog walker	2	0	light activity south pavilion	13
2:45	3	0	light activity both pavilions	5	0	passers-by; dog walker; light activity south pavilion	5	0	passers-by; light activity both pavilions	1	0	light activity south pavilion	14
3:00	2	0	light activity south pavilion	4	0	passers-by; light activity south pavilion	5	0	passers-by; allsteel maintenance workers	2	0	dog walker; light activity north pavilion	13
3:15	3	0	light activity south pavilion	3	0	dog walkers in grassy area; light activity north pavilion passer-by; dog walker; park employee	8	0	passers-by; allsteel maintenance workers	1	0	light activity north pavilion	15
3:30	3	0	light activity south pavilion	6	0	passers-by - workers leaving work; dog walkers passers-by - workers leaving work; dog walkers; light activity comedy club steps area	5	0	passers by; light activity fountain area; light activity north pavilion	3	0	light activity north pavilion; passer-by	17
3:45	6	0	passers-by; light activity south pavilion	6	0	" "	7	2	passers-by; light activity both pavilions	1	0	passer-by	22
4:00	1	0	passer-by	3	0	passer-by; light activity grassy area	2	1	light activity Fountain area; passers-by; security staff	0	0	no activity	7
4:15	0	0	no activity	3	0	dog walker; comedy club worker on break	1	0	passer-by	0	0	no activity	4
4:30	2	0	park employees working	8	0	dog walker grassy area; passers-by	5	0	light activity north pavilion; passers-by - workers leaving work	0	0	no activity	15
4:45	1	0	light activity north path area	5	0	passers-by; dog walker; light activity south pavilion	7	3	light activity fountain area; passers-by - workers leaving work	1	0	light activity east bench area	17
5:00	2	0	passers-by	1	0	dog walker	7	0	light activity fountain area; light activity south pavilion area; passers-by - workers leaving work	2	0	park employee; light activity east bench area	12
Totals	32	0		58	0		88	10		24	0		212



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