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VIA E-MAIL

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City and County of San Francisco, Board of Supervisors
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City Hall, Room 244
San Francisco, CA 94102-4689
Em: Board.of.Supervisors@sfgov.org

RE: Appeal of Planning Commission's CEQA Exemption Determination, Conditional Use Authorization, and Shadow Findings for 350 Amber Drive Project on September 25, 2025 – (Record No. 2024-004318ENV) (2024-004318CUASHD)

Dear Board of Supervisors,

On behalf of Diamond Heights Community Association ("**Appellant**"), our Office is submitting this correspondence for the December 9, 2025 public hearing regarding appeals of the City and County of San Francisco ("**City**" or "**County**") Planning Commission's ("**Commission**") actions on September 25, 2025 for the development project proposed to be located at 350 Amber Drive in the City (Record No. 2024-004318ENV) ("**Project**"), including **i)** a California Environmental Quality Act ("**CEQA**") Class 3 Categorical Exemption determination; and **ii)** Approval of Conditional Use Authorization ("**CUA**") and Shadow Findings.

Appellant asserts that the Project is facially ineligible for the CEQA Class 3 Categorical Exemption and subject to further environmental review based on several exceptions, as well that the Project's CUA and Shadow Findings are predicated on informational flaws and inconsistent with the City's land use policies, thereby requiring reversal of the Planning Commission actions on September 25, 2025. Appellant therefore respectfully submits that the Board of Supervisors ("**Board**") approve both appeals and reverse the Commission's a) CEQA exemption determination and b) approval of the CUA and Shadow Findings, for the Project. The Board should a) approve the CEQA and CUA appeals and deny the project outright or, alternatively, require: b) the Project to undergo additional environmental review pursuant to CEQA, including the preparation of an Environmental Impact Report

(EIR), and b) Project modifications or conditions of approval to the CUA or Shadow Findings that address Appellant's environmental and public safety concerns.

The Diamond Heights Community Association is an organization of City residents and property owners near the Project site with a strong interest in well ordered land use planning and in addressing the environmental impacts of the Project, including potential impacts on the adjacent Glen Canyon Park and its natural and biological resources. Individual members of the Diamond Heights Community Association live, work, and recreate in the Project vicinity and may therefore be directly affected by the Project.

The City describes the proposed Project as "the installation of a new AT&T Wireless Macro Wireless Telecommunications Services (WTS) Facility on an approximately 104-foot-tall monopole located at the rear of the San Francisco Police Academy. The WTS facility will consist of twelve (12) new antennas, nine (9) new remote radio units, three (3) tower mounted DC-9 surge suppressors, one (1) GPS unit mounted on proposed outdoor equipment cabinet, one (1) walk-up cabinet, and one (1) 30kw DC generator with a 190-gallon diesel fuel tank on a concrete pad. The ancillary equipment will be surrounded by an 8' chain link fence." (*See* September 25, 2025 San Francisco Planning Commission, Executive Summary, pp. 1-2).

Pursuant to City Administrative Code, Section 31.16 and Planning Code, Section 308.1, our office asserts and raises the following grounds in support of its CEQA and CUA appeals, respectively. On appeal, the Board of Supervisors is not limited to the Commission's earlier analysis or findings and "shall conduct its own independent review of whether the CEQA decision adequately complies with the requirements of CEQA. The Board shall consider anew all facts, evidence and issues related to the adequacy, accuracy and objectiveness of the CEQA decision, including, but not limited to, the sufficiency of the CEQA decision and the correctness of its conclusions." Admin. Code, Section 31.16(b)(6).

The Appellant expressly reserves the right to supplement this letter with additional evidence and materials at or prior to hearings on the Project, and at any later hearing and proceeding related to this Project. Gov. Code, Section 65009(b); Pub. Res. Code, Section 21177(a).

The Appellant further incorporates by reference all the comments and concerns raised to date on the Project or its environmental CEQA clearance. *See Citizens for Clean Energy v. City of Woodland* (2014) 225 Cal.App.4th 173, 191 (finding that any party who

has objected to the project's environmental documentation may assert any issue timely raised by other parties).

Lastly, the Appellant requests that the County provide notice for any and all notices referring or related to the Project issued under the California Environmental Quality Act, (Pub. Res. Code, § 21000 *et seq.*), and the California Planning and Zoning Law (Gov. Code, §§ 65000–65010). California Public Resources Code Sections 21092.2, and 21167(f) and California Government Code Section 65092 require agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body. We further request that such notices be provided to us *also* in their *electronic form,* as soon as those become available.

I. THE PROPOSED PROJECT IS FACIALLY INELIGIBLE FOR THE CEQA CLASS 3 CATEGORICAL EXEMPTION BASED ON THE CLEAR STATUTORY TEXT AND DEFINITIONAL REQUIREMENTS.

On September 25, 2025, the Planning Commission determined that the Project was exempted from further environmental review pursuant to the Class 3 categorical exemption under CEQA Guidelines Section 15303. However, Appellant asserts that the Project is facially ineligible for the stated exemption and instead required to undergo further environmental review. On its face, the proposed Project is simply ineligible for the CEQA Class 3 categorical exemption. The plain statutory text clearly indicates that the Project is incompatible with the sought exemption. The statute provides, in relevant part, that:

> Class 3 consists of construction and location of limited numbers of ***new, small*** facilities or structures; installation of ***small new*** equipment and facilities in small structures; and the conversion of existing ***small*** structures from one use to another where only ***minor*** modifications are made in the exterior of the structure." 14 CCR Section 15303 (emphases added).

Thus, as the statute's language clearly provides, the Class 3 categorical exemption is typically reserved for "new, ***small*** facilities or structures," or similar projects. *Id.* (emphasis added). The proposed Project, which entails a massive tower over 100 feet tall where no other similar structures presently exist, is simply inapposite and incompatible with the sought exemption because it is far from being a small structure or facility. On the contrary, the Project entails substantial and significant development that is far beyond the scope of the stated exemption. Put simply, the Project cannot qualify for the Class 3 categorical exemption based on the statute's plain text and clear

parameters. The Project falls outside the scope of the CEQA class 3 categorical exemption.

The Planning Commission's finding that the Project is exempt from CEQA under the Class 3 exemption is also flawed, as a matter of law. The finding is based on a *version* of the Class 3 exemption, which disregards the express language of the Class 3 exemption provided under the CEQA Guidelines. Simply put, the Planning Commission – and the County's Planning Department – iterated their *own* Class 3 exemption under CEQA to *match* the Project with, rather than assess whether the Project indeed *fits* the scope of the unaltered Class 3 exemption as it is found in the CEQA Guidelines. As detailed further below, the Project's scope does not fit the Class 3 exemption since what is proposed is a *new* structure (and not a conversion of use), it is not a *small* structure, and it involves hazardous materials, such as the 190 gallon generator fuel tank to be installed and operated.

Further, the City has provided inconsistent descriptions regarding whether the Project entails mere additions or new construction. For example, the City's filled out "CEQA Exemption Determination" for the Project marks the box of "addition/alteration" on the first page, but then goes on to admit in the "Project Description" that the Project is *installation* of new equipment and facility on the Project Site. *See* **Exhibit 1,** p. 1 (City's CEQA Exemption Determination). Moreover, on that same first page, the County marks Class 3 and admits that the Project is a "new construction," as shown in the screenshots below from the said Exemption Determination (highlighted emphasis added):

PROPERTY INFORMATION/PROJECT DESCRIPTION

Project Address		Block/Lot(s)
350 AMBER DR		7521005
Case No.		**Permit No.**
2024-004318ENV		
■ **Addition/ Alteration**	☐ **Demolition (requires HRE for Category B Building)**	☐ **New Construction**

Project description for Planning Department approval.

A (N) AT&T UNMANNED TELECOMMUNICATION FACILITY CONSISTING OF INSTALLING:
· INSTALLATION OF A 20'-0" X 27'-6" AT&T TELECOMMUNICATIONS FACILITY (~550 SQ. FT.)
· INSTALLATION OF A AT&T 103'-0" MONOPOLE
· INSTALLATION OF A AT&T 8' CHAIN LINK FENCE
· INSTALLATION OF (2) AT&T 6' WIDE AND (1) 4' WIDE CHAIN LINK GATES
· INSTALLATION OF AT&T ANTENNA MOUNTING ASSEMBLIES AT A 100'-0" CENTERLINE
· INSTALLATION OF (12) AT&T PANEL ANTENNAS MOUNTED AT A 100'-0" CENTERLINE ((4) PER SECTOR)
· INSTALLATION OF (9) AT&T REMOTE RADIO UNITS (RRUS) ((3) PER SECTOR)
· INSTALLATION OF (3) AT&T TOWER MOUNTED DC-9 SURGE SUPPRESSORS
· INSTALLATION OF (1) FIRSTNET BY AT&T GPS UNIT MOUNTED ON PROPOSED OUTDOOR EQUIPMENT CABINET
· INSTALLATION OF (1) WALK-UP CABINET (WUC) EQUIPMENT CABINET
· INSTALLATION OF A NEW AT&T 30KW DC GENERATOR WITH 190 GALLON DIESEL FUEL TANK ON A NEW 5'-0" X 9'-0" CONCRETE PAD

EXEMPTION TYPE

The project has been determined to be exempt under the California Environmental Quality Act (CEQA).	
☐	**Class 1 - Existing Facilities.** **(CEQA Guidelines section 15301)** Interior and exterior alterations; additions under 10,000 sq. ft.
■	**Class 3 - New Construction.** **(CEQA Guidelines section 15303)** Up to three new single-family residences or six dwelling units in one building; commercial/office structures; utility extensions; change of use under 10,000 sq. ft. if principally permitted or with a CU.

(**Exhibit 1,** p. 1.)

As such, the Exemption Determination is flawed on its face and cannot be relied upon by the Planning Commission or City in approving the Project. Most importantly, however, it appears that the County relies on an inaccurate rendition of the Class 3 CEQA exemption as noted on the screenshot above, by claiming that such a Class 3 CEQA exemption is applicable to: "Up to **three new single-family residences** or **six dwelling units** in one building; **commercial/office structures**; utility **extensions**, **change** of **use** under **10,0000 sq. ft**. if principally permittd [sic.] or with a CU." (**Exhibit 1,** p. 1.) Not so.

The County manifestly *made up* their own version of Class 3 exemption, where it combined various parts of Class 3 exemption and failed to specify which category applies to the Project.

In addition to being facially ineligible for the stated exemption, the Project does not fit within or fall under any of the enumerated "examples" provided by the statute, which are stated as:

> § 15303. New Construction or Conversion of **Small** Structures.
>
> Class 3 consists of **construction** and **location** of **limited numbers** of new, **small facilities** or structures; **installation** of **small new equipment** and **facilities** in **small structures**; and the **conversion** of **existing small structures** from one use to another where **only minor modifications** are made in the **exterior** of the structure. The **numbers** of structures described in this section are the **maximum allowable** on any legal parcel. Examples of this exemption include but are not limited to:
>
> (a) One single-family residence, or a second dwelling unit in a residential zone. In **urbanized areas**, up to **three single-family residences** may be constructed or converted under this exemption.
>
> (b) A duplex or similar multi-family residential structure totaling no more than four dwelling units. In urbanized areas, this exemption applies to **apartments**, **duplexes**, and **similar structures** designed for **not more than six dwelling units**.
>
> (c) A store, motel, office, restaurant or similar structure **not involving** the use of significant amounts of **hazardous substances**, and not exceeding 2500 square feet in floor area. In **urbanized areas**, the **exemption** also applies to up to **four such commercial buildings not exceeding 10,000 square feet** in floor area on sites zoned for such use **if not** involving the use of **significant amounts** of **hazardous substances** where all necessary public services and facilities are available **and** the **surrounding area** is **not environmentally sensitive**.
>
> (d) Water main, sewage, electrical, gas, and other **utility extensions**, including street improvements, of **reasonable length** to **serve such construction**.
>
> (e) Accessory (appurtenant) structures including garages, carports, patios, swimming pools, and fences.
>
> (f) An accessory steam sterilization unit for the treatment of medical waste at a facility occupied by a medical waste generator, provided that the unit is installed and operated in accordance with the Medical Waste Management Act (Section 117600, et seq., of the Health and Safety Code) and accepts no offsite waste.

(Emphases added.)

Based on the express language quoted above, the Project far exceeds the scope of the exemption and its enumerated examples for the following reasons:

1) The Project is *not* a small structure or facility: it consists of a 104-feet-tall wireless tower, along with twelve (12) new antennas, nine (9) new remote radio units, three (3) tower mounted DC-9 surge suppressors, one (1) GPS unit mounted on proposed outdoor equipment cabinet, one (1) walk-up cabinet, and one (1) 30kw DC generator with a 190-gallon diesel fuel tank on a concrete pad, where the ancillary equipment will be surrounded by an 8' chain link fence; and a 500 square feet structure at the base;

2) The Project is not *part* of the Police Academy on the Project Site and is not installed to *serve* the Policy Academy or any *existing structure* on the site so as to fit under CEQA Guidelines section 15303(d). To the contrary, the Project is a free-standing independent construction in the back of the Police Academy with its own independent purposes unrelated to the Police Academy;

3) The Project is neither a single family home nor a commercial building to fit under CEQA Guidelines section 15303(a) (three single family homes or six such homes in urbanized areas); subdivision (b) (not more than six dwelling units); or subdivision (c) ("four such commercial buildings not exceeding 10,000 square feet in floor area on sites zoned for such use if not involving the use of significant amounts of hazardous substances where all necessary public services and facilities are available and the surrounding area is not environmentally sensitive");

4) Moreover, the Project is proposed in an *environmentally sensitive and significant area*, including in a known landslide zone and on a site with a recorded history of seismic activity;

5) Similarly, the Project *involves* the installation of a 190 gallon fuel tank generator, thereby creating a significant risk of exposure to hazardous substances as it has the potential to leak benzene and produce noxious and chemically hazardous odors in the environmentally sensitive area; and

6) The Project would threaten natural resources, including native plant species and wildlife, in one of the City's environmentally significant and protected areas.

As such, the Project does not fit any description under Class 3 exemption, as accurately detailed by the CEQA Guidelines section 15303 and the City's application of the Class 3 exemption is therefore manifestly flawed, as a matter of law.

Further yet, the Planning Commission's Class 3 CEQA exemption finding is flawed as it fails to consider the applicable *exceptions* to the exemption that would trigger additional environmental review for the Project, as further explained in the following section. The Planning Commission failed to consider the applicability of those exceptions based on: the critical natural resource of Glen Canyon Park, the Project's proximity to Glen Canyon Park and surrounding recreational areas, the Project's location in a known landslide zone, the Project site's history of seismic activity and failures, the historical significance of nearby structures, and unusual circumstances surrounding the Project based on its impacts on fire, seismic, and chemical hazards.

II. THE PROJECT IS SUBJECT TO FURTHER ENVIRONMENTAL REVIEW UNDER CEQA GUIDELINES SECTION 15300.2 BASED ON ITS LOCATION, CUMULATIVE IMPACTS, SIGNIFICANT EFFECTS, AND POTENTIAL IMPACTS ON HISTORICAL RESOURCES.

Even if the Project were eligible for the Class 3 Categorical Exemption, it would nonetheless be subject to further environmental review under CEQA Guidelines Section 15300.2 based on its location, cumulative impacts, significant effects, and impacts on historical resources. 14 CCR Section 15300.2. CEQA Guidelines Section 15300.2 provides several "exceptions" that trigger additional environmental review, even if a project is otherwise eligible for an exemption, including the Class 3 categorical exemption this Project seeks. The Project here implicates several of those exceptions, clearly indicating the need for additional environmental review under CEQA. Section 15300.3 provides the following exceptions that trigger additional environmental review, specifically:

"(a) **Location**. **Classes 3**, 4, 5, 6, and 11 are **qualified** by consideration of where the project is to be located--a project that is ordinarily insignificant in its impact on the environment may in a **particularly sensitive environment** be significant. Therefore, these classes are considered to apply in all instances, **except where** the project may impact on an **environmental resource** of **hazardous** or **critical**

concern where **designated**, **precisely mapped**, and **officially adopted** pursuant to law by federal, state, **or local agencies**.

(b) **Cumulative Impact**. All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.

(c) **Significant Effect**. A categorical exemption shall not be used for an activity where there is a **reasonable possibility** that the activity will have a **significant effect** on the **environment** due to **unusual circumstances**.

(d) Scenic Highways. A categorical exemption shall not be used for a project which may result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway. This does not apply to improvements which are required as mitigation by an adopted negative declaration or certified EIR.

(e) Hazardous Waste Sites. A categorical exemption shall not be used for a project located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code.

(f) **Historical Resources**. A categorical exemption shall not be used for a project which may cause a substantial adverse change in the **significance** of a **historical resource**.

(Emphases added.)

In a nutshell, and among many other things, the Appellant and the community the Appellant represents are particularly concerned about the *safety* of the proposed Project, in light of its *location*. First and foremost, the Project is proposed in the earthquake-induced *landslide zone* mapped by *both* the California Department of Conservation's California Earthquake Hazard Zone Map (Alquist-Priolo Map), as well as the local San Francisco Seismic Hazard Map, as detailed and shown further below. The Project site has a history of seismic failures. This translates into significant landslide and soil failure concerns about the 104-feet tall and 500 feet-base Project sliding down or causing a landslide near the residential areas, Glen Canyon Park and recreational areas, such as youth playgrounds.

Second, the Project is proposed atop of a infill site, as evidenced by the County's own records, which may indicate potential existing contamination. A disturbance or seismic failure at the Project site could have significant and even catastrophic effects on nearby

residences, recreational areas, existing structures, and natural resources, including any subsurface groundwaters which may need to be reached and disturbed in order to secure the 104-feet tower and large base in place.

Similarly, per the Project's *plans* presented to the Planning Commission on September 25, 2025*,* the Project is a 104-feet tall *monopine* – i.e., a 104-feet tower camouflaged as a pine tree with artificial branches and leaves. While all other documents presented to the County suggest that the wireless facility will *not* be a *monopine* and is solely a monopole, AT&T's presented plans speak differently.[1] There is ample evidence that such artificial trees pollute the environment with their plastic branches and leaves which fall off to the ground, stay on the ground, and decay, thus causing soil and groundwater contamination harmful to the public and the surrounding biological resources. Further, at least one of the maps for the Project that were reviewed by the Planning Commission in reaching its determinations, incorrectly depicts the wireless tower on the wrong hill than where it is actually proposed.

Third, there is ample direct expert evidence that wireless facilities similar to what the Project proposes are a significant fire hazard and have caused fires in multiple areas in California. However, far from *mitigating* the fire hazard caused by the Project itself, the County approved the *siting* of such a significant fire hazard just next to a *grove* of *90-feet tall eucalyptus trees*, known for their fire-prone features. Simply put, in the highly foreseeable and likely event of a spark, electrical failure, or fire on the Project's proposed 104-feet wireless tower, or its 500 sf base, or its 30kw DC generator with a 190-gallon diesel fuel tank, the 90-feet eucalyptus trees and aging exotic oak trees in the grove will quickly catch fire with the potential to reach nearby residences, the Glen Canyon Park, recreational areas, and the nearby structures of historical significance, which would be chaotic to evacuate and nearly impossible to contain. Residents in the community are already very vigilant about fires risks from use of firecrackers in the Canyon, including use of fire alert programs through their Resilient Diamond Heights Community organization.

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[1] Based on several inconsistent representations made by AT&T and its representatives, the City should closely scrutinize those representations and and should secure a clear and unambiguous Project description, including as to the nature, type, and precise location of the proposed wireless facility. Without such an accurate Project description, the County's assessment of the Project's environmental impacts and overall benefits, as well as the County's findings of consistency of the Project with various local rules and regulations are legally and factually unsupported and will not pass judicial muster.

Fourth, the Project is proposed near – and will necessarily impact – the Glen Canyon Park on the southwest, which is one of San Francisco's 31 **significant natural resource** areas ("**SNR"**), a sensitive critical resource mapped and recognized by the County of San Francisco. *See* Exhibit 2 (Naturalist David Schmid's correspondence in support of appeal).Glen Canyon Park is known for its rare wildlife species, as well as the wildlife corridor, which the County plans to link to other wildlife corridors in the County.

Similarly, the Project is proposed near the St. Nicholas Antiochian Orthodox Church and childcare center on the northwest, which was built in 1965 and is considered a historical resource. The Project is also bordered by another public park, George Christopher Playground, to the south and east, which is used by childcare centers, for youth sports, and by families and residents walking along the perimeter or near the special children's play area.

As such, the Project poses a direct threat to the environment, including public health and safety, San Francisco's critical and valuable natural resources, and historical resources, in light of the Project's siting on an infill site, with a history of seismic failures, as well as the Project's fire hazards, which may have significant irreversible consequences given the nearby aging grove of oak and eucalyptus trees and surrounding open space.

Additionally, the *location* exception applies here because the Project is proposed next to the Glen Canyon Park, which is a recognized significant natural resource within the City, with its rare species and wildlife. **Exhibit 2** (Naturalist David Schmid's correspondence); **Exhibit 3** (Glen Canyon Park information); **Exhibit 4** (Glen Canyon Master Plan, 2011); and **Exhibit 5** (Glen Canyon Park Birds, Habitat, and the Significant Natural Resource Areas Management Program.)

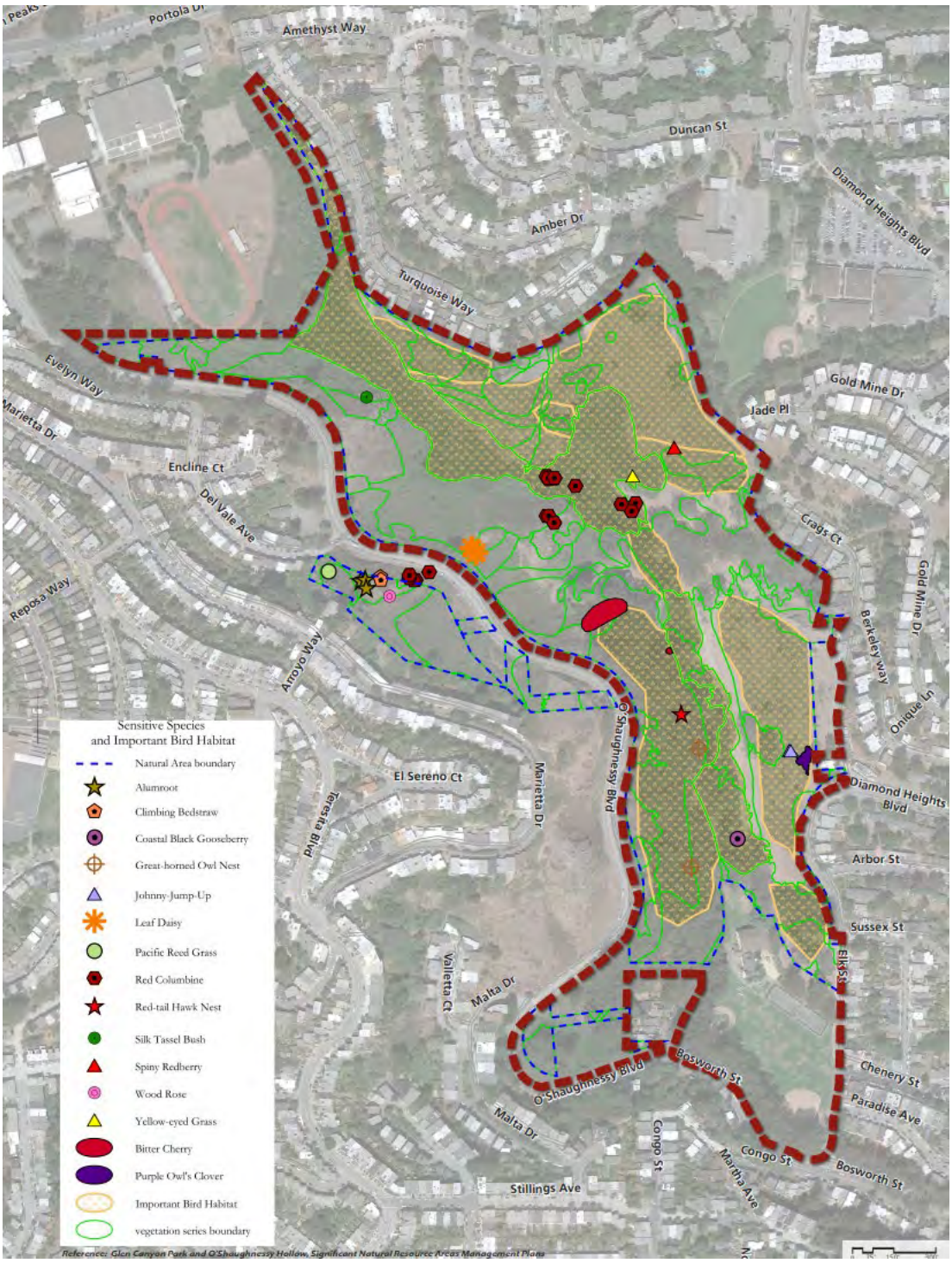
Notably, as the Glen Canyon Master Plan describes it:

> **Site Description:** Glen Canyon Park has incredible, yet often under-recognized, historical, ecological, and recreational features. This urban canyon offers 60 acres of biologically diverse urban wilderness with trails, educational displays, and vista points. **Glen Canyon Park** is **one** of San Francisco's 31 **significant natural resource area**s, with **three native plant** communities: riparian, grassland, and coastal scrub, as well as a **17-acre exotic forest of Eucalyptus trees** near the entrance to the Park.
>
> The canyon is home to **170 species** of **native plants** (including coyote brush, sticky monkey flower, coastal sage, and bee plant), **43 species** of

> birds (such as white-crowned sparrow, black phoebe, red-tailed hawk, red-shouldered hawk, and great horned owl), and **30 species of butterflies**. Other **wildlife** includes **skunk**, **raccoon**, **coyote**, western **fence lizard**, and **meadow** mouse.
>
> (**Exhibit 4,** p. 3, emphases added.)

As noted, Glen Canyon Park is one of the City's "significant natural resource " areas of invaluable environmental importance. The Park was the original territory of the Muwekma Ohlone Tribe. It is a 70-acre natural oasis, serving as a vital green space in the heart of the City. The Park is situated in a deep canyon, with Islais Creek flowing through it. The park is surrounded by the residential communities of Diamond Heights and Miraloma Park, creating a unique urban wilderness experience and setting.

The park's "significant natural resource" areas play a crucial role in maintaining local biodiversity, which has suffered at times, including the loss of natives plant and animal species, underscoring the need for environmental protection at the Project site. Conservation efforts are in place to protect native San Francisco species and their habitats within the park and to encourage people to participate in such efforts. **Exhibit 2**. Community improvement workshops and public outreach efforts have been instrumental in preserving the natural scenery. The park plays a crucial role in prioritizing environmental stewardship among neighbors and local residents who are actively involved in initiatives aimed at preserving its natural resources and educating children and the public generally about local ecology. Glen Canyon Park is home to several native San Francisco species, including the endangered San Francisco garter snake, Mission blue butterfly, and Scarlet Monkeyflower, which is presently the subject of conservation efforts that could be undermined by the Project's impacts. **Exhibit 2**. The park provides a unique opportunity for wildlife observation, allowing visitors to learn about the urban ecosystem and the importance of conservation efforts. As part of a broad strategy to maintain the park's ecological integrity, recent initiatives have been aimed at restoring native habitats within the park, including the removal of non-native trees and planting of native species to enhance biodiversity and create a fire break. **Exhibit 2**. The park thus supports essential and critical biodiversity. It provides an important habitat for birds, including nesting, breeding, and roosting grounds, including for raptors and birds of prey. Mammals, birds, and invertebrates, including coyotes, owls, hawks, among many other animals, all rely on the Park's natural resources for survival, as indicated in the image below, taken from the City's Recreation and Park Department's website:

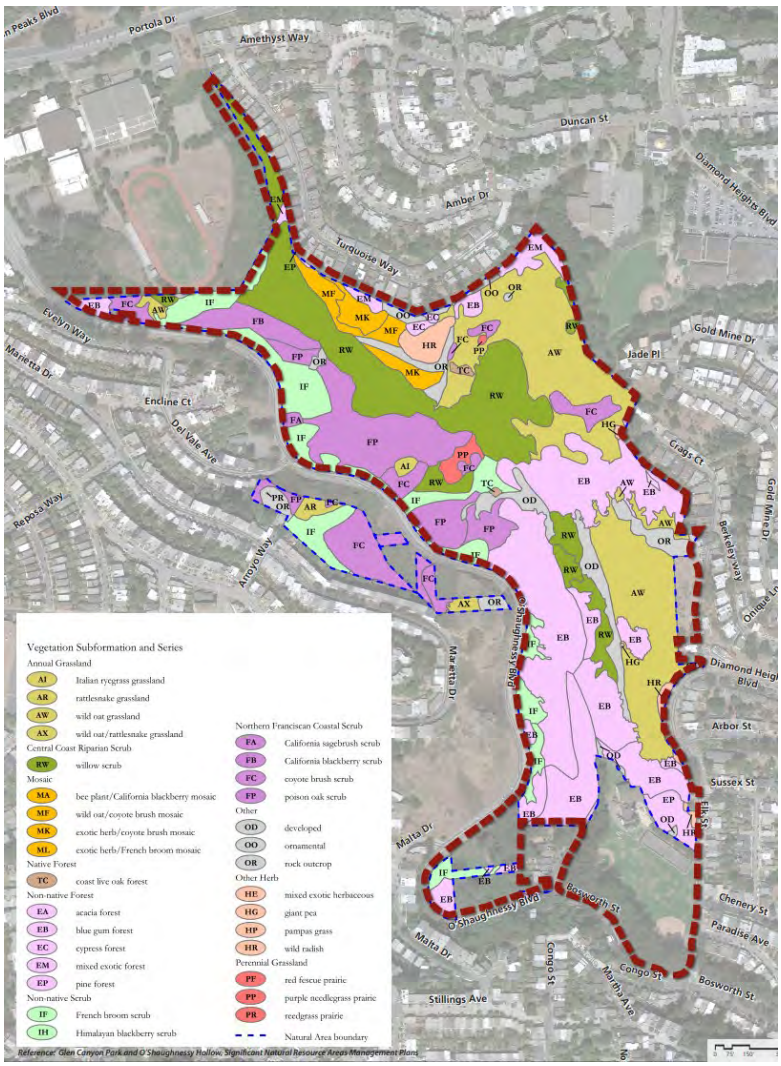


Source: https://sfrecpark.org/DocumentCenter/View/1369/Natural-Resources-PDF

Recreation at Glen Canyon Park is very lively and invaluable to the many people that visit there. The Park is part of the Cross Town Trail and has become a beloved destination for both residents and visitors alike. Wildlife observation is a popular activity within the park, allowing visitors to gain a deeper understanding of their urban ecosystem. The Park offers a rich network of hiking

trails, providing opportunities for both casual walkers and serious hikers to explore the park's natural wonders. The park's urban hiking trails are particularly popular, as they allow visitors to experience the beauty of nature within the City's limits. One of the trails begins at Amber and Turquoise and travels just below the steep hill behind the Police Academy with Oak Trees above and grassy canyon below. George Christopher Park and Playground and Glen Canyon Park serve as focal points in their communities and help foster a deep sense of community among residents. The Playground is used daily for softball and soccer, and for adults and families walking the perimeter of the ballpark. However, the proposed wireless tower would be less than 20 feet from "center field" and near a children's play area that is regularly utilized by a nursery school and children of all ages on a daily basis.

The importance and ramifications of disrupting tree root systems cannot be underscored enough. The required digging to install the massive tower and its foundation will significantly disrupt the roots of the "mixed exotic oak forest" and "blue gum forest" present at the Project site and its vicinity, as indicated in the map below, also taken from the City's Recreation and Park Department's website:



Source: https://sfrecpark.org/DocumentCenter/View/1369/Natural-Resources-PDF

The tower's installation threatens to cause irreversible damage to both the existing tree coverage and underlying root system. When tree roots are damaged in a forest, it can significantly affect nearby trees through several interconnected pathways, including by disturbing underground mycorrhizal fungi linking the trees. These fungal networks link root systems and allow trees to share water, nutrients, and even chemical signals. When roots are damaged, these connections can be severed, reducing the injured tree's ability to receive support from neighboring trees and cutting off its ability to share resources with others. If one damaged tree succumbs, it can set off a chain reaction with far-reaching impacts that destabilizes the local environment. For instance, loss of tree coverage may allow more sunlight to reach the forest floor, dropping humidity levels, allowing increased wind exposure, stressing surrounding trees that are adapted to different conditions. Root damages can also make trees more susceptible to diseases pathogens, pests, and less able to

withstanding environmental elements, such as high winds. Such problems can spread to neighboring trees. For example, root rot fungi can move from weakened trees to healthy ones through root contact, and bark beetles often colonize stressed trees before spreading to nearby healthy trees. Damaged root systems can reduce soil stability, potentially affecting the anchoring of nearby trees and increasing erosion risk that impacts the whole stand. In addition, countless invertebrates and other irreplaceable soil biota have coevolved with the trees for over 150 years and rely on this stability for their survival.

Situating the Project next to this wildlife habitat and critical environmental resource can have destructive effects on the Glen Canyon Park, in light of the hazards the Project entails, as well as the fact that the construction and subsequent operation of the highly charged wireless facility and its EMF, noise, and odors may directly affect and jeopardize native plant species and wildlife in the Glen Canyon Park.

As just one such example of the EMF effects on wildlife and biological resources is the known effect of wireless facilities on bees, birds, and plants. **Exhibit 6** (Articles re: Wireless Facility impacts on biological resources). As stated in the Article and excerpted from various scholarly reports and articles:

> Fig. 3 Effects of **electromagnetic fields** on **Honeybee health**: EMF exposure is proposed to induce both behavioural changes (reduced foraging, increased distress signals, and impaired navigation) and cellular/physiological effects (membrane damage, mineral imbalances, reproductive impairment, stress markers, and genic imbalances). These changes can **lead** to **individual bee death** and potentially **disrupt colony dynamics** and **survival**, which can **ultimately** boost the **process** of **colony collapse disorder**…

(**Exhibit 6,** p. 1, emphases added)

The Article compilation further provides reports of EMF effect on other wildlife and plant species:

> "EMF exposure studies have found ...in **<u>plants</u> reduced growth**, **increased infection** and **physiological** and **morphological changes** (Balodis et al. 1996, Haggerty2010, Waldmann-Selsam et al. 2016, Havas and Symington 2016, Vian et al. 2016, Halgamuge 2017);
>
> in **<u>birds</u>**, **aggressive behavior**, **impaired reproduction** and **interference** with **migration** (Southern 1975, Larkin and Sutherland 1977, Balmori 2004, Balmori and Hallberg 2007, Everaert and Bauwens 2007, Fernie et al. 2010, Engels et al. 2015, Wiltschkoet al. 2015);

> in **livestock**, especially dairy cows, reduced productivity, impaired reproduction, and sudden death (Burchard et al. 1996,Loscher and Kas 1998, Hillman et al. 2013, Stetzer et al. 2016);
>
> in **rodents**, increased **cancer risk** in three long-term studies (Chou et al 1992, NTP 2018, Falcioni et al. 2019);
>
> in **amphibians** (Balmori 2006, Balmori 2010) and **insects** (Cucurachi et al. 2013), **deformities** and population **decline**;
>
> and in **honey bees**, aggressive behavior, reduced learning, reduced productivity, swarming and abandoning hives (Harst et al.2006, Pattezhy 2009, Warnke 2009, Favre 2011, Kumar et al. 2011, Sahib 2011, Shepherd et al. 2019)." (**Exhibit 6,** emphases added)

The Project may, therefore, necessarily have an adverse impact to the adjacent critical environmental resource of the Glen Canyon Park and its biological resources by exposing those to its seismic, fire, chemical hazards and EMF. Therefore, the Class 3 exemption (even if it applied, which it does not as a matter of law) would be inapplicable in this case in light of the *location* exception under CEQA Guidelines section 15300.2(a).

Further, the *cumulative impact* exception under CEQA Guidelines section 15300.2(b) applies here, since location of a *macro* tower on the Project site will necessarily lead to the location and proliferation of similar wireless facilities.

In addition, the *significant impact,* also known as the *unusual circumstances* exception under CEQA Guidelines section 15300.2(c) applies here, in light of the unusual circumstances of:

(1) the massive design, location and size of the Project (a 104-feet monopine or monopole with its numerous antennas, over 500 sf facility and a 190 gallon fuel tank);

(2) its potential landslide hazards and history of soil instability and collapse on the Project Site, especially during winds and earthquakes which are not uncommon for the Project site and for San Francisco;

(3) its fire hazards and exacerbation of fire risks, including considering the presence of Glen Canyon nwhich are generally prone to fire;

(5) its use of the 190 gallon fuel tank which may further lead to soil contamination and air pollution, as well as noise and disturbance to the surrounding community, including residents nd wildlife;

(6) its proximity to the children's playground and densely populated residential area, and structures of historical significance.

As explained in greater detail further below, the Project may have significant destructive impact on the surrounding people and critical biological resources and may further exacerbate the existing hazards on the Project site.

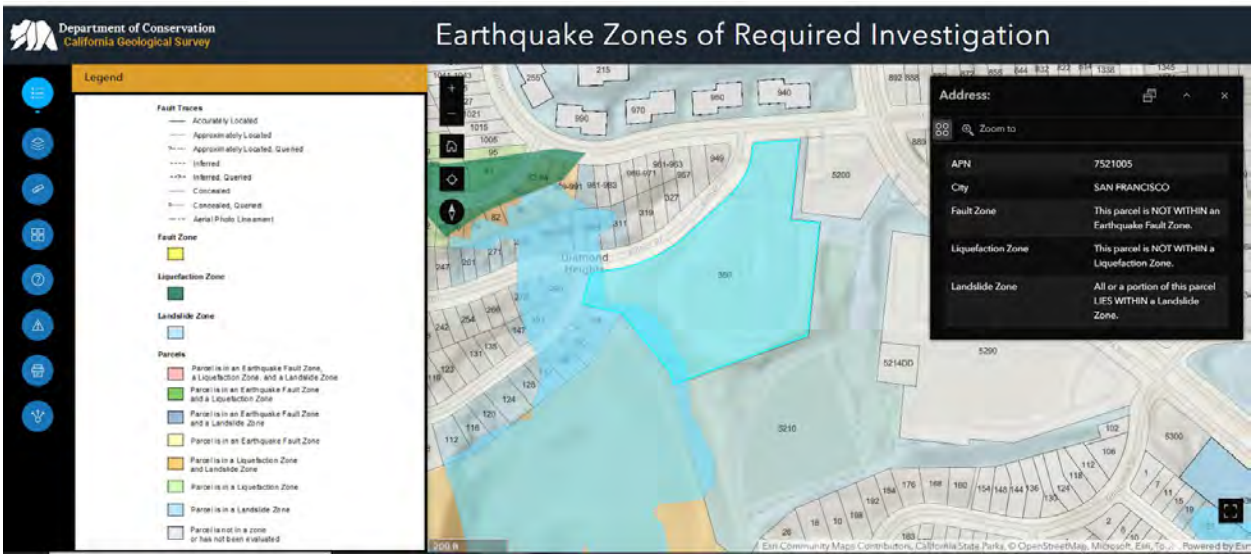
Lastly, the Project would qualify for the *historic resource* exception under CEQA Guidelines section 15300.2(f), since the Project, in the likely and foreseeable event of landslide or fire hazard, may adversely impact the nearby St. Nicholas Church, built in 1960. **Exhibit 25** (St. Nicholas Antiochian Orthodox Church Parish Information). While the County reviewed the Project Site and the building of the Police Academy itself for historic significance, it failed to review the potential historic significance of the nearby church and other nearby structures of historical import. Based on the rich history of the Church and its architectural style and age, it may well qualify as a historical resource and landmark by the City.

III. THE PLANNING COMMISSION FAILED TO FULLY CONSIDER AND ANALYZE THE PROJECT'S SEISMIC HAZARDS AND ASSOCIATED RISKS.

The Planning Commission has received numerous concerns and significant evidence about the Project's being proposed at a site with a history of landslides and seismic failures. We hereby fully incorporate herein all of those public comments and evidence by reference and direct the Board of Supervisors to such evidence.

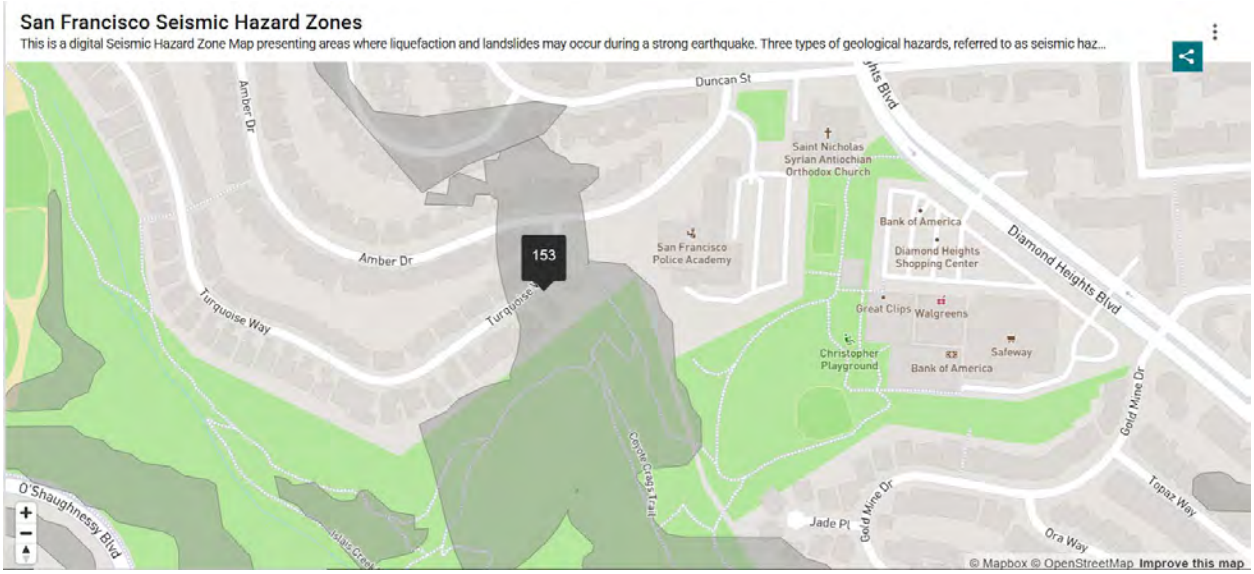
In addition, *nowhere* in the County's 9/25/2025 Staff Report for the Project, did the County Planning Department duly disclose to the Planning Commission the undeniable fact that the Project is located within the *landslide* zone as mapped by the State of California in its EQ Zapp: California Earthquake Hazards Zone Application map[2], as shown in the screenshot below:

[2] See, https://maps.conservation.ca.gov/cgs/informationwarehouse/eqzapp/



The California State map screenshot above expressly states that the site at 350 Amber Drive, San Francisco – in turquoise – "LIES WITHIN a landslide zone."

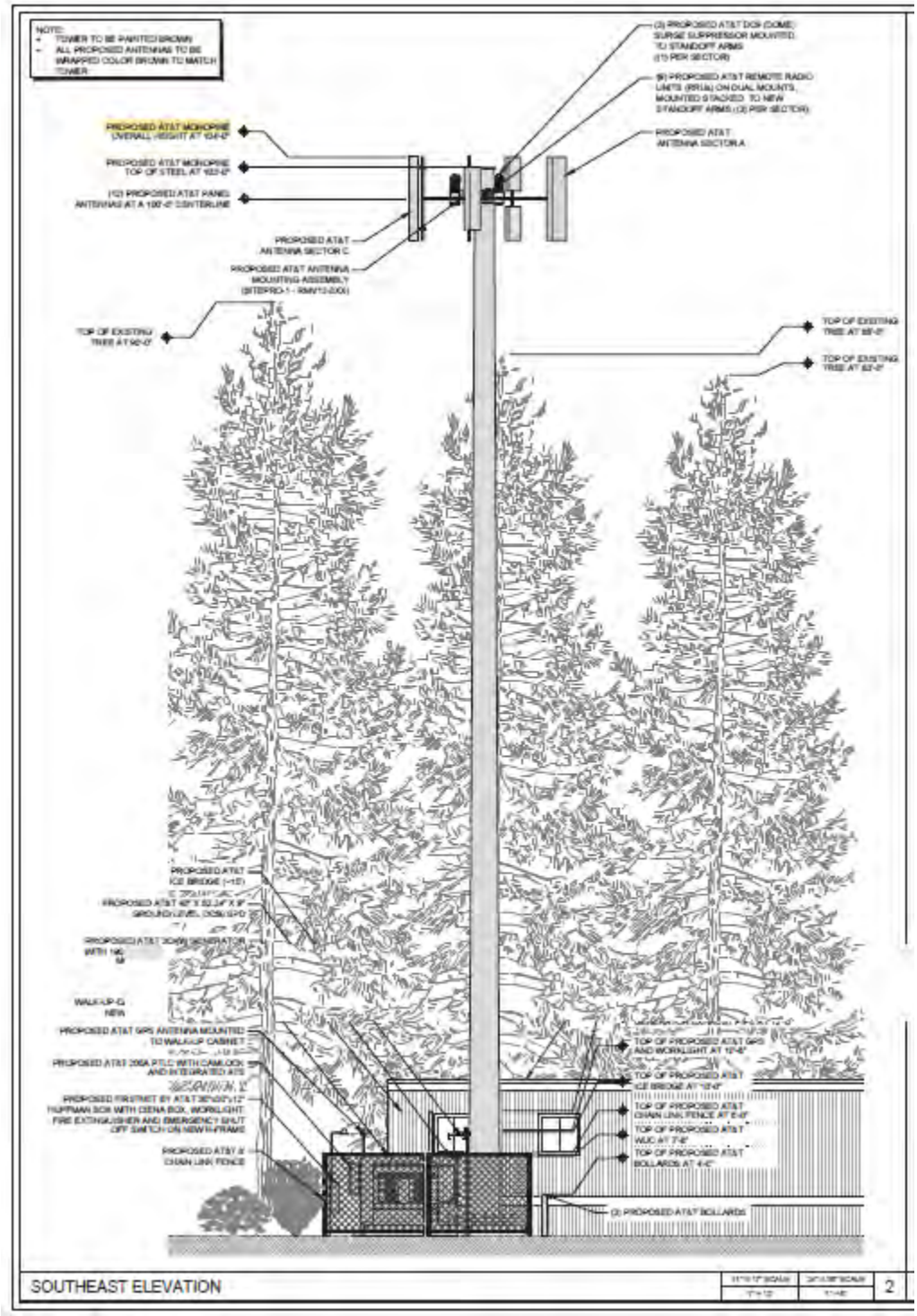
Notably, San Francisco's local seismic map[3] similarly confirms that the Project site lies within the landslide zone, as shown in the screenshot below:



The above noted maps, along with the Project site's long and undeniable history of landslides and seismic failures as noted in prior public comments, conclusively confirms that the Project's siting on such unstable soils may be a critical error and may have irreversible consequences.

[3] See, https://data.sfgov.org/-/San-Francisco-Seismic-Hazard-Zones/7ahv-68ap

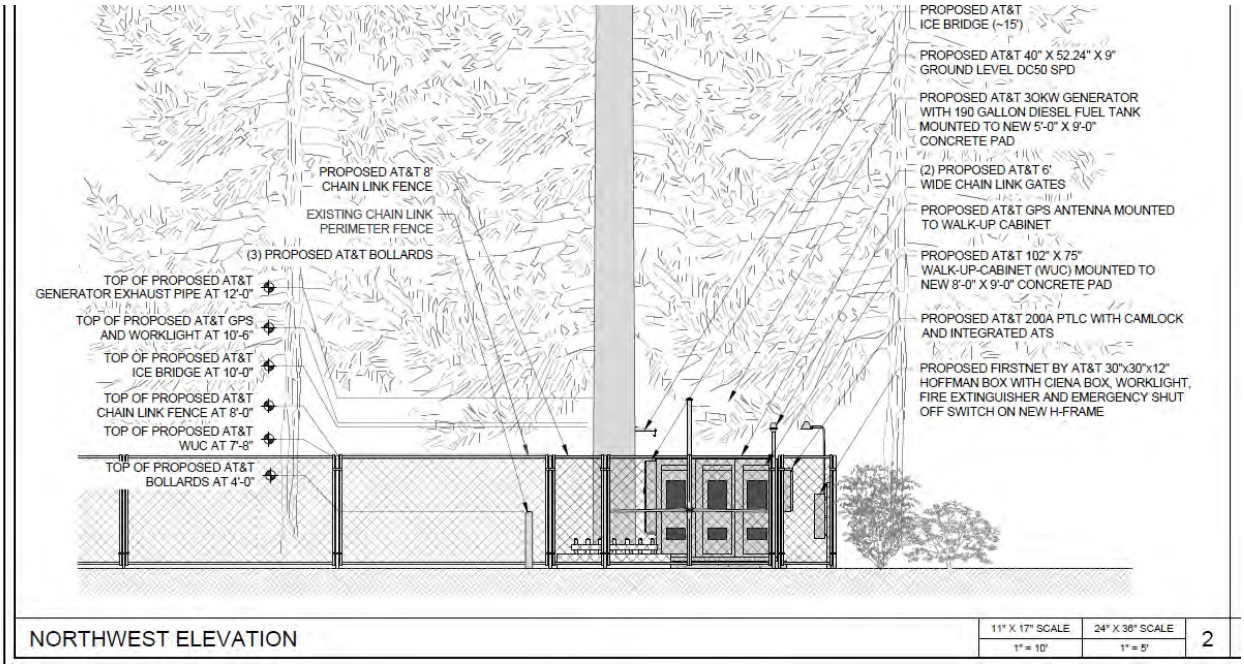
To wit, the Project proposes a 104-feet tall monopine or monopole, surrounded by 90-feet eucalyptus tree grove, as depicted on the screenshot from the Project plans below:



Undeniably, to secure this 104-feet tall monopine or monopole to the ground and to do it in the unstable soils the Project site lies on, the 104-feet tall monopine or monopole should be mounted about 90 feet deep in the ground, which may and will affect the tree roots of the nearby eucalyptus grove, the groundwaters, and will also affect the natural drainage patterns on the Project site and obstruct their course, creating runoff and flooding problems.

In addition, unlike trees with massive roots that not only hold the tree secure to the ground but also secure surrounding soils with their roots, the 104-feet tall monopine or monopole may become highly susceptible to the winds and may simply give-in and collapse, causing significant fire and other safety risks to nearby residents and their environment. Indeed, the nearby Diamond Heights community and vicinity are some of the windiest locations in the entire City and have recently experienced red flag warnings from high wind events. Climate change has only exacerbated wind impacts in the area and could compound and exacerbate fire risks by increasing the potential for spread and limiting emergency response efforts.

Moreover, per the Project plans, the Project proposes a 20'-0" X 27'-6" AT&T Telecommunications facility (~550 SQ. FT.) and a 190-gallon fuel tank generator, as shown on the screenshot below from the Project plans:



The above-described massive base, along with its 190 gallon fuel tank generator, will necessarily have to be secured in place through a substantial amount of grading, excavating, and a concrete pad, which may require removal of or damage nearby trees

and changes to natural drainage patterns, which may, in turn, cause a landslide event and the associated public health and safety hazards, apart from the adverse impacts to the surrounding Glen Canyon Park and its biological resources.

The Planning Commission's *omission* of the above-noted landslide risks and associated hazards and public health and safety risks in assessing whether the Project is properly sited constitutes cannot withstand judicial scrutiny.

IV. THE PLANNING COMMISSION FAILED TO FULLY CONSIDER AND ANALYZE THE PROJECT'S FIRE HAZARDS AND ASSOCIATED RISKS.

The Planning Commission has received numerous concerns and significant evidence to support the fact that the proposed Project is a fire hazard, which cannot – and should not be placed – near the critical natural resource of the Glen Canyon Park, in densely populated residential community, near recreational areas and another park, and just next to the grove of 90-feet eucalyptus trees known for their fire-prone features.

We incorporate by reference all of those public concerns about the Project's fire hazards submitted to the County to date, including the comments by Susan Foster, co-founder of the California Fires & Firefighters Organization and also a writer and an Honorary Firefighter with the San Diego Fire Department and a member of the 2001 Task Force in San Diego County that created the County's first wireless ordinance, among her many other achievements. That ordinance survived a challenge all the way to the U.S. Supreme Court. Susan Foster has worked with rank-and-file firefighters in California and across the country over the last 20 years on the issue of RF radiation health and safety." Susan Foster is also "a Fire Safety Consultant asked by then-Mayor Mikke Pierson of Malibu to assist in creating an ordinance for wireless communications facilities (WCFs) that would elevate the level of safety for Malibu by reducing the risk of telecommunications fires."

For the ease and convenience of the Board of Supervisors, we attach some of the comments and evidence presented by Susan Foster as **Exhibit 8** hereto. Briefly, in all of her comments and attachments, wireless facility fire expert Susan Foster confirms the inevitable fire hazards the Project will expose the nearby community to, the proximity of the Project to people and environmental resources of critical concern, as well as facts of prior fires which were caused by wireless facilities, akin to and even much smaller than, the Project's proposed 104-feet tall monopine or monopole with its 500 square feet base and 190 gallon fuel tank generator.

In addition, we hereby present two White Papers: first on fires in the City of Malibu authored by Susan Foster, and second, on LA County Wireless Ordinance authored and co-authored by the fire expert Susan Foster and an expert electrician, Tony Simmons. **Exhibit 9** (Malibu White Paper); **Exhibit 10** (LA County White Paper). The referenced White Papers contain testimonies of firefighters, describing the specific danger and complications posed by the wireless facility caused fires, the high and severe risks of those fires for firefighters, and the extreme difficulties in putting out such fires, in light of the need to wait for at least 30 minutes and at times for hours for the wireless facility to get deenergized before trying to extinguish the fires. In addition, as the experts and the firefighter witnesses they reference show, fires caused by wireless facilities cannot typically be extinguished with water, as with other fires, and require a more resource intensive response.

Tony Simmons, P.E., who co-authored the above-referenced Malibu White Paper, updated by Susan Foster on February 16, 2022, is a "professional engineer with decades of electric fire safety experience" who "has synthesized an electric fire safety protocol tailored to the specific needs of fire-prone Malibu." Mr. Simmons is an "electrical engineer licensed by the States of California and Nevada. He is a recognized subject matter expert on electrical safety. As an employee of NV Energy, which served customers in California and Nevada, he was responsible for ensuring that no gap existed between the safety standards for customer-owned equipment and utility-owned equipment. Mr. Simmons designed a specialized test facility that integrated electrical equipment from East Asia, Europe, and the United States. This test site incorporated grounded and ungrounded electrical systems from all three regions and required Mr. Simmons to integrate standards from three regions to adhere to the technical requirements of the U.S. National Electric Code." **Exhibit 9.**

As evidenced by extensive research and comments by Susan Foster and Tony Simmons, P.E., wireless facilities may and do cause fires, that can be highly precarious and challenging to contain.

Further, as legally defined, "wireless towers" encompasses not only the main structure and tower itself, but also the tower's accessory or associated structures, which can also create and exacerbate fire risks and hazards. California law defines wireless towers as follows:

a. As described in 47 C.F.R. §1.6100(b)(9), wireless "**towers**" are a "structure that is built for the sole or primary purpose of supporting any FCC-licensed or authorized antennas, including on-site

fencing, equipment, **switches**, **wiring**, **cabling**, power sources, shelters, or cabinets **associated** with that **tower** but not installed as part of an antenna."

b. Similarly, "**associated equipment**," as defined under 47 C.F.R. Section 1.6002(c), or any successor provisions, includes "equipment, **switches**, **wiring**, cabling, power sources, shelters or cabinets associated with an antenna, located at the same fixed location as the antenna, and when collocated on a structure, is mounted or installed at the same time as such antenna."

c. "Wireless facility" is the "antenna facility used for the provision of wireless services at a fixed location, including, without limitation, any **associated support** structure(s)."

f. "**Support structure**" means County **infrastructure**, streetlight **poles**, **towers**, or utility poles."

There is no doubt that the Project's proposed wireless macro facility would introduce substantial associated structures beyond just the main tower, including extensive wiring, which can independently carry their own fire risks and exacerbate such hazards.

As summarized in the LA County White Paper authored by Susan Foster and Tony Simmons, P.E., fires caused by wireless facilities are unusually severe and hard to extingush as they need time to deenergize and should not be addressed with water:

> "We also provide several examples of the ways electrical fires can start in cell towers and why the new small cell infrastructure poses unique threats to Malibu. In addition, we demonstrate that setbacks and separation will accommodate telecommunications yet allow enough space and distance for residents to escape should an electrical fire still occur. **Electrical fires cannot** be **extinguished** by **homeowners** or **even firefighters until power** to the **facility** is **cut** by the **utility**."

(**Exhibit 10,** p. 9, emphases added.)

. . . .

> "In some instances, **de-energization** of a cell tower has taken **over 60 minutes**. In such a circumstance, **distance** from **residences**, **schools** and **other buildings** may mean the **difference** between **life** and **death**."

(**Exhibit 10,** p. 10, emphases added.)

. . . .

> "**Homeowners** should **never fight** a **cell tower fire** even if it is directly in front of their home. To **fight** an **electrical fire before** the **tower** has been **de-energized** by the local utility (10 to 60 minutes) **risks electrocution**. Residents of Malibu must **flee their homes** in the event of an electrical fire and that is why **distance between towers** and **setbacks** from homes is **critical**."

(**Exhibit 10,** p. 10, emphases added.)

As further opined by expert Susan Foster, the 5G technology – where the allegedly 4G Project is undoubtedly headed after it gets approved – poses unusual and more severe fire hazards, due, in part, to their need for deenergizing in case of fire, and densification:

> Wireless Communications Facility (WCF) **proliferation** increases the possibility of **electrical fires**. As such, **electrical fire** safety became a priority for Malibu, a city that has burned twice at the hands of **telecommunications** equipment in just the last 15 years alone.

(**Exhibit 10,** p. 8, emphases added.)

> "It is not the frequency of cell tower fires that concerns us the most. It is the **severity** of what a **single cell tower fire** can do. The **biggest risk** is that WCFs [] have been brought **much closer** to local populations and those installations are much **more densely** situated. Every electrical device including every WCF must be **deenergized** before a fire can be fought. On a good day that can happen in 10 minutes. Some cities find that it is 30 minutes or more before the electric company cuts the power. **If** the firefighters fight the fire **before** the tower is **deenergized**, they can be **electrocuted**. A **lightning strike** is a type of transient event that may lead to **WCF catastrophic** failure. Malibu residents will recall in May of 2019, just before Memorial Day weekend, several beaches were closed in Malibu because of a lightning storm that created unsafe conditions. **Thus, the placement of WCFs must allow time and space for escape because a fire originating in a WCF must not be fought by residents or by firefighters until SCE has turned off the power. This is why we propose separation and setback requirements as strategies to mitigate risk to residents**."

(**Exhibit 10,** p. 24, emphases added.)

Furthermore, as a firefighter testified in Susan Foster and Tony Simmons' LA County White Paper,

> "If the fire involves **energized equipment**, **do not** put **water** on it. Use water only to extinguish anything like trees, grass, vegetation, etc. that it may spread to, and then **use water** in **short bursts** if it's adjacent to the pole. Call the utility company immediately so they can de-energize. **Keep people back** for **2 spans** in either direction and make sure **all personnel** and equipment **stay out** from under the **power lines**. Focus on **public safety** and **exposure** protection until it's confirmed that the power has been shut off."
>
> (**Exhibit 10,** p. 25, emphases added.)

To the extent the County here may be relying on regulatory compliance – i.e., the Project's compliance with the building code or electrical code – to wash its hands off of the above-described severe fire (and landslide) hazards that the Project may and will bring to the Project site, such reliance is misplaced. As the January 2025 wildfires in Los Angeles County, as well as other wildfires that occurred in California, confirmed, the devastation that follows a wildfire is immeasurable and should not be taken lightly. And no building, electrical or seismic codes or regulations may protect the public from such devastation, as evidenced by numerous articles on the recent LA Fires, which took weeks to contain and extinguish. **Exhibit 11** (Articles on LA Fires in January of 2025).

Compounding the above-noted highly likely and inevitable fire hazards of the Project, it is also proposed near *eucalyptus* tree grove, as shown on the screenshot below from one of submissions presented by Susan Foster:

(*See also* **Exhibit 8**)

The Planning Commission was informed – but disregarded – the fact that *eucalyptus* trees are particularly prone to fires, in light of their oily leaves. In fact, in light of those fire hazard concerns, numerous cities have engaged in the removal of the eucalyptus trees to prevent fire hazards, as evidenced by numerous articles and undisputed evidence. **Exhibit 12** (Articles on eucalyptus trees and various measures to remove those). To wit, as an Article by the National Park Service, U.S. Department of the Interior described the fire hazard problem with eucalyptus trees:

> The **fragrant oils** in eucalyptus **leaves** can be very pleasing, but also **alter** soil chemistry, and **can become highly flammable** when the **leaves accumulate** as **surface fuel**. Studies have shown that native species are displaced in **eucalyptus groves** and **fuel loads are higher**. Without active management, historic landscapes can become overgrown, biological diversity can decline, and the **potential** for **catastrophic wildfire** can **increase**.
>
> Eucalyptus management at Golden Gate National Recreation Area strives to achieve three main goals—**fire safety**, **historic preservation**, and **ecosystem health**.

(**Exhibit 12,** emphases added.)

As another article described the problem and benefits of *eucalyptus* trees:

> Eucalyptus **trees** are simultaneously **dry** and **filled** with **flammable oil**. They shed **long**, **shaggy debris**, covering the **ground** with **dry fuel** for **wildfires**, and when they **catch fire the oil** in them **burns hot** and **fast**. **Their seed pods** can **explode** in a **wildfire**, **shooting embers** across the landscape….
>
> On the other hand, they provide **vital shade** and **habitat** for **native** and **endangered species**. Their **tall crowns** and **long limbs collect dew** that **rains down** on the forest floor after foggy San Francisco nights.

(**Exhibit 12,** emphases added.)

To be clear, we are not advocating for the removal of the *grove* of 90-feet trees from the Project site, since those trees, apart from their natural benefits, also help to withstand and mitigate impacts from winds. **Exhibit 13** (Article re: Windbreak from Eucalyptus trees) and protect the site from landslides with their roots, which is critical for the site within a known landslide zone.

It is important to underscore the problem posed by the Project, which will significantly increase the fire hazards and destruction of those eucalyptus and oak

trees by both bringing an inevitable fire hazard of a 104-feet tall and very heavy electrically-powered tower next to such highly-flammable trees and also potentially damaging and killing those trees and their roots by the placement of the 104-feet tall monopine or monopole and its accessory 500 square foot structure on a concrete pad, along with the 190 gallon fuel tank generator next to it.

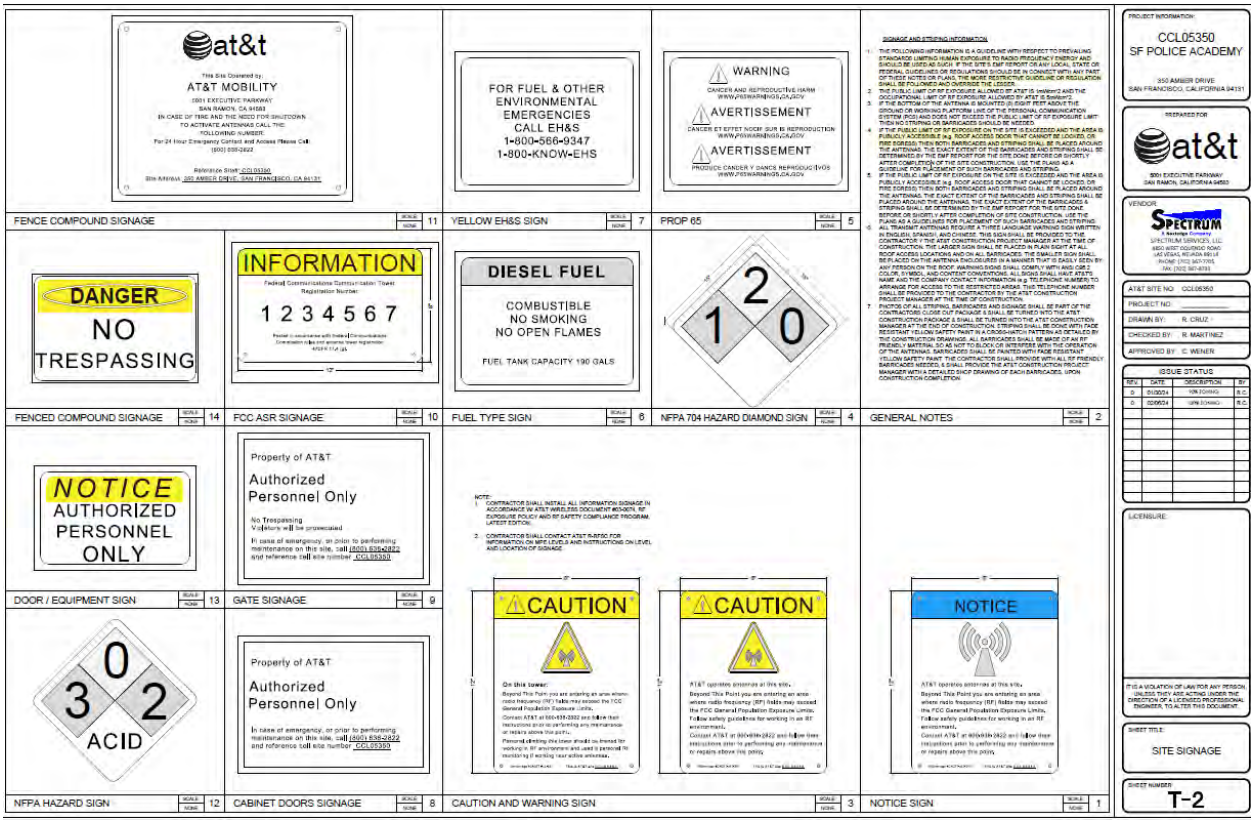
While the above-described fire hazards caused by the Project would undoubtedly lead to devastating destruction of the Glen Canyon Park and its wildlife and biological resources, those fire hazards may become extremely dangerous for the residential community and residents, including vulnerable populations like seniors and children in the nearby nursery schools and children's playground, people at the shopping center or people at the nearby church – all near the Project site and its vicinity.

For these critical safety reasons too, Appellant urges the Board to grant the instant appeal, to deny the Project outright, to set aside the findings of the Planning Commission, or – at a minimum – to require preparation of an EIR, to duly analyze and mitigate all the fire hazards and the public health and safety risks raised by the Project's siting, which were ignored by the County or the Planning Commission.'

V. THE PLANNING COMMISSION FAILED TO FULLY CONSIDER AND ANALYZE THE PROJECT'S CHEMICAL HAZARDS AND ASSOCIATED RISKS.

The Planning Commission plainly disregarded the fact that the Project will introduce a 190 gallon fuel tank generator on the site. The problem is, such fuel tank generators *do leak*, and they often leak a dangerous combination of hazardous substances, including *benzene*. (**Exhibit 14** [Articles re: Generator Leak and Benzene Effects on Human Health].)

In fact, the Planning Commission conveniently disregarded the fact that the Project plans acknowledge these chemical and other hazards of the Project and identify numerous *hazard* signs to be installed on the Project site, as shown in the screenshot from the Project plans below:



According to the California Lung Association, diesel exhaust is a complex mixture of thousands of gases and fine particles, or particulate matter that contains more than forty (40) hazardous substances and air contaminants. These substances and contaminants include many known or suspected cancer-causing substances, such as benzene, arsenic and formaldehyde. The microscopic particulate matter is capable of penetrating and reaching essential organs. Children can be especially vulnerable because of their development and faster breathe making them more susceptible to pollution, especially fine particulate matter. Exposure to fine particles is associated with increased frequency of childhood illnesses and can also reduce lung function in children. New research from the national library of medicine is linking air pollution to impacts on children's neurological systems and development such as IQ and cognitive ability.

Siting a 190 gallon fuel tank next to a children's playground may also adversely affect children's health, especially since children are especially vulnerable and susceptible to benzene exposure, relative to adults. As stated in an Article on this issue:

> In particular, the **pharmacokinetics** of **benzene** differ widely between **children** and **adults** due to children's **incomplete** metabolic systems, rapid tissue regeneration, immature host defenses, activity patterns, and

> high rates of infection by respiratory pathogens. 22,23 Thus, **children** are **more susceptible** to the effects of **environmental toxic pollutants**. However, the **susceptibility** to **benzene** may vary due to its effect that arises, in part, from genetic variations in its metabolism, DNA repair, genomic stability, and immune function.

Exhibit 16 (Article re: Benzene Effect on Children).

Critically, benzene is known for its adverse and significant impacts on human health, apart from other hazards. As one of the provided articles describes:

> Short encounters with high levels of benzene can cause **drowsiness**, **dizziness** and **unconsciousness**, while **chronic exposure** has long been linked to **leukemia** and other **blood cancers**. Recent studies also link the chemical to **diabetes** and **reproductive problems**.

(**Exhibit 14,** emphases added.)

Moreover, the 190 gallon fuel tank generator may affect residents' health from its *operation,* whereby the generator produces noxious benzene odors. **Exhibit 15** (Article re: Generator Odors). As the Article states:

> The complaint against diesel generators comes from the high temperatures it produces, along with the distinctive smokey odor. This combination of a noxious odor and high temperature causes problems when the generator is operating. Placement of the exhaust stack and changing wind direction can cause the smoke, heat, and odor to re-entrain into the facility or a neighboring building.

Exhibit 15.

In addition, siting of a 190 gallon fuel tank generator will affect the nearby biological resources of the Glen Canyon Park and other parks. Notably:

> Benzene can volatilize into air from soil and water. Once in the atmosphere, benzene breaks down (biodegrades) within a few days. In soil and groundwater, the biodegradation process is slower.
>
> Benzene is slightly soluble in water and can migrate through the soil column into groundwater. Because benzene is a light non-aqueous phase liquid (LNAPL) it can collect on top of the water table. Benzene biodegradation in groundwater can take days to years, depending on oxygen concentration, temperature, and the presence of favorable bacteria.

Exhibit 17 (Article re: Benzene Characteristics).

Thus, per EPA[4] official website information and report, "[i]n animals, chronic inhalation and oral exposure to benzene produces the same effects as seen in humans." and "[a]nimal studies show neurologic, immunologic, and hematologic effects from inhalation and oral exposure to benzene.." **Exhibit 18** (EPA Report re: Benzene Effects). This translates into adverse effects to the wildlife and biological resources surrounding the Project that the Project will cause, apart from impacts on public health.

Thus, in light of these significant concerns, Appellant urges that the Boards consider the above-noted hazardous effects of the Project on the health and safety of the nearby residents and particularly children, given the Project's proximity to an adjacent children's playground and visitors of the nearby parks. We further urge the Board of Supervisors to consider the effect of the Project on the surrounding critical natural resource and wildlife of Glen Canyon Park.

VI. IN SUM, THE BOARD SHOULD APPROVE APPELLANT'S APPEAL OF THE PLANNING COMMISSION'S CEQA EXEMPTION DETERMINATION FOR THE PROJECT.

In sum, in light of the Project's undeniable and potentially significant impacts on the environment and natural resources, public safety, and human health based on its seismic, fire, and chemical hazards, the Project's CEQA Class 3 categorical exemption must now be reversed and the Project denied. Alternatively, and at minimum, the Project should be required to undergo additional environmental review, including a comprehensive review of potential mitigation measures that may help address and ameliorate the Project's significant impacts as well as viable project alternatives.

For all of the reasons stated above, the Planning Commission's approvals and its CEQA Class 3 exemption determination must be set aside, because the Project was approved without an adequate CEQA clearance and since the Project will have significant impacts, requiring, at a minimum, preparation of an EIR before any ultimate approval or full entitling of the Project may occur.

Lastly, Appellant urges the Board to consider the policy objective of CEQA in hearing this appeal, namely to encourage public participation and input in thoughtful and well organized land use planning that carefully considers and addresses environmental impacts from proposed developments. "CEQA compels an *interactive process* of assessment of environmental impacts and *responsive* project *modification* which

[4] See, https://www.epa.gov/sites/default/files/2016-09/documents/benzene.pdf

must be *genuine*. It must be *open* to the public, premised upon a *full* and *meaningful disclosure* of the scope, purposes, and effect of a consistently described project, with *flexibility* to *respond* to *unforeseen insights* that emerge from the process. In short, a project must be open for public discussion and subject to agency modification during the CEQA process." *Concerned Citizens of Costa Mesa, Inc. v. 33rd Dist. Agricultural Assn.*, 42 Cal.3d 929, 936 (1986).

VII. CONCLUSION.

In sum, the Planning Commission's approvals for the 350 Amber Drive Project on September 25, 2025 must now be reversed by the Board because they are fundamentally and demonstrably flawed. At a high level, the Project is facially ineligible for the Class 3 Categorical Exemption, as a massive, 104-foot wireless tower simply does not qualify as a "new, small facility" under the clear statutory language of CEQA Guidelines Section 15303. The Project's eligibility for this exemption is further undermined because it does fall under any of the examples enumerated in the statute. The County's reliance on an inaccurate version of the Class 3 categorical exemption compounds that problem and contravenes the objectives of CEQA.

Even if the Project were eligible for the categorical exemption, it must nevertheless be required to undergo further environmental review due to the applicability of several *exceptions* triggering further review. Specifically, the Project implicates and triggers the location, cumulative impact, significant effect, and historical significance exceptions under CEQA Guidelines Section 15300.2 based on its seismic, fire, and chemical hazards as well as its proximity and threat to critical natural resources, recreational areas, nearby residencies, vulnerable populations such as seniors and children, and significant historical resources.

The Board should also accept and hold a public hearing regarding Appellant's CUA appeal filing and reverse the Commission's Conditional Use Authorization and Shadow Findings. The Commission's findings were improper and based on informational flaws and the Project itself is inconsistent with the City's own General Plan and land use policies.

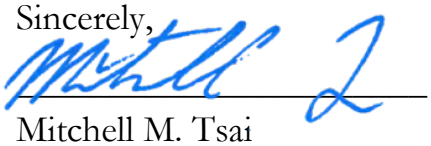
Appellant urges the Board to approve both the CEQA and CUA appeals in their entirety, reversing the Planning Commission's CEQA Exemption Determination and its approval of the Conditional Use Authorization and Shadow Findings, and deny the Project outright. The totality of the evidence, including the clear legal inapplicability of

the CEQA exemption and overwhelming environmental and public safety concerns, compels the denial of a project incompatible with the City's own General Plan and land use policies.

Should the Board nonetheless permit this controversial Project to move forward, it is legally obligated to approve the CEQA appeal and require the preparation of a full Environmental Impact Report (EIR) for the Project. An EIR is the highest form of environmental review and is especially necessary here to accurately assess the Project's significant impacts on the sensitive environment, evaluate feasible mitigation measures, and consider less destructive project alternatives. The Project's mass, scale, associated seismic, fire, and chemical hazards, and critical setting in one of San Francisco's naturally significant areas warrant the most rigorous public disclosure and environmental analysis to ensure the protection of the impacted community and the natural resources of Glen Canyon Park. Such reasoned and detailed review regarding the Project's impacts are also critical and required by law, in the event the case proceeds to judicial review. Lastly, Appellant respectfully requests that the Board direct City Staff and the Project applicant to address the public's concerns and comments regarding the Project.

Should the City have any questions or concerns regarding this correspondence, please do not hesitate to contact our office.

Sincerely,



Mitchell M. Tsai
Omar Corona
Attorneys for Appellant

Attachments:

Exhibit 1: CEQA Exemption Determination of the County;

Exhibit 2: Naturalist David Schmidt's correspondence in support of this appeal, describing Project impacts;

Exhibit 3: Glen Canyon Park information, San Francisco Recreation and Parks;

Exhibit 4: Glen Canyon Park Master Plan;

Exhibit 5: Glen Canyon Park Birds Habitat;

Exhibit 6: Effects of Wireless Radiation on Birds and Other Wildlife – a March 3, 2025 compilation of scientific and expert reports on electromagnetic radiation safety;

Exhibit 7: (intentionally omitted)

Exhibit 8: Fire expert Susan Foster's prior submissions to the County and the Planning Commission for the Project;

Exhibit 9: Fire Expert Susan Foster's and electrical engineer expert Tony Simmons, PE's authored Malibu White Paper;

Exhibit 10: Fire Expert Susan Foster's authored County of LA White Paper;

Exhibit 11: Compilation of Articles on January 2025 LA Fires and related destructions;

Exhibit 12: Articles on Eucalyptus trees;

Exhibit 13: Article on the use of Eucalyptus trees for a windbreak;

Exhibit 14: Articles re Leaking Generators and Chemical Hazards of Benzene on the nearby public;

Exhibit 15: Article on the air pollution of generators entitled "How to Avoid the Exhaust Associated with Diesel Generators";

Exhibit 16: Article on benzene effect on children, as compared to adults;

Exhibit 17: Report on the chemical composition and effect of benzene;

Exhibit 18: EPA re: animal health as related to benzene;

Exhibit 19: County's Planning Code Section 303;

Exhibit 20: County's Planning Code section 101 and 101.1;

Exhibit 21: Introduction to the County's General Plan, as obtained from the County's website;

Exhibit 22: General Plan Up to Date, as obtained from the County's website;

Exhibit 23: Recreation and Open Space Element of the County's General Plan, as obtained from the County's website;

Exhibit 24: Safety and Resilience Element of the County's General Plan, as obtained from the County's website;

Exhibit 25: St. Nicholas Parish History.

EXHIBIT 1

San Francisco Planning

49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103
628.652.7600
www.sfplanning.org

CEQA Exemption Determination

PROPERTY INFORMATION/PROJECT DESCRIPTION

Project Address		Block/Lot(s)
350 AMBER DR		7521005
Case No.		**Permit No.**
2024-004318ENV		
■ **Addition/ Alteration**	☐ **Demolition (requires HRE for Category B Building)**	☐ **New Construction**

Project description for Planning Department approval.

A (N) AT&T UNMANNED TELECOMMUNICATION FACILITY CONSISTING OF INSTALLING:
· INSTALLATION OF A 20'-0" X 27'-6" AT&T TELECOMMUNICATIONS FACILITY (~550 SQ. FT.)
· INSTALLATION OF A AT&T 103'-0" MONOPOLE
· INSTALLATION OF A AT&T 8' CHAIN LINK FENCE
· INSTALLATION OF (2) AT&T 6' WIDE AND (1) 4' WIDE CHAIN LINK GATES
· INSTALLATION OF AT&T ANTENNA MOUNTING ASSEMBLIES AT A 100'-0" CENTERLINE
· INSTALLATION OF (12) AT&T PANEL ANTENNAS MOUNTED AT A 100'-0" CENTERLINE ((4) PER SECTOR)
· INSTALLATION OF (9) AT&T REMOTE RADIO UNITS (RRUS) ((3) PER SECTOR)
· INSTALLATION OF (3) AT&T TOWER MOUNTED DC-9 SURGE SUPPRESSORS
· INSTALLATION OF (1) FIRSTNET BY AT&T GPS UNIT MOUNTED ON PROPOSED OUTDOOR EQUIPMENT CABINET
· INSTALLATION OF (1) WALK-UP CABINET (WUC) EQUIPMENT CABINET
· INSTALLATION OF A NEW AT&T 30KW DC GENERATOR WITH 190 GALLON DIESEL FUEL TANK ON A NEW 5'-0" X 9'-0" CONCRETE PAD

EXEMPTION TYPE

The project has been determined to be exempt under the California Environmental Quality Act (CEQA).

☐	**Class 1 - Existing Facilities. (CEQA Guidelines section 15301)** Interior and exterior alterations; additions under 10,000 sq. ft.
■	**Class 3 - New Construction. (CEQA Guidelines section 15303)** Up to three new single-family residences or six dwelling units in one building; commercial/office structures; utility extensions; change of use under 10,000 sq. ft. if principally permitted or with a CU.
☐	**Class 32 - In-Fill Development. (CEQA Guidelines section 15332)** New Construction of seven or more units or additions greater than 10,000 sq. ft. and meets the conditions described below: (a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations. (b) The proposed development occurs within city limits on a project site of no more than 5 acres substantially surrounded by urban uses. (c) The project site has no value as habitat for endangered rare or threatened species. (d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality. (e) The site can be adequately served by all required utilities and public services.
☐	**Other ____**
☐	**Common Sense Exemption (CEQA Guidelines section 15061(b)(3)).** It can be seen with certainty that there is no possibility of a significant effect on the environment.

ENVIRONMENTAL SCREENING ASSESSMENT

Comments:	
Planner Signature:	Diane Livia

PROPERTY STATUS - HISTORIC RESOURCE

PROPERTY IS ONE OF THE FOLLOWING:	
☐	**Category A:** Known Historical Resource.
■	**Category B:** Potential Historical Resource (over 45 years of age).
☐	**Category C:** Not a Historical Resource or Not Age Eligible (under 45 years of age).

PROPOSED WORK CHECKLIST

Check all that apply to the project.	
☐	**Change of use and new construction.** Tenant improvements not included.
☐	**Regular maintenance or repair** to correct or repair deterioration, decay, or damage to building.
☐	**Garage work.** A new opening that meets the *Guidelines for Adding Garages and Curb Cuts*, or replacement of a garage door in an existing opening that meets the Residential Design Guidelines.
☐	**Deck, terrace construction, or fences** not visible from any immediately adjacent public right-of-way.
☐	**Mechanical equipment installation** that is not visible from any immediately adjacent public right-of-way.
☐	**Dormer installation** that meets the requirements for exemption from public notification under *Zoning Administrator Bulletin No. 3: Dormer Windows*.
☐	**Addition(s)** not visible from any immediately adjacent public right-of-way for 150 feet in each direction; or does not extend vertically beyond the floor level of the top story of the structure, or does not cause the removal of architectural significant roofing features.
☐	**Façade or storefront alterations** that do not remove, alter, or obscure character -defining features.
☐	**Restoration** based upon documented evidence of a building's historic condition, such as historic photographs, plans, physical evidence, or similar buildings.
Note: Project Planner must check box below before proceeding.	
■	Project is not listed.
☐	Project involves scope of work listed above.

ADVANCED HISTORICAL REVIEW

Check all that apply to the project.	
☐	**Reclassification of property status**. *(Attach HRER Part I relevant analysis; requires Principal Preservation Planner approval)* ☐ Reclassify to Category A ☐ Reclassify to Category C ☐ Lacks Historic Integrity ☐ Lacks Historic Significance
☐	Project involves a **known historical resource (CEQA Category A)**
☐	Project does not substantially impact character-defining features of a historic resource (see Comments)
☐	Project is compatible, yet differentiated, with a historic resource.
☐	Project consistent with the Secretary of the Interior Standards for the Treatment of Historic Properties
Note: If ANY box above is checked, a Preservation Planner MUST sign below.	
■	**Project can proceed with EXEMPTION REVIEW**. The project has been reviewed by the Preservation Planner and can proceed with exemption review.
Comments by Preservation Planner: Project is the installation of poles, fencing and cabinet equipment located in the parking lot at some distance from existing buildings. Parking area configuration to remain the same and no change to buildings	
Preservation Planner Signature:	Elizabeth Gordon Jonckheer

EXEMPTION DETERMINATION

■	**No further environmental review is required. The project is exempt under CEQA. There are no unusual circumstances that would result in a reasonable possibility of a significant effect.**	
	Project Approval Action: Planning Commission Hearing	**Signature:** Diane Livia 05/29/2025
	Supporting documents are available for review on the San Francisco Property Information Map, which can be accessed at https://sfplanninggis.org/pim/. Individual files can be viewed by clicking on the Planning Applications link, clicking the "More Details" link under the project's environmental record number (ENV) and then clicking on the "Related Documents" link. Once signed and dated, this document constitutes an exemption pursuant to CEQA Guidelines and chapter 31 of the San Francisco Administrative Code. Per chapter 31, an appeal of an exemption determination to the Board of Supervisors shall be filed within 30 days after the approval action occurs at a noticed public hearing, or within 30 days after posting on the planning department's website (https://sfplanning.org/resource/ceqa-exemptions) a written decision or written notice of the approval action, if the approval is not made at a noticed public hearing.	

EXHIBIT 2

November 24, 2025

To the San Francisco Board of Supervisors:

It has come to my attention that a 104-foot-tall tower with 21 antennas, adjacent to Glen Canyon Park, has been green-lighted by the Planning Commission with a Class 3 Exemption from CEQA.

This proposed structure does not qualify for the exemption and has the potential to harm the city and its residents in multiple ways. I strongly urge the Board of Supervisors to revoke this exemption for the following reasons.

First, official geological maps show that the structure would be built on unstable filled land that is subject to potential failure in a landslide caused by earthquake and/or soil saturated by rain and underground water. There is also the potential for high winds to topple the structure.

Failure of the structure, for whatever reason, could endanger dozens of children in the adjacent playground, as well as severely damaging nearby park, police, and residential buildings.

Second, construction of the tower could increase the likelihood of a landslide on the adjacent steep slope, which would move down the slope, destroying native plant and wildlife habitat, including rare riparian habitat on one of the city's only two remaining creeks, namely the perennial tributary of Islais Creek at the bottom of Glen Canyon. In addition, drilling 90 feet below the ground surface for the tower would sever tree roots, killing trees beyond the structure's footprint.

In the late 1800s, botanists recorded 766 native plant species in San Francisco – indicating extraordinary biodiversity for an area of only 49 square miles, but 257 of these species, approximately one-third of the total, have been extirpated from the city by urban development. Restoring any of these species is a win for biodiversity, but very few, less than 10, have been successfully restored anywhere in the city, including federal parklands. One of these is the Scarlet Monkeyflower, Mimulus cardinalis, aka Erythranthe cardinalis, which the San Francisco Recreation and Park Department's Natural Resources Division (NRD) has planted in a 40-yard-long portion of the creekbed that could be buried and destroyed by such a landslide. I have personally worked as a volunteer with the NRD and the California Native Plant Society to remove invasive non-native plants such as English ivy and restore additional native riparian plant species in this creekbed. This is the most ecologically sensitive part of Glen Canyon, which is one of 31 significant natural areas in San Francisco managed by NRD.

Third, the diesel backup generator for the tower, which would be tested monthly, would create particulate air pollution in the adjacent playground, Police Academy, and nearby shopping center, adversely affecting the health of children and elderly people who use the playground and shopping center. Its diesel fuel tank would add the hazards of diesel spills, fires and potentially catastrophic explosion. This should not be allowed in a location adjacent to natural lands, a playground and a residential area.

Fourth, this ugly, 21-antenna-topped tower would be an aesthetic blight on the surrounding neighborhood and Glen Canyon Park. Plus, San Francisco does not need another antenna tower, since it already has the gigantic Sutro Tower and other smaller towers, which can accommodate more antennas.

Sincerely,

David D. Schmidt, Environmental Historian and Naturalist
Author, San Francisco Bay Area: An Environmental History (Backcountry Press, 2025)
davidnaturesf@gmail.com
415-971-5201
342 Princeton St.
San Francisco, CA 94134

EXHIBIT 3

Select Language
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Glen Canyon Park

Scope of Work

After completing extensive community outreach to determine the scope of improvements at Glen Canyon, the project to be funded by the 2008 Clean and Safe Neighborhood Parks Bond, Neighborhood Parks Project will focus on the following areas: a larger welcoming entry with a vehicular drop-off on Elk Street, a pedestrian path and landscaping, a new expanded children's playground, and new tennis courts. Additionally, there will be minor repairs to the Recreation Center and an exterior accessible restroom will be provided, and the building's heating system was renovated.

Recreation and Parks Department (RPD) partnered with the Trust for Public Land (TPL) to host a series of six community improvement workshops, which determined the project plan and the scope of work. TPL gifted the project improvement plan to the City in order to extend the funds that the City can spend on capital improvement. The Board of Supervisors accepted TPL's gifted services and the park improvement plan. RPD and Department of Public Works (DPW) staff have held the additional community meetings in the fall and winter of 2011 to complete the community process for the design for the improvements to be funded by the 2008 Clean and Safe Neighborhood Parks Bond.

Background

Glen Canyon Park is a 66.6-acre recreation area located off of Elk Street and O'Shaughessy Boulevards in the Glen Park District. Rich with a history that spans back to the 1850s, Glen Canyon Park has seen a myriad of uses ranging from Adolph Sutro's personal "Gum Tree Ranch"; to the Crocker Real Estate Company's mini-amusement park and picnic site; to an earthquake refugee camp. Not until 1992 did the park come into its current state as an official public recreation site operated and maintained by the San Francisco Recreation and Parks Department.

Today, the park is valued by local residents as a wild refuge in the City and it also offers local residents:

- A 17,600-foot recreation center, including a gymnasium, auditorium, and offices
- Hiking trails and open space

- A playground
- Two baseball fields
- Two tennis courts
- A two-story Silver Tree Day Camp building

The canyon itself, one of the City's "Significant Natural Resource Areas", has naturally forested slopes, native chert outcroppings, and wild flower growths including important native San Francisco species Google **Translate**

Park users take full advantage of the recreation and day camp center's various programs and classes, organized youth sports offerings, and the natural scenery of the grounds.

Get Out and Play!

Thanks for supporting park improvements in your San Francisco parks! To stay informed and involved, we encourage you to subscribe to Rec and Park eNews.

You can also explore Rec and Park volunteer opportunities – We have park needs in every corner of the city and volunteer opportunities that are as diverse as your interests, skills, and abilities. Have fun in your parks, and get out and play!

Documents & Materials

- Glen Canyon Park Park Map (PDF)
- Glen Canyon Tennis Court Relocation (PDF)
- Site Schematic Plan and Preferred Playground Design, 02-2012 (PDF)

Information Flyers

- Glen Canyon 11-12-2011 Community Meeting Flyer (PDF)
- Glen Canyon 12-10-2011 Community Meeting Flyer (PDF)
- Glen Canyon Community Meetings - Summer 2012 (JPG)
- Glen Canyon Park and Trail - Community Meetings Flyer (Spanish) (PDF)
- Glen Canyon Park and Trail - Community Meetings Flyer (Traditional Chinese) (PDF)
- Glen Canyon Park Park Improvement Plan (PDF)
- Glen Canyon Park Park Map (PDF)
- Glen Canyon Trail Meeting flyer (PDF)

Meeting Minutes

- Glen Canyon Community Meeting Presentation 12-10-2011 (PDF)
- Glen Canyon Kick-Off Meeting 12-16-2010 (PDF)
- Glen Canyon Park and Trail - Community Workshop Number 2 (PDF)
- Glen Canyon Park and Trail - Community Workshop Number 3 (PDF)
- Glen Canyon Park and Trail - Community Workshop Number 4 (PDF)
- Glen Canyon Park and Trail - Community Workshop Number 6 (PDF)
- Glen Canyon Park and Trail Community Workshop Number 7 (PDF)

Information & Publications

- Glen Canyon Project Information Flyer (PDF)
- Glen Park Access During Renovation (PDF)
- Project Update and Letter from Supervisor Wiener (PDF)

Existing Conditions Maps from Workshop 2

- Building and Site Facility Program (PDF)
- Circulation (PDF)
- Context (PDF)
- Management (PDF)
- Natural Resources (PDF)
- Sewer System and Hydrology (PDF)
- Site and Building History, Building Assessment, and Historic Current Use Plans (PDF)
- Visioning Worksheet (PDF)

Concept Plan Options Workshop 3

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- Concept Plan Options (PDF)
- Presentation Describing Concept Plan Options (PDF)
- Summary of Comments - 3 Options for Glen Canyon Park (PDF)

Workshop 4

- Workshop Number 4 Draft Preferred Plan (PDF)
- Workshop Number 4 Presentation of Park Improvement Plan Preferred Option and Costs (PDF)

Workshop 5

- 05-05-2011 Character Exercise (PDF)
- 05-05-2011 Plan and Phasing Exercise Board 24 by 48 rev (PDF)
- Glen Canyon Park Final Revision (PDF)

Final Workshop Materials

- 06-09-2011 Final PowerPoint (PDF)
- 06-09-2011 Plan and Boards (PDF)
- 06-09-2011 Trails Plan (PDF)

Tree Removal & Replanting Information

- Glen Canyon Park Renovation Tree Management Presentation 01-07-2013 (PDF)
- Glen Canyon Park Tree Planting Plan (JPG)
- New Tree Planting Plan (PDF)
- Tree Assessment and Preservation Plan (PDF)
- Tree Planting and Removal Plan (PDF)

About Us

The San Francisco Recreation and Park Department currently manages more than 230 parks, playgrounds and open spaces throughout San Francisco, including two outside city limits—Sharp Park in Pacifica and Camp Mather in the High Sierras. The system includes full-complex recreation centers, swimming pools, golf courses, sports fields and numerous small-to-medium-sized clubhouses that offer a variety of sports- and arts-related recreation programs for people of all ages. Included in the Department's responsibilities are Golden Gate Park, Coit Tower, the Marina Yacht Harbor, the San Francisco Zoo and Lake Merced.

In 2017, San Francisco became the first city in the nation where all residents have access to a park within a 10-minute walk, a direct result of the Department's commitment to increasing and improving parkland in the city. Learn More

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Podcast

eNews Signup

Contact Us

San Francisco
Recreation & Parks

McLaren Lodge-
Golden Gate Park

501 Stanyan Street

San Francisco, CA
94117

Phone: 415-831-2700

Recreation Program
Registration
(Translation Available):
(415) 831-6800

Email Us

EXHIBIT 4

COASTAL CONSERVANCY

Staff Recommendation
December 2, 2010

GLEN CANYON PARK MASTER PLAN

Project No. 10-039-01
Project Manager: Amy Hutzel

RECOMMENDED ACTION: Authorization to disburse up to $289,950 to the Trust for Public Land to develop a Master Plan for Glen Canyon Park, San Francisco, including a plan for the recreation area and a plan and design for enhancement of trails.

LOCATION: Glen Canyon Park, in the south central portion of the City and County of San Francisco (Exhibit 1).

PROGRAM CATEGORY: San Francisco Bay Area Conservancy

EXHIBITS

Exhibit 1: Project Location and Site Maps

Exhibit 2: Project Photos

Exhibit 3: Project Letters

RESOLUTION AND FINDINGS:

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Sections 31160 *et seq.* of the Public Resources Code:

"The State Coastal Conservancy hereby authorizes disbursement of up to $289,950 (two hundred eight nine thousand nine hundred fifty dollars) to the Trust for Public Land ("TPL") to develop a Master Plan ("Master Plan") for the recreation area and trails in Glen Canyon Park, City and County of San Francisco. This authorization is subject to the following conditions:

1. Prior to the disbursement of funds, TPL shall submit for the review and approval of the Executive Officer of the Conservancy a final work program, schedule and budget; and the scopes of work and the roster of contractors to be employed in the project.
2. TPL shall develop the Master Plan in close consultation with the San Francisco Recreation and Park Department."

Staff further recommends that the Conservancy adopt the following findings:

"Based on the accompanying staff report and attached exhibits, the State Coastal Conservancy hereby finds that:

1. The proposed project is consistent with the current Project Selection Criteria and Guidelines.
2. The proposed authorization is consistent with the purposes and objectives of the San Francisco Bay Area Conservancy Program, Chapter 4.5 of Division 21 of the Public Resources Code regarding public access.
3. The Trust for Public Land is a non-profit organization existing under 501(c)(3) of the U.S. Internal Revenue Code, and whose purposes are consistent with Division 21 of the Public Resources Code."

PROJECT SUMMARY:

Staff recommends that the State Coastal Conservancy authorize disbursement of up to $289,950 to the Trust for Public Land ("TPL") to develop a Master Plan for Glen Canyon Park in San Francisco.

Glen Canyon Park (the "Park") is a 68.8 acre park located in the south central portion of San Francisco and managed by the San Francisco Recreation and Park Department ("RPD"). The Park consists of a highly used indoor and outdoor recreation area, which includes a Recreation Center with a gym, auditorium, bathrooms, and offices, as well as outdoor tennis courts, baseball/softball fields, a large sports meadow, several picnic area, and an outdoor playground. Beyond the active recreation area stretches 60 acres of riparian coastal scrub, grassland, and urban forest habitats, a mile of above ground creek, and over four miles of hiking trails.

Though heavily used, the Park is in critical need of attention and renovation. Islais Creek runs for one mile above ground and then underground in culverts; the playing fields located above the decaying wooden culverts experience shifting ground and irrigation issues. The Recreation Center was built in 1934 and is seismically unsafe, inaccessible to people with disabilities, has significant roof problems, and has a warped and sinking floor due to the underground creek that runs along one corner. The playground is also not accessible to people with disabilities and is constructed of treated wood which contains arsenic. Numerous social trails have developed over the years, creating erosion issues on the hillsides and impacting water quality in the creek. In addition, there is an ongoing effort to protect the native habitats in Glen Canyon, particularly the riparian habitats, from invasive plant species such as Cape ivy.

Recognizing the high level of public use and significant need for renovation, the City of San Francisco has committed city bond funds for improvements at Glen Canyon Park. RPD has $900,000 designated for trail construction and $5.8 million designated for construction of the recreation area from the 2008 Clean and Safe Neighborhood Park Bond (Proposition A). TPL will work closely with the RPD and the community to develop a viable Master Plan that holistically integrates the Park's historical recreational facility with its vast natural area. RPD will use the Master Plan to implement improvements at the Park. TPL's involvement and the proposed Conservancy grant will 1) enable the RPD bond funds to go farther and be used solely for final design and implementation, and 2) expedite the completion of the Master Plan in a cost effective manner while engaging the community. RPD will likely need to raise additional funds to implement all of the recommendations of the Master Plan and may return to the Conservancy with a grant proposal for implementation to supplement their bond funds.

TPL will conduct a two part planning process, the first focused on the recreation area and the second focused on the trails. Part I: The planning stage for the recreation area will entail data gathering, consultant team selection, facilitation of six planning workshops for community members and stakeholders, and preparation of a final community-supported Master Plan, with phasing and costs. The Master Plan will be used by RPD to conduct subsequent final design work for the renovation and construction phase. Part II: The planning effort for the trails will entail the above work as well as the design phase. Conservancy and matching funds will be used primarily to fund professional services consultants, including landscape architects, planners, and technical consultants (geotechnical engineers, structural engineers, surveyors, and arborists) as well as support for TPL's project staff, including a project manager and community outreach associate, and project expenses, such as postage, printing, and travel. The Master Plan will be completed by the end of 2011. The City of San Francisco will conduct environmental review under the California Environmental Quality Act ("CEQA") upon completion of the Master Plan, followed by final design of the recreation area and implementation of the trails and recreation area. RPD's goal is to complete the project by the end of 2013.

Since 1972, TPL has worked with willing landowners, community groups, and national, state, and local agencies to complete more than 3,000 land conservation projects in 46 states, and has a successful history of planning and revitalizing public urban parks in cities across the United States. TPL has a successful history of partnering with the RPD and also a successful history of working with the Conservancy. TPL has completed significant acquisitions in the San Francisco Bay Area and along the California Coast in partnership with the Conservancy.

Site Description: Glen Canyon Park has incredible, yet often under-recognized, historical, ecological, and recreational features.

This urban canyon offers 60 acres of biologically diverse urban wilderness with trails, educational displays, and vista points. Glen Canyon Park is one of San Francisco's 31 significant natural resource areas, with three native plant communities: riparian, grassland, and coastal scrub, as well as a 17-acre exotic forest of Eucalyptus trees near the entrance to the Park. The canyon is home to 170 species of native plants (including coyote brush, sticky monkey flower, coastal sage, and bee plant), 43 species of birds (such as white-crowned sparrow, black phoebe, red-tailed hawk, red-shouldered hawk, and great horned owl), and 30 species of butterflies. Other wildlife includes skunk, raccoon, coyote, western fence lizard, and meadow mouse.

The Park provides a glimpse into coastal California's geologic history for visitors. Ranging in elevation from 225 feet above sea level at the south end to 575 feet along the canyon's northern rim, the Park is characterized by layered chert outcroppings on the steep upper slopes and 100-200 million year old bedrock under the ravine-fill of the canyon's lower slope. The road cuts along O'Shaugnessy Boulevard at the Parks' western boundary show the dramatic geologic layering and folding and the trails through the park pass through and around numerous rock outcroppings.

Perhaps the canyon's most significant feature is a one-mile above-ground stretch of the north fork of Islais Creek, which flows year round and is one of a handful of above ground creek segments remaining in San Francisco. The creek is home to a lush riparian community of willow, sycamore, alder, currant, red columbine, seep monkey flower, lady fern, and horsetail. Juncos, hummingbirds, warblers, chickadees, and bushtits can be seen in the trees. The creek

provides habitat for adult and larval insects which provide food for resident and migrating birds as well as bats, dragonflies, amphibians, reptiles, and small mammals.

The active recreation area includes a 17,600 square foot Recreation Center built in 1934 with a gym, auditorium, offices, and bathrooms, as well as two outdoor tennis courts, two baseball/softball diamonds, a large sports meadow, and a fenced-in outdoor playground. Activities offered by the RPD at the Recreation Center include badminton, tennis, volleyball, basketball, and soccer, as well as art and music classes for youth. RPD offers scholarships for underserved youth to enroll in these classes. The park also hosts a two-story, 3,960 square foot daycare center built in the 1960s. The facility is leased to Glenridge Co-operative Nursery School during the school year and used by RPD for Silver Tree Summer Camp, which has been running summer youth activities in the Park for over 60 years.

The Park is located in Glen Park, a dense, urban neighborhood, and is surrounded by numerous schools, major roads, and a commercial area. The park is easily accessible by public transit, located within walking distance from the Glen Park BART Station and with a Muni bus stop located at the south entrance. The Park also offers the potential for regional trail connections. There are over 4 miles of trails within the Park, which can potentially link directly into the Twin Peaks trail networks to the north and thereby connect with the Bay Area Ridge Trail. Additionally, there are numerous opportunities to improve trail connections to nearby schools, playgrounds, and neighborhoods.

Project History: Once hunting territory for the Ohlone, the region of Glen Canyon Park has sustained centuries of transformation. After serving as grazing land for the Mission Dolores longhorn cattle and sheep in the early 19th century, the region was transfigured by the invasive but characteristic blue gum eucalyptus planted by mayor and one-time owner, Adolph Sutro. Purchased and revived in 1889 by the Crocker Real Estate Company as the Glen Park Picnic Grounds, the canyon housed an amusement park, aviary, and small zoo. This land of leisure and recreation soon became a site of survival when, in 1906, hundreds of San Francisco residents rendered homeless from the devastating earthquake and city-wide fires sought refuge in the canyon's emergency-rigged camps. In 1922, the City and County of San Francisco purchased the property for $30,000 for protection as an urban recreation area.

In 1941, O'Shaughnessy Boulevard was completed, cutting off the west side of the park and its watershed and diminishing Islais Creek, one of the few aboveground and free-flowing creeks in San Francisco. Since then, community organizations, such as the Friends of Glen Canyon Park and the Glen Park Association, have worked arduously to improve the park's recreational facilities and restore its natural areas. A 1970s plan to widen O'Shaughnessy Boulevard was defeated by the "Gum Tree ladies," a group of local women united around the efforts to save Glen Canyon from development.

In 2002, the RPD secured grant funding from the Conservancy to implement recommendations from Glen Park's Natural Resources Inventory and Master Plan. The Conservancy's $250,000 grant was matched by $250,000 from RPD and was used to improve a number of trails on the hillsides and reduce the social trail network, install erosion control features along sections of the hillside trails below O'Shaugnessy Boulevard, install interpretive signs, and restore native plant habitat along portions of Islais Creek. During the same time period, RPD held three community meetings, each drawing approximately 50-70 participants. These community planning meetings identified the need to rebuild or renovate the Recreation Center, and initiated a Park

Improvement Plan ("PIP") centered around four community-developed concepts: 1) Rebuilding, relocating, and/or expanding the Recreation Center with gym, auditorium, activity space, and environmental education center; 2) Revitalizing the Canyon into a "Living Classroom" offering a unique ecological experience combining recreation and education; 3) Expanding play and picnic areas, and upgrading courts and fields; and 4) Daylighting or resurfacing the below ground portions of Islais Creek.

The PIP, which had involved so much enthusiastic community commitment, was not able to be completed due to lack of funding. Fortunately, in 2008, Glen Canyon Park was included in the City of San Francisco's Clean and Safe Neighborhood Park Bond (Proposition A), which was passed by the voters. RPD has designated $900,000 of the bond funds towards trail work and $5.8 million towards the recreation area. With this proposed grant from the Conservancy, TPL proposes to build on Glen Canyon Park's 2003 PIP to initiate a fresh and comprehensive community planning and visioning approach, resulting in a fully supported and achievable Master Plan with clear steps of implementation and measurable outcomes.

PROJECT FINANCING

Coastal Conservancy	$289,950.00
TPL (Private Foundation and Corporate Grants)	$193,300.00
Total Project Costs	$483,250.00

Conservancy funds are anticipated to come from the "Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006" (Proposition 84). Proposition 84 funds may be used for the purposes of promoting access to and enjoyment of the urban open space resources in the nine-county San Francisco Bay Area in accordance with the provisions of the Conservancy's enabling legislation, Division 21 of the Public Resources Code. In addition, Proposition 84 funds may be utilized to finance planning necessary for the successful design, selection, and implementation of such projects. Consistent with the purposes of Proposition 84, the proposed project will be undertaken pursuant to the San Francisco Bay Area Conservancy Program (Chapter 4.5 of Division 21 of the Public Resources Code), and will consist of planning necessary to improve access to and visitor-serving amenities at Glen Canyon Park in the City and County of San Francisco.

TPL has raised $193,300 in funds from a variety of private sources to contribute towards the Master Plan. Conservancy and TPL-raised funds will be used for: 1) TPL project staff (project manager, community outreach associate, legal, marketing, and government affairs), 2) professional services (landscape architects, planners, and technical consultants), 3) TPL program support services, and 4) printing, postage, travel, and office expenses.

CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:

The proposed project is consistent with Chapter 4.5 of Division 21 of the Public Resources Code, sections 31160 *et seq.* regarding San Francisco Bay projects.

Pursuant to Section 31162, the Conservancy may award grants in the nine-county San Francisco Bay Area that help to achieve various specific goals, including the goals of improving public

access to urban open spaces, protecting natural habitats and open space resources of regional importance, and promoting projects that provide open space and natural areas accessible to urban populations for recreational purposes. The proposed project is located entirely within San Francisco County, one of the designated nine counties of the San Francisco Bay Area.

Consistent with Section 31162(a), the proposed project will produce a Master Plan for improved public access to urban open spaces. The proposed project will not have a significant adverse effect on environmentally sensitive areas or wildlife.

Consistent with Section 31162(b), the proposed project will plan for increased protection of natural habitats, scenic areas and open-space resources of regional importance in Glen Canyon Park.

Consistent with Section 31162(d), the proposed project will plan for enhancement of Glen Canyon Park, which is easily accessible of to urban populations for recreational and educational purposes.

In addition, the proposed project satisfies criteria for determining project priority under Section 31163(c), as follows: (1) the proposed project is supported by adopted local plans, including the RPD's Significant Natural Resource Areas Management Plan (2006), the San Francisco Planning Department's Glen Park Community Plan (in draft, not yet adopted), the San Francisco Stormwater Design Guidelines adopted by the San Francisco Public Utility Commission in 2010, and the San Francisco Climate Action Plan (2004), (2) the proposed project will serve a regional consistency (Glen Canyon Park is a heavily used park attracting visitors from multiple nearby neighborhoods and from throughout San Francisco); (3) the proposed project will be implemented in a timely way (the Master Plan will be completed within one year); (4), the proposed project provides opportunities for benefits that could be lost if the project is not quickly implemented, as there are City of San Francisco bond funds available for implementation that necessitate a Master Plan; and (5) the proposed project will include matching funds from other sources (TPL).

CONSISTENCY WITH CONSERVANCY'S 2007 STRATEGIC PLAN GOAL(S) & OBJECTIVE(S):

Consistent with **Goal 10, Objective G** of the Conservancy's 2007 Strategic Plan, the proposed project will develop a plan for enhancement of one mile of riparian habitat along Islais Creek.

Consistent with **Goal 10, Objective I**, the proposed project will develop a plan to enhance watershed functions in Glen Canyon.

Consistent with **Goal 11, Objective A**, the proposed project will develop a plan to provide a recreational facility that includes picnic and staging areas, interpretive signs, and interpretive or educational centers.

Consistent with **Goal 11, Objective H**, the proposed project will develop a plan for regionally significant trails and community connectors.

CONSISTENCY WITH CONSERVANCY'S PROJECT SELECTION CRITERIA & GUIDELINES:

The proposed project is consistent with the Conservancy's Project Selection Criteria and Guidelines, last updated on June 4, 2009, in the following respects:

Required Criteria

1. **Promotion of the Conservancy's statutory programs and purposes:** See the "Consistency with Conservancy's Enabling Legislation" section above.
2. **Consistency with purposes of the funding source:** See the "Project Financing" section above.
3. **Support of the public:** The Glen Park Master plan effort is supported by many individuals and entities, including State Senator Mark Leno, Assemblyperson Tom Ammiano, San Francisco Supervisors Bevan Dufty and Sean Elsbernd, San Francisco Recreation and Park Department, and Friends of Glen Canyon Park (see Exhibit 3: Project Letters).
4. **Location:** The proposed project is located in the south central portion of San Francisco, within the nine-county Bay Area.
5. **Need:** Conservancy funds are needed to allow TPL to complete the Master Plan in a timely fashion with significant community involvement, allowing the RPD to proceed with implementation using their bond funds.
6. **Greater-than-local interest:** Glen Canyon Park is a large, heavily used park in San Francisco that provides a unique combination of significant active recreation at the entry to a 60 acre canyon that allows visitors to experience wildlife in the city. The canyon is home to a mile long stretch of above ground creek (one of a handful of remaining creeks in San Francisco), significant urban wildlife habitat (riparian, scrub, and grassland), and over four miles of hiking trails.
7. **Sea level rise vulnerability:** Glen Canyon Park is not located in an area vulnerable to future sea level rise.

Additional Criteria

8. **Urgency:** The Park is in urgent need of attention. The playing fields located above the decaying wooden culverts that carry the underground portion of Islais Creek experience shifting ground and irrigation issues. The Recreation Center was built in 1934 and is seismically unsafe, inaccessible to people with disabilities, has significant roof problems, and has a warped and sinking floor due to the underground creek that runs along one corner. The playground is also not accessible to people with disabilities and is constructed of treated wood which contains arsenic. Numerous social trails have developed over the years, creating erosion issues on the hillsides and impacting water quality in the creek. In addition, there is an ongoing effort to protect the native habitats in Glen Canyon, particularly the riparian habitats, from invasive plant species such as Cape ivy. The Master Plan will address these issues and allow for RPD to move forward with park improvements.

9. **Resolution of more than one issue**: TPL's is committed to creating a holistic Master Plan that considers the recreational, historical, and ecological aspects of the entire park. The Master Plan will strive to have the park's recreation area and associated facilities complement the extensive natural areas, with integration of the two areas as much as possible.
10. **Leverage**: See the "Project Financing" section above.
11. **Conflict resolution**: The Master Plan effort will need to address conflicting objectives by park users. The park is large and good design can assist with efforts to accommodate most uses, such as picnicking, dog walking, organized sports, hiking, and playground use by children.
13. **Readiness**: TPL has raised the remaining funds needed for the Master Plan and is ready to proceed and complete the Master Plan by the end of 2011. RPD has designated bond funds for implementation of the Master Plan and has a goal of completing the Glen Canyon Park work by end of 2013.
14. **Realization of prior Conservancy goals**: See "Project History" above.
16. **Cooperation**: The Master Plan process will engage numerous committees and commissions in San Francisco, as well as elected officials, nongovernmental organizations, and community groups, such as the Friends of Glen Canyon Park, the Glen Canyon Merchants Association, and California Native Plant Society. In addition, park users, such as Glenridge Co-operative Nursery School, recreational/sports organizations, and neighbors, will be invited to participate in the planning effort.
17. **Vulnerability from climate change impacts other than sea level rise:** As Glen Canyon Park is located in a coastal region, it is projected to have less severe temperature increases than inland regions. For this reason, Glen Canyon Park is an important refuge for human use and overall biodiversity. The Park also supports a critical watershed for the San Francisco area. Islais Creek is one of the few remaining spots in San Francisco providing fresh water, abundant insect life, and shelter for resident and migrating birds. The proposed project aims to protect and enhance important habitats and ecosystem processes of this urban open space. This is essential to minimizing threats from global warming to California's biodiversity. The recommendations for ecological improvements and protection that will result from TPL's proposed Master Planning Project for Glen Canyon Park will protect land for supporting native species in responding to climate change. The Master Plan will identify and provide recommendations for management of invasive species in order to reduce the impacts of this major stressor on biodiversity and restoration and enhancement of a riparian corridor in an urban coastal watershed area to protect biodiversity.
18. **Minimization of greenhouse gas emissions:** The restoration of an open space within an urban area will help support regional efforts to encourage transit-oriented, high-density development and reduce vehicle miles traveled and greenhouse gas emissions from transportation. Local trail enhancements through the park that provide pleasant, safe, and walkable connections to other neighborhoods may alleviate the need for local vehicle trips. Trail and recreation center design will include measures to avoid or minimize greenhouse gas emissions to the extent feasible and consistent with the project objectives.

COMPLIANCE WITH CEQA

The proposed master planning project is statutorily and categorically exempt from the provisions of the California Environmental Quality Act (CEQA) under two sections of 14 Cal. Code of Regulations. The proposed master planning activities are statutorily exempt pursuant to Section 15262 in that they will involve feasibility and planning analysis for possible future action that has not yet been adopted, approved or funded and they will include consideration of environmental factors. The master planning activities are likewise categorically exempt under §15306 to the extent that they involve basic data collection and resource evaluation activities. Staff will file a Notice of Exemption upon approval of the project.

EXHIBIT 5

Mount Sutro Forest That Was
Remembering the forest

Glen Canyon Park: Birds, Habitat, and the Significant Natural Resource Areas Management Program (SNRAMP)

Posted on November 16, 2011 by webmaster

Recently, we attended a meeting where we were given a beautiful pamphlet regarding the *Feathered Friends of Glen Canyon Park*. It pictured 45 species of birds that have been sighted in the park (including flyovers). And it said:

*"**Willows that line the creek** host nesting chickadees, warblers, woodpeckers and sparrows; they also offer food and shelter for other animals. Native trees like hillside oaks support many species passing through in spring and fall. **Non-native eucalyptus trees** have hosted nesting Great Horned Owls and Red-tailed Hawks for may years, while migrant tanagers, orioles, and warblers sing from their highest reaches every spring."*

photo credit: Janet Kessler

It was doubly ironic, then, that habitat destruction seems to be the plan for Glen Canyon Park. Only a few days earlier, The SNRAMP's contractors were using chainsaws and work-crews to hack through the habitat that has been so useful to birds and coyotes and other creatures that live in Glen Canyon Park.

Said an observer who sent us the pictures below:

"Yesterday volunteers were "building and expanding a butterfly habitat" — **more of the willows are down**. They told me: "there are other willows the coyotes can use." What they don't seem to understand is that the coyotes and raccoons and birds need not just *some willows*, but entire thickets where they can hide."

"… NAP people are in the thicket in the very back part of the park which no one uses — it has been a dense and impenetrable thicket for decades. Six of them with big gas-run chain saws are sawing through that growth "creating a buffer so that they can take out the 'invasive' ivy so that "native plants can grow." Again, this is our wildlife habitat. **There goes another section of our wilderness**."

The plan seems to be to **destroy habitat that wildlife is already using**, in an attempt to create a different habitat for wildlife that isn't there.

In this case, the NAP had contracted Shelterbelt Builders (which also does a lot of the pesticide application for SF Rec and Park) to chainsaw out the habitat.

Our tax dollars at work.

This entry was posted in Environment, nativism, Natural areas Program and tagged birds, Glen Canyon, habitat, habitat destruction, san francisco. Bookmark the permalink.

1 Response to *Glen Canyon Park: Birds, Habitat, and the Significant Natural Resource Areas Management Program (SNRAMP)*

Dolan Eargle *says:*

December 10, 2011 at 1:21 pm

I am generally against wholesale removal of a habitat that has arisen where none or little existed before. Too often the "purists" among us overlook any value that the existing habitat may have with its newer inhabitants. It is not always good to create a habitat without acknowledging the present situation.

Mount Sutro Forest That Was

Blog at WordPress.com.

EXHIBIT 6

More Crea

Electromagnetic Radiation Safety

Scientific & policy developments regarding the biological & health effects of electromagnetic radiation
cell phones, cell towers, Wi-Fi, Smart Meters, electric vehicles & other wireless technology, including 5
Website curated by Joel Moskowitz, Ph.D., School of Public Health, University of California, Berkeley.

Monday, March 3, 2025

Effects of Wireless Radiation on Birds and Other Wildlife

Honeybees and colony collapse disorder:
understanding key drivers and economic implications

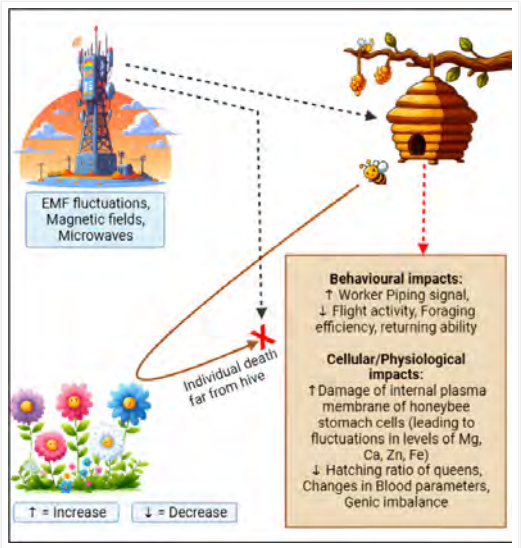

Fig. 3 Effects of electromagnetic fields on Honeybee health: EMF exposure is proposed to induce both behavioural changes (reduced foraging, increased distress signals, and impaired navigation) and cellular/physiological effects (membrane damage, mineral imbalances, reproductive impairment, stress markers, and genic imbalances). These changes can lead to individual bee death and potentially disrupt colony dynamics and survival, which can ultimately boost the process of colony collapse disorder Full size image

Singh G, Rana A. Honeybees and colony collapse disorder: understanding key drivers and economic implications. *Proc. Indian Natl. Sci. Acad.* (2025). https://doi.org/10.1007/s43538-025-00399-x

Abstract

Biodiversity, including the diversity of pollinators such as honeybees, is crucial for ecosystem stability and sustainable development. This review highlights the complex factors contributing to Colony Collapse Disorder (CCD), focusing on inadequate bee management practices, pesticide exposure, biotic stressors, nutritional deficiencies, electromagnetic fields, and climate change. These stressors are shown to interact in ways that impair honeybee health and behavior, leading to colony declines. The paper details the biological consequences of CCD, including the absence of adult worker bees, the persistence of the queen, and the lack of dead bees within the hive. The economic impact of declining honeybee populations is significant, with losses affecting crop yields, food prices, and global trade. This decline threatens agriculture, particularly in regions dependent on pollination services. The review emphasizes the interconnectedness of honeybee health with broader ecological and economic systems, calling for urgent conservation measures, improved management practices, and sustainable agricultural strategies to mitigate the negative effects of CCD. Key recommendations for future research focus on the need for regional studies, long-term monitoring, and public education on the importance of honeybee conservation.

Electromagnetic fields and bee disappearance

One intriguing theory posits that the proliferation of telecommunications technology and the increasing prevalence of electromagnetic fields (EMFs) may play a role in CCD (Fig. 3) (Wyszkowska et al. 2019; Sahib 2011; Hill & Bartomeus 2016). Adult honeybees possess a magnetoreception sense akin to other animals, including birds, microbes, fishes, whales, dolphins, and insects. Like other organisms such as birds, microbes, fishes, whales, dolphins, and insects, adult honeybees are equipped with an impressive magnetoreception sense. This sense aids in navigation during migrations and long-distance travel (Ferrari 2014). It is postulated that magnetic fields, electromagnetic field fluctuations, and geomagnetic disturbances disrupt bees' navigation systems, preventing their return to their hives (Ferrari 2014). In CCD the vanished bees never recover but are believed to die individually, far from their hives (Sahib 2011). Honeybees are known to detect Earth's magnetic field, possibly

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Key Posts

- Welcome to EMR Safety
- Overview of Contents
- Latest News
- Featured News Stories
- Thirty Years of EMF Effects Research (Henry Lai c
- Tips to Reduce Your Wireless Radiation Exposure

Archive

- ▼ 2025 (34)
  - ► October (7)
  - ► September (1)
  - ► August (6)
  - ► July (4)
  - ► June (7)
  - ► May (2)
  - ► April (2)
  - ▼ March (4)
    - The Precautionary Principle
    - Trends in Brain Tumor Incidence Outside the U.
    - Biased WHO-commissioned review claims no c
    - Effects of Wireless Radiation on Birds and Othe
  - ► January (1)
- ► 2024 (14)
- ► 2023 (11)
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- ► 2017 (9)
- ► 2016 (22)
- ► 2015 (23)
- ► 2014 (10)
- ► 2013 (40)

using organized magnetic nanoparticles within their bodies (Liang et al. 2016; Lambinet et al. 2017). Thielens et al. conducted a study on the effects of radio-frequency electromagnetic fields (RF-EMFs) on Western honeybees (Thielens et al. 2020). Their study suggested that a modest transition in environmental incident power density, moving from frequencies below 3 GHz to higher frequencies, resulted in a notable rise in absorbed power. Active mobile phone handsets were found to have a profound impact on bee behaviour, inducing worker piping signals. Subsequent experiments confirmed these initial observations with controlled RF-EMF signal enhancements (Favre 2017). Mall and Kumar (2014) reported that radiofrequency and electromagnetic radiations can negatively impact biomolecular cells, ultimately impairing the biological structure and functions of organisms. Honeybees possess magnetic crystals in their fat bodies, and the effect of cell phone tower electromagnetic radiation on the foraging behaviour of Asiatic honeybees was observed (Taye et al. 2017). Observations included changes in returning ability, flight activity, and pollen foraging efficiency. Results revealed that colonies close to mobile phone towers were most affected, with flight activity and returning ability decreasing as proximity to the towers increased. RF-EMF from wireless devices and cell towers can cause changes in neurotransmitter functions, blood–brain barrier, morphology, calcium efflux, electrophysiology, cellular metabolism, and gene and protein expression in certain types of cells, even at low intensities (Sivani & Sudarsanam 2012). Exposure to mobile phone radiation has been shown to cause decay and damage to the internal plasma membranes of honeybee stomach cells, which in turn affect the levels of Mg, Ca, Zn, and Fe elements in the cells (Mahmoud & Gabarty 2021). Mobile phone radiation has been found to significantly reduce the hatching ratio of honeybee queens, but it did not adversely affect mating success. However, surviving queens were not negatively impacted after the exposure (Odemer & Odemer 2019).

Microwave radiation from mobile phones has been shown to cause adverse effects on different cell functions, including histological alterations in various visceral organs and changes in blood parameters in mice models (Yousif Al-Fatlawi 2022). Although Pollen foraging behavior did not show any significant difference, these findings underscore the potential harm of cell phone radiation on honeybee populations, which could have far-reaching consequences for ecosystems.

https://link.springer.com/article/10.1007/s43538-025-00399-x#Sec5

pdf: https://link.springer.com/content/pdf/10.1007/s43538-025-00399-x.pdf
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Electromagnetic radiation as an emerging driver factor for the decline of insects

Alfonso Balmori. Electromagnetic radiation as an emerging driver factor for the decline of insects. Sci Total Environ. 767:144913. https://doi.org/10.1016/j.scitotenv.2020.144913.

Highlights

• Biodiversity of insects is threatened worldwide
• This reductions is mainly attributed to agricultural practice and pesticide use
• There is sufficient evidence on the damage caused by electromagnetic radiation
• Electromagnetic radiation may be a complementary driver in this decline
• The precautionary principle should be applied before any new deployment (e.g. 5G)

Abstract

The biodiversity of insects is threatened worldwide. Numerous studies have reported the serious decline in insects that has occurred in recent decades. The same is happening with the important group of pollinators, with an essential utility for pollination of crops. Loss of insect diversity and abundance is expected to provoke cascading effects on food webs and ecosystem services. Many authors point out that reductions in insect abundance must be attributed mainly to agricultural practices and pesticide use. On the other hand, evidence for the effects of non-thermal microwave radiation on insects has been known for at least 50 years. The review carried out in this study shows that electromagnetic radiation should be considered seriously as a complementary driver for the dramatic decline in insects, acting in synergy with agricultural intensification, pesticides, invasive species and climate change. The extent that anthropogenic electromagnetic radiation represents a significant threat to insect pollinators is unresolved and plausible. For these reasons, and taking into account the benefits they provide to nature and humankind, the precautionary principle should be applied before any new deployment (such 5G) is considered.

Excerpt

The precautionary principle and the importance of seriously considering EMR as a factor of insect decline

Despite the strong scientific evidence of the negative impacts of electromagnetic radiation on insects, a recent study funded by the European Union's Horizon 2020 Research and Innovation Programme (EKLIPSE) stated that our current knowledge concerning the impact of anthropogenic RF-EMR on pollinators (and other invertebrates) is inconclusive (Vanbergen et al., 2019). Thus, the extent to which anthropogenic EMR represents a significant threat to insect pollinators is unresolved. For these reasons, and taking into account the benefits they provide to nature and humankind, the precautionary principle of the European Union (Communication from the Commission on the Precautionary Principle, 2000) should be applied.

The potential effects of RF-EMFs on most taxonomic groups, including migratory birds, bats and insects, are largely unknown, and the potential effects on wildlife could become more relevant with the expected adoption of new mobile network technology (5G), raising the possibility of unintended biological consequences (Sutherland et al., 2018). Thus, before any new deployment (such 5G) is considered, its effects should be clearly assessed, at least while conclusions are drawn and these existing uncertainties are overcome, according to the official document 'Late Lessons of EarlyWarnings' (European Environment Agency, 2013).

A letter by the United States Department of the Interior sent to the National Telecommunications and Information Administration in the Department of Commerce warns about the scarcity of studies carried out on the impacts from non-ionising EMR emitted by communication towers (United States Department of the Interior, 2014). The precise potential effects of increases in EMR on wildlife, which are not yet well recognised by the global conservation community, have been identified as an important emerging issue for global conservation and biological diversity (Sutherland et al., 2018). Thus, aswe have

explained in this review, EMR should be seriously considered as a complementary driver for the dramatic decline in insects in recent studies, acting in synergy with agricultural intensification, pesticides, invasive species and climate change.

https://www.sciencedirect.com/science/article/abs/pii/S0048969720384461

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Review. The influence of bioactive mobile telephony radiation at the level of a plant community – Possible mechanisms and indicators of the effects

Czerwiński M, Januszkiewicz L, Vian A, Lázaro A. Review. The influence of bioactive mobile telephony radiation at the level of a plant community – Possible mechanisms and indicators of the effects. Ecological Indicators. 108, January 2020, 105683. https://doi.org/10.1016/j.ecolind.2019.105683.

Highlights

• There are various indicators of microwave radiation impact on herbaceous vegetation.
• The best indicators are some parameters of vegetation canopy or individual plants.
• Specific plant functional groups may be indicators of long-term community processes.
• Other organisms interacting with plants, e.g. pollinators, should also be cons idered.
• The selection of indicators depends on the propagation of radiation in the canopy.

Abstract

Environmental exposure to radiofrequency electromagnetic fields (RF-EMFs) from mobile telephony has rapidly increased in the last two decades and this trend is expected to continue. The effects of this exposure at plant community level are unknown and difficult to assess in a scientifically appropriate manner. Such an assessment can be scientifically adequate if a studied plant community is completely new and control-impact radiation treatment is used.

In this review we aimed to predict ecological effects and identify indicators of the impact of bioactive RF-EMFs at the mobile telephony frequency range on plant communities. We considered the scenario where a plant community was exposed to radiation generated by a base transmitting station antenna mounted on a nearby mast. This plant community can be represented by mesic meadow, ruderal or arable weed community, or other herbaceous, moderately productive vegetation type. We concentrated primarily on radiation effects that can be recorded for a year since the exposure started. To predict them we used physical theories of radiowave propagation in vegetation and the knowledge on plants physiological responses to RF-EMF. Our indicators can be used for the detection of the impact of RF-EMFs on vegetation in a control-impact experiment.

The identified indicators can be classified into the following groups: (1) canopy parameters; (2) plant characteristics to be measured in the field or laboratory in a number of individuals that represent the populations of selected species; (3) community weighted means/medians (CWMs) of plant traits and strategies; (4) the abundance of other organisms that interact with plants and can influence their fitness or population size. The group of canopy parameters includes mean height, vertical vegetation structure and dry weight of above-ground standing phytomass. Plant characteristics requiring biometric sampling in the field are plant height, the number of fruits and seeds, as well as seed viability. The group of plant traits that are calculated as CWMs covers seed releasing height, seed dispersal mode, SLA, leaf orientation, month of germination and flowering, Ellenberg's light indicator value, and the proportion of individuals in the classes of competitors and stress tolerators according to Grime's CSR strategy scheme. The group of "non-plant" indicators includes primarily the frequency of flower visits by beetles, wasps, hoverflies, and bees that have their nests over ground. To detect ecological responses that occur for the first year since a herbaceous community has been exposed to potentially bioactive RF-EMF, the first two indicators groups should be used.

https://www.sciencedirect.com/science/article/pii/S1470160X19306764?via%3Dihub

Aug 1, 2019 (Updated Nov 1, 2019)

Selected Studies that Reported Adverse Effects of Electromagnetic Field (EMF) Exposure on Plants, Animals and Insects

Excerpted from a **letter to the United Nations Environmental Programme**
written by the Advisors to the **International EMF Scientist Appeal**, June 25, 2019

EMF exposure studies have found ...

in plants reduced growth, increased infection and physiological and morphological changes (Balodis et al. 1996, Haggerty 2010, Waldmann-Selsam et al. 2016, Havas and Symington 2016, Vian et al. 2016, Halgamuge 2017);

in birds, aggressive behavior, impaired reproduction and interference with migration (Southern 1975, Larkin and Sutherland 1977, Balmori 2004, Balmori and Hallberg 2007, Everaert and Bauwens 2007, Fernie et al. 2010, Engels et al. 2015, Wiltschko et al. 2015);

in livestock, especially dairy cows, reduced productivity, impaired reproduction, and sudden death (Burchard et al. 1996, Loscher and Kas 1998, Hillman et al. 2013, Stetzer et al. 2016);

in rodents, increased cancer risk in three long-term studies (Chou et al 1992, NTP 2018, Falcioni et al. 2019);

in amphibians (Balmori 2006, Balmori 2010) and insects (Cucurachi et al. 2013), deformities and population decline; and

in honey bees, aggressive behavior, reduced learning, reduced productivity, swarming and abandoning hives (Harst et al. 2006, Pattezhy 2009, Warnke 2009, Favre 2011, Kumar et al. 2011, Sahib 2011, Shepherd et al. 2019).

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Increased aggression and reduced aversive learning in honey bees exposed to extremely low frequency electromagnetic fields

Shepherd S, Hollands G, Godley VC, Sharkh SM, Jackson CW, Newland PL. Increased aggression and reduced aversive learning in honey bees exposed to extremely low frequency electromagnetic fields. PLoS One. 2019 Oct 10;14(10):e0223614. doi: 10.1371/journal.pone.0223614.

Abstract

Honey bees, Apis mellifera, are a globally significant pollinator species and are currently in decline, with losses attributed to an array of interacting environmental stressors. Extremely low frequency electromagnetic fields (ELF EMFs) are a lesser-known abiotic environmental factor that are emitted from a variety of anthropogenic sources, including power lines, and have recently been shown to have a significant impact on the cognitive abilities and behaviour of honey bees. Here we have investigated the effects of field-realistic levels of ELF EMFs on aversive learning and aggression levels, which are critical factors for bees to maintain colony strength. Bees were exposed for 17 h to 100 μT or 1000 μT ELF EMFs, or a sham control. A sting extension response (SER) assay was conducted to determine the effects of ELF EMFs on aversive learning, while an intruder assay was conducted to determine the effects of ELF EMFs on aggression levels. Exposure to both 100 μT and 1000 μT ELF EMF reduced aversive learning performance by over 20%. Exposure to 100 μT ELF EMFs also increased aggression scores by 60%, in response to intruder bees from foreign hives. These results indicate that short-term exposure to ELF EMFs, at levels that could be encountered in bee hives placed under power lines, reduced aversive learning and increased aggression levels. These behavioural changes could have wider ecological implications in terms of the ability of bees to interact with, and respond appropriately to, threats and negative environmental stimuli.

Open access paper: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0223614

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April 17, 2019

Letter to the National Park Service from the Environmental Health Trust

This thirteen page letter to the National Park Service from the Environmental Health Trust, dated April 10, 2019, summarizes the scientific basis for major health and environmental concerns about a proposal to install wireless telecom facilities in Grand Teton National Park.

The letter summarizes research on harm to the environment and wildlife from wireless radiation exposure. Furthermore, it addresses the following topics: (1) research on harm to humans; (2) rapid increase in wireless radiation exposure; (3) inadequacy of the Federal Communications Commission's exposure limits to protect humans; (4) greater susceptibility of children; (5) recent appeals from hundreds of experts to reduce exposure limits; and (6) other cell tower safety hazards.

This well-documented letter (81 references) can be downloaded from the following link:

https://ehtrust.org/grand-tetons-largest-cell-tower-expansion-in-national-park-history-letter-on-environmental-impact/.

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July 18, 2016

A Briefing Memo by Dr. Albert Manville

Albert M. Manville, II, Ph.D. A Briefing Memorandum: What We Know, Can Infer, and Don't Yet Know about Impacts from Thermal and Non-thermal Non-ionizing Radiation to Birds and Other Wildlife — for Public Release. July 14, 2016.

In this memo, Dr. Manville reviews the scientific literature that examines the impacts on wildlife from exposure to radio frequency radiation.

He observes that although the FCC has standards to protect humans from the heating (i.e., thermal) effects of wireless radiation exposure from cellular and broadcast towers, no standards exist to protect wildlife from thermal or non-thermal effects:

> "The radiation effects on wildlife need to be addressed by the Federal Communications Commission (FCC), the Environmental Protection Agency (EPA), the Department of Commerce, the U.S. Fish and Wildlife Service (FWS) and other governmental entities."

Dr. Manville concludes with the following statement:

> "In summary, we need to better understand … how to address these growing and poorly understood radiation impacts to migratory birds, bees, bats, and myriad other wildlife. At present, given industry and agency intransigence … massive amounts of money being spent to prevent addressing impacts from non-thermal radiation — not unlike the battles over tobacco and smoking — and a lack of significant, dedicated and reliable funding to advance independent field studies, … we are left with few options. Currently, other than to proceed using the precautionary approach and keep emissions as low as reasonably achievable, we are at loggerheads in advancing meaningful guidelines, policies and regulations that address non-thermal effects...."

Dr. Manville recommends that the U.S. adopt the following recommendations because federally-protected wildlife species are currently in danger from RFR exposure:

> "We desperately need to conduct field research on thermal and non-thermal radiation impacts to wild migratory birds and other wildlife here in North America, similar to studies conducted in Europe…."
>
> "Studies need to be designed to better tease out and understand causality of thermal and non-thermal impacts from radiation on migratory birds…. efforts need to be made to begin developing exposure guidelines for migratory birds and other wildlife …"
>
> "To minimize deleterious radiation exposures, these guidelines should include use of avoidance measures such as those developed by the electric utility industry for bird collision and electrocution avoidance …"
>
> "Studies need to be conducted on the use of "faux" branches (i.e., metal arms that mimic pine or fir branches) on cell and/or FM towers intended to disguise the towers as trees, but provide nesting and roosting opportunities for migratory birds including Bald Eagles, which will almost certainly be impacted both by thermal and non-thermal radiation effects."
>
> "Agencies tasked with the protection, management, and research on migratory birds and other wildlife … need to develop radiation policies that avoid or minimize impacts to migratory birds and other trust wildlife species."
>
> "As Levitt and Lai (2010) concluded, we do not actually need to know whether RFR effects are thermal or non-thermal to set exposure guidelines. Most scientists consider non-thermal effects as well established, even though the implications are not fully understood."
>
> "Given the rapidly growing database of peer-reviewed, published scientific studies (e.g., http://www.saferemr.com, School of Public Health, University of California, Berkeley), it is time that FCC considers thermal and non-thermal effects from EMR in their tower permitting, and incorporates changes into their rulemaking regarding 'effects of communication towers on migratory birds.'"

Dr. Albert Manville II is an adjunct faculty member at Johns Hopkins University. He served as a senior wildlife biologist with the U.S. Fish and Wildlife Service from 1997 to 2014. He chaired the Communication Tower Working Group, partnering with the communications industry, federal and state agencies, researchers, and non-profit organizations. He testified more than 40 times before Congress and other governmental bodies and published more 170 papers. For more information, see http://advanced.jhu.edu/about-us/faculty/albert-manville/.

Dr. Manville's memo is available at http://bit.ly/Manvillewildlife.

Also see:

Cell Tower Radiation Affects Wildlife: Dept. of Interior Attacks FCC

Cell Tower Health Effects

Labels: albert manville, birds, broadcast towers, cell towers, eagles, EMF, FCC standards, honey bees, insects, Manville, protected species, radio frequency, wildlife

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EXHIBIT 7B

PUBLIC HEALTH WATCH

TOXIC TEXAS AIR

Levels of Cancer-Causing Benzene Reached New Heights in Beleaguered Channelview, Texas. Regulators Never Told Residents.

The highest levels exceed even Texas' benzene guideline — the weakest in the nation — but aren't being recorded by a state monitor. That means the community's cancer risk could be higher than previously thought.

by **Savanna Strott**
December 12, 2024

The Texas Commission on Environmental Quality has recorded high benzene emissions for nearly 20 years outside K-Solv, a barge-cleaning and chemical distribution facility in the southeastern corner of Channelview, Texas. Credit: Jeffersonn Castellanos/Univision45

Dangerously high levels of the cancer-causing chemical benzene continue to plague Channelview, Texas, despite warnings from state regulators that began almost 20 years ago.

Data collected during the state's most recent air monitoring trips include one benzene reading that was three times the Texas hourly guideline, the weakest in the nation. In two instances, benzene fumes were so strong that scientists with the Texas Commission on Environmental Quality, or TCEQ, experienced headaches and had to leave the area.

The scientists visited Channelview, an unincorporated community east of Houston, in 2021 and 2022, but the TCEQ didn't finalize its reports on the findings until this year. Public Health Watch obtained them through open records requests.

Nearly half of the one-hour averages the TCEQ's mobile monitoring team recorded exceeded what California says is safe. Three were at least 20 times higher than California allows.

The readings also exceeded what is considered safe by the city of Houston, which created its own benzene guidelines in 2020. If the levels found in Channelview had been recorded there, residents would have received one evacuation order, eight shelter-in-place orders and eight alerts.

Channelview residents received no notifications.

Short encounters with high levels of benzene can cause drowsiness, dizziness and unconsciousness, while chronic exposure has long been linked to leukemia and other blood cancers. Recent studies also link the chemical to diabetes and reproductive problems.

> ***"I definitely wouldn't want to be the person exposed to this."***
>
> — LOREN HOPKINS, ENVIRONMENTAL SCIENCE EXPERT AND RICE UNIVERSITY PROFESSOR

A TCEQ spokesperson said the Texas guidelines are “well below” the level where the state has determined health effects occur. Those guidelines are based on a handful of scientific studies from the 1980s and 1990s. The more stringent Houston guidelines are based on a **peer-reviewed paper** that evaluated 20 studies published between 2009 and 2019.

The TCEQ spokesperson said the agency has reviewed the science supporting benzene guidelines used by other institutions, but none of it has “warranted a reevaluation of TCEQ’s” guidelines.

“Just because a scientific study is more recent does not make it the best scientific evidence,” the spokesperson said.

Channelview benzene levels hit record high

TCEQ scientists recorded the highest one-hour benzene readings ever detected in Channelview in November 2021. Two exceeded the TCEQ's current guideline, the weakest in the nation. Almost a third exceeded the more stringent guideline the TCEQ used until 2008. At times, benzene fumes were so strong that field scientists had to leave the area.

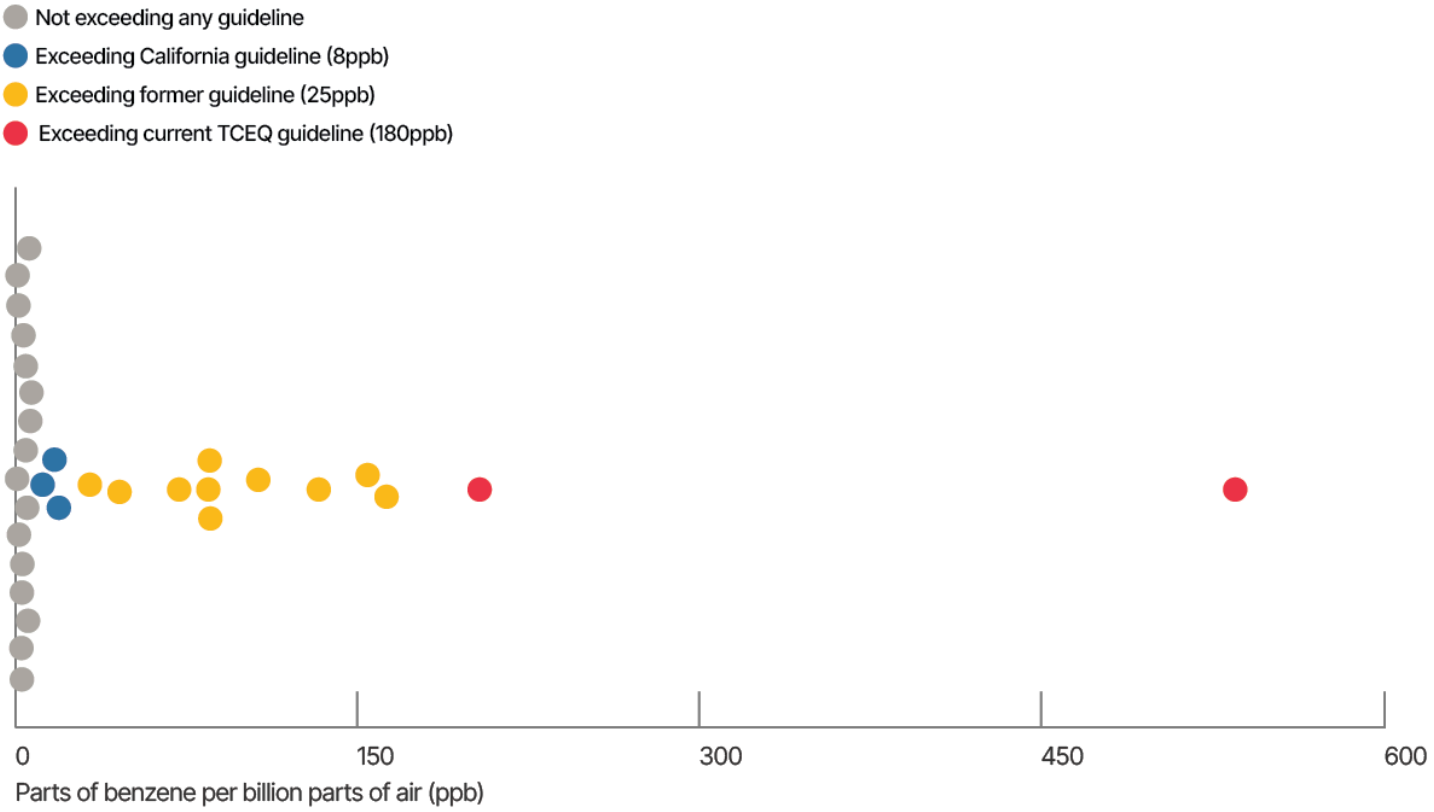


Chart: Texas Community Health News • Source: Texas Commission on Environmental Quality

> TEXAS COMMUNITY HEALTH NEWS

The spikes the TCEQ monitoring team found in 2021 and 2022 are especially alarming because they weren't recorded by the state's closest stationary monitor, whose annual readings are used to gauge residents' cancer risk. Public Health Watch discovered the discrepancy when it compared hourly readings collected by the field scientists with hourly readings from the stationary monitor.

Loren Hopkins, a nationally recognized expert in environmental science and a professor at Rice University, used data from the stationary monitor to calculate the total lifetime cancer risk from chemical exposure for residents of south Channelview. She said they face a risk as high as 78 cases in 1 million people — more than double the state and national average of 30 in 1 million.

The risk would be much higher, Hopkins said, if the monitor isn't capturing benzene emissions from Channelview's southeastern corner, as Public Health Watch's analysis suggests.

Hopkins, who co-authored the paper that helped shape Houston's guidelines, said Channelview's benzene levels are "unacceptably high."

"I definitely wouldn't want to be the person exposed to this," she said.

Yvette Arellano, founder of the Houston-based environmental justice group Fenceline Watch, wasn't surprised that Channelview residents weren't notified about the high concentrations — or that the TCEQ's monitor isn't positioned to capture emissions from an area with a history of benzene pollution.

"Folks who live in communities throughout the [Houston] Ship Channel know this isn't new news," said Arellano, whose group advocates for people who live near polluting industries. "Is it right? No, this is completely reprehensible. This is a lack of oversight. This is industry in the Wild West within a major city of the country."

Introducing "Fumed,"
A New Podcast From Public Health Watch

Listen to "Fumed," an investigative podcast about the people who live in the shadows of America's chemical plants and oil refineries.

0:00 / 3:04

Channelview is a few miles upriver from the Houston Ship Channel, a 52-mile long waterway lined by hundreds of industrial facilities. The barges that transport chemicals to and from the channel's ships and chemical plants often dock in the majority-Latino community of 45,700.

The most recent tests in Channelview were conducted in June by scientists from Texas A&M University, who have a monitoring van similar to the TCEQ's. Their report hasn't been finalized, but Natalie Johnson, a respiratory toxicologist who leads the team, said they recorded instantaneous levels of benzene similar to the spikes the TCEQ found in 2021 and 2022. An instantaneous reading lasts for one second.

Johnson said she will share the results with the TCEQ and will hold a community meeting for residents in January.

A TCEQ spokesperson said the agency has no plans to address Channelview's benzene levels, because the annual averages recorded by the stationary monitor are within the state guideline.

Channelview's Benzene Crisis at a Glance

- New data show that residents of Channelview, Texas, were exposed to higher levels of cancer-causing benzene in 2021 than ever recorded in the community's 20-year history with the chemical. State regulators never told residents.
- If Channelview's benzene levels had been recorded in nearby Houston, residents would have received one evacuation order, eight shelter-in-place orders and eight alerts.

"These concentrations of benzene do not represent a risk to human health or the environment, and no further action is needed," the spokesperson said.

'Persistent and Significant' Emissions

A Public Health Watch investigation published last year found that Texas regulators have known since at least 2005 that Channelview residents are being exposed to high levels of benzene — and that the TCEQ

monitoring team has often recorded the highest benzene emissions in the southeastern corner of the community. That's where a barge-cleaning and chemical distribution facility called K-Solv is located less than 600 feet from houses.

The agency cut back on its mobile monitoring program in the mid-2000s and partnered with Texas universities and a private company — FluxSense Inc. — to periodically monitor chemical levels in Harris County, including Channelview.

FluxSense's most **recent report**, filed in 2023, doesn't mention K-Solv by name but includes maps that label the area immediately around the facility as "Site A." The report said that since at least 2013 FluxSense has "regularly noted" one source of "persistent and significant" emissions of benzene and several other chemicals that attack the nervous system. A TCEQ spokesperson confirmed that the source was Site A.

Scientists with the consulting firm FluxSense Inc. documented a large benzene plume on September 23, 2022, from "Site A," which is the immediate area around K-Solv. In the photo, K-Solv is behind the largest plume. Emissions peaked at 1068 parts of benzene per billion (ppb) parts of air and traveled through neighboring homes. Credit: FluxSense 2023 report

When a fire broke out among K-Solv's chemical tanks in 2021, the TCEQ's then director of monitoring said in an email to his staff that the facility was "known for benzene emissions."

K-Solv CEO Todd Riddle has consistently denied that the company is a major source of benzene emissions. Riddle declined to be interviewed for this story, but in an email he said his company's benzene emissions are "tiny" compared to "the other companies and barges upwind and around us."

"K-Solv is deeply committed to environmental stewardship and prioritizes the health and safety of our Channelview residential community," Riddle said. "We've invested millions of dollars in advanced pollution control systems to ensure a healthy environment for our employees and neighbors."

The TCEQ has allowed K-Solv to expand four times since the agency discovered high levels of benzene near the facility in 2005. K-Solv can now legally release almost 20 times more volatile organic compounds — which include benzene — than it did in 2005. Last year the TCEQ allowed K-Solv to open a second, smaller business in Channelview, which washes trucks that haul chemicals. It, too, releases volatile organic compounds into the air, according to its permit.

Trivializing the Threat

The TCEQ has taken two steps over the years that make Channelview's benzene problem look better on paper.

It loosened its benzene guidelines, even as other states were tightening their protections. The hourly benzene guideline was weakened by 620% (from 25 parts of benzene per billion parts of air, or ppb, to 180 ppb). The annual guideline was weakened by 40% (from 1 ppb to 1.4 ppb).

The TCEQ also moved the stationary monitor farther from K-Solv, and it's no longer downwind of the company. The agency said it chose the new location so it could install a more sophisticated monitor that was too large for the old site.

During the 18 months before the monitor was moved, it recorded rolling annual benzene averages that exceeded even the TCEQ's weakened annual guideline by up to 50%.

Since the move, annual benzene emissions have never exceeded the guideline, although they are rising.

In June, the TCEQ released guidelines to protect its field scientists from chemical emissions. It suggests they leave an area if instantaneous benzene levels exceed 1080 ppb, as they did four times during the Channelview trips.

Benzene levels improved after monitor moved farther from major polluter

When Channelview's stationary monitor was in its original location — downwind of K-Solv — its rolling annual averages often exceeded the state's former and current benzene guidelines. Since the TCEQ moved the monitor about a mile away in February 2021, levels have been far below the current guideline.

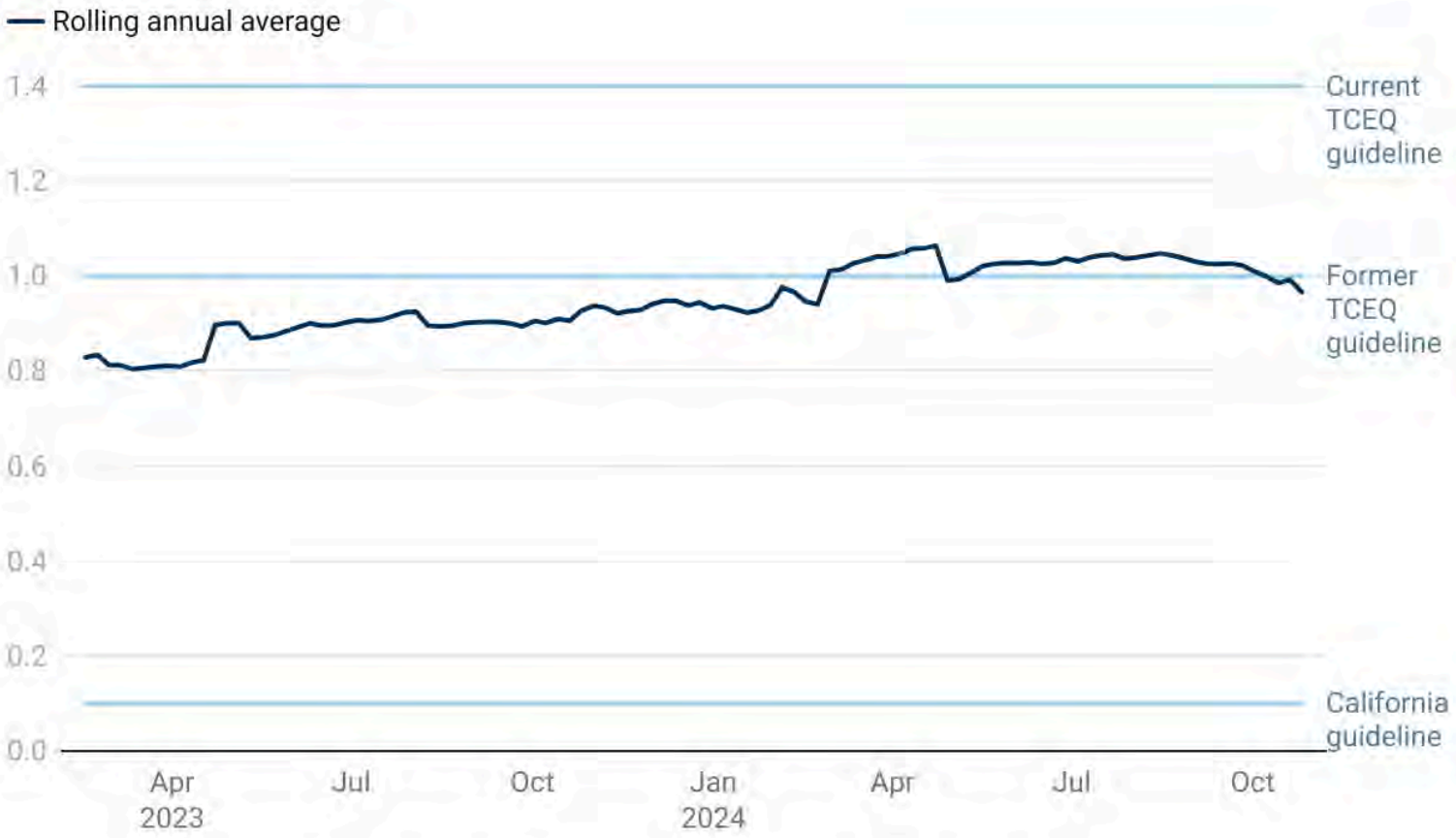


Chart represents parts of benzene per billion parts of air (ppb). The TCEQ used its former guideline of 1 ppb until 2008. It adopted its current annual guideline of 1.4 ppb in 2008.

Chart: Texas Community Health News • Source: Texas Commission on Environmental Quality • Created with Datawrapper

TCEQ Returns to Channelview

Unlike earlier TCEQ monitoring reports from Channelview, the reports from the 2021 and 2022 trips don't name K-Solv, or any other facility, as a source of pollution.

Tim Doty, who managed the TCEQ mobile monitoring team for 17 years, reviewed wind directions and sample locations included in documents filed with the reports. He said the data show that the scientists looked for benzene sources throughout south Channelview, including barges moored along the San Jacinto River and

facilities south of Channelview's homes. But, Doty said, they were clearly focused on emissions from K-Solv and from barges waiting to be cleaned at the company's dock.

"There's no doubt from looking at the data that the primary source of the elevated benzene concentrations was from around K-Solv," Doty said. "It's right there."

A TCEQ spokesperson said the agency doesn't identify sources of pollution until investigators follow up on the monitoring team's findings. A review of agency records shows that K-Solv was the only company investigated as a result of the 2021 and 2022 monitoring trips.

Higher Cancer Risks and Weak Oversight

- The cancer risk from chemical exposure in Channelview — 78 cases in one million people, according to one prominent scientist – is more than double the national average. But a Public Health Watch analysis shows the risk is likely higher, because an air pollution monitor used to gauge the risk isn't capturing the worst of the benzene emissions.
- The state's environmental watchdog — the Texas Commission on Environmental Quality, or TCEQ — says it won't intervene in Channelview, because annual readings at the monitor are below the state's benzene limit, which is one of the weakest in the nation.

On the October 2021 trip, the scientists collected data outside K-Solv and other facilities, including one of the country's largest refineries. The 36.2 ppb 40-minute average taken outside K-Solv was the highest of the day. The second highest average, taken in a 20-minute sample on industrial roads south of Channelview, was just 3.4 ppb.

The morning after the scientists left, a worker at a nearby plant complained to the TCEQ that K-Solv was releasing "very strong and concentrated natural gas and propane odors in the area." The fumes were so powerful that night-shift workers couldn't leave the building, according to the **TCEQ follow-up report**.

TCEQ scientists use a Differential UltraViolet Absorption Spectroscopy (DUVAS) instrument to identify emission hot spots. They then return to these locations with more sophisticated equipment to take more precise readings. In this DUVAS sample on November 8, 2021, benzene readings rose to the red level — above 300 ppb — outside K-Solv. Credit: TCEQ

The monitoring team returned to south Channelview less than two weeks later in November 2021.

One afternoon, the scientists heard a loud sound "similar to a pressure release or gasket opening from the direction of K-Solv," according to the **trip report**. About 45 seconds later, the benzene level rose above 500 ppb. It remained that high for about a minute.

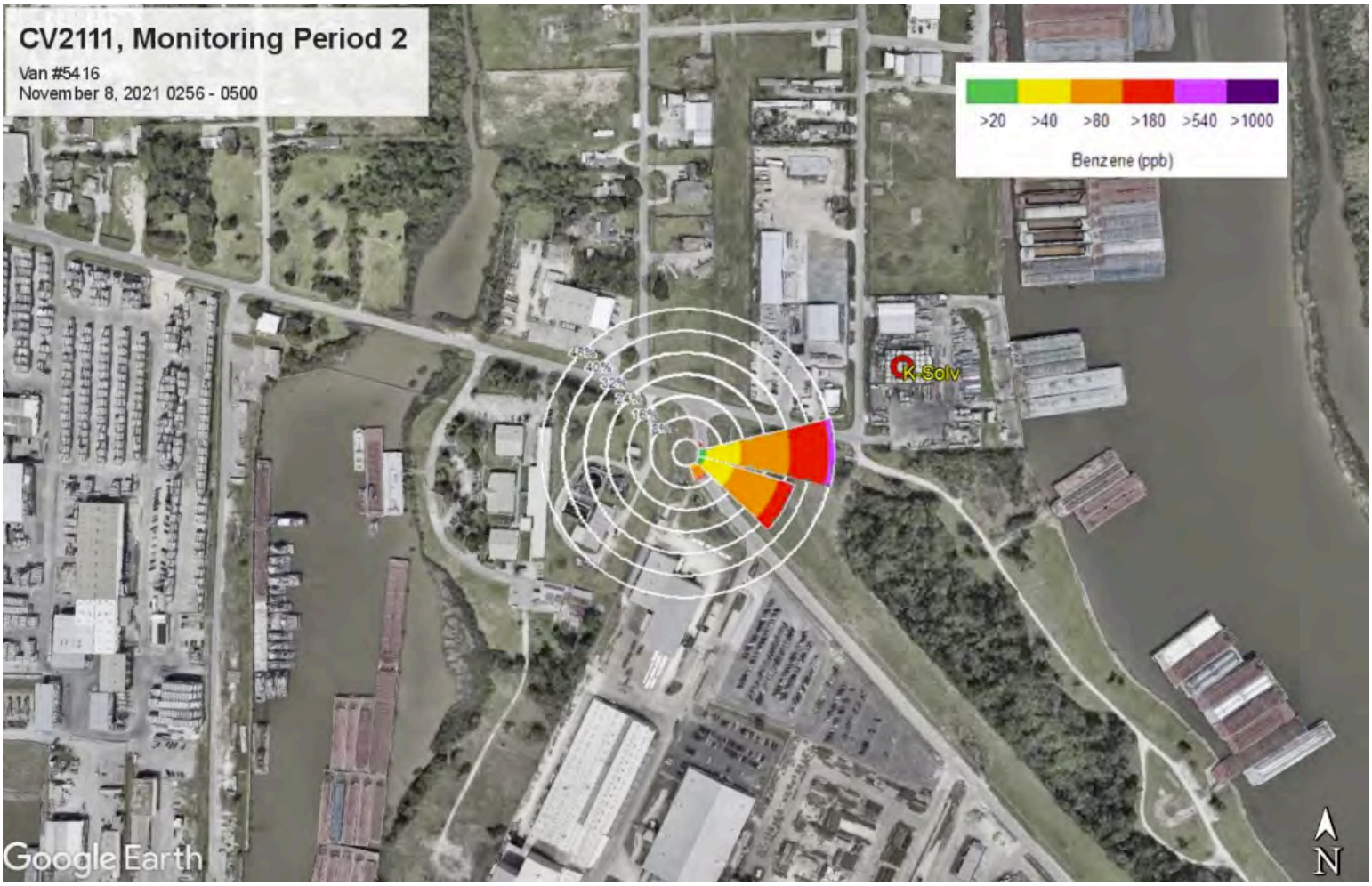
The sample's instantaneous levels peaked at 1,940 ppb — far above the 1,080 ppb where the TCEQ now suggests that scientists leave the area. The sample's maximum one-hour average was 85.2 ppb, more than 10 times higher than California's guideline.

Two samples exceeded even the state's weakened one-hour guideline of 180 ppb.

Before sunrise one morning, the scientists recorded a one-hour average of 203.5 ppb across the street from a residential neighborhood. According to Doty's review of the TCEQ data, the sample was primarily downwind of K-Solv, about 500 feet west of the facility. The scientists smelled strong gasoline odors and suffered

headaches and lightheadedness, according to **a report by TCEQ toxicologists**. The instantaneous readings were so high — between 800 and 1,000 ppb — that they left the area and monitored remotely.

In Houston, officials would have issued a shelter-in-place order, but Channelview residents received no notifications.



In the early hours of Nov. 8, 2021, TCEQ field scientists recorded a one-hour benzene average of 203.5 ppb, which exceeded the state guideline. The scientists reported having headaches and had to leave the area. Credit: TCEQ Mobile Monitoring Report for November 2021 trip

Eighteen-and-a-half hours later, when the scientists were working about a mile away, they had to monitor remotely again. This time, the instantaneous readings skyrocketed to 2,487.9 ppb, more than twice the concentration at which the TCEQ suggests its staff leave the area. The highest recorded one-hour average was 534.6 ppb, nearly three times Texas' guideline and almost 67 times the California limit. Scientists once again reported strong gasoline odors and headaches.

If such readings had been taken in Houston, the surrounding neighborhood would have been evacuated. Again, Channelview residents weren't notified.

Although the trip report didn't identify a source of the benzene, it noted that the sample was taken near five facilities, including a refinery, a chemical tank repair company and K-Solv. K-Solv was the only company the TCEQ investigated afterward.

In addition to benzene, the mobile monitoring team recorded high levels of toluene, which can cause nausea and fatigue, and 1,3-butadiene, which can cause leukemia. The TCEQ report said it didn't discuss these findings because the levels didn't exceed state guidelines.

> ***"It's obvious that they didn't want people to see these numbers. Two years later is pretty outrageous — more than pretty outrageous."***
>
> — TIM DUTY, FORMER MANAGER OF THE TCEQ MONITORING TEAM

Three weeks after the scientists' November trip, the worker who had complained about K-Solv in October contacted the agency again. The worker said the odor from K-Solv infiltrated the vents of their job site. Each time it appeared, the worker had watery, itchy eyes, a runny nose and a headache "due to the strength of the odor."

The same worker submitted a third complaint in February 2022.

"The complainant stated that the odors have been occurring for more than two years and is mainly present overnight but disappears shortly after sunrise," the follow-up investigation report said.

State Monitor Failed to Record Channelview's Highest Benzene Readings

On November 8, 2021, TCEQ field scientists recorded two one-hour benzene averages that exceeded the state's guideline. But neither showed up on the TCEQ's stationary monitor, whose readings are used to gauge residents' cancer risk. When the scientists measured a one-hour average of 203.5 parts

of benzene per billion parts of air (ppb), the monitor recorded only 1.2 ppb. When the scientists recorded an hourly average of 534.6 ppb, the monitor's highest average was just 7.8 ppb.

Credit: Andrew Morris

The monitoring team traveled to Channelview again in May 2022 and **recorded benzene levels** outside K-Solv that were well within the state's guideline. But **the results** show large differences between readings taken outside the company and what the stationary monitor recorded. The lowest one-hour average outside K-Solv was 4.3 ppb. The highest average at the monitor during that period was just 0.1 ppb.

Four months later, FluxSense took chemical readings throughout Harris County for studies conducted by the TCEQ and the University of Houston.

The TCEQ's chief toxicologist asked the scientists to pay attention to Channelview, "particularly for benzene," according to internal emails. A TCEQ air official gave the team a **Google Map** showing "locations of interests." K-Solv was the only facility labeled in south Channelview.

The FluxSense report said that when the wind blew from east to west, the scientists "almost always detected" benzene at the fence line of Site A, which is the immediate area around K-Solv.

"It is apparent that benzene emitted from Channelview Site A … is transported through the [neighboring] residential area," the report said.

When to Flee Benzene

- The TCEQ recommends that its staff leave an area if benzene readings reach a certain level, which they did four times in Channelview in 2021.

The average benzene concentration at Site A was the highest recorded anywhere in the county — almost 5 times higher than the second-highest average, which was taken across the Ship Channel in Deer Park. One plume downwind of Site A had an average benzene concentration of 168 ppb and a maximum instantaneous reading of 1065 ppb.

FluxSense scientists captured benzene levels throughout Channelview in September 2022. In one sample, concentrations outside Site A exceeded 100 ppb but dropped to below 2.5 ppb by the time emissions reached the TCEQ's stationary monitor about a mile away. Credit: FluxSense 2023 report

FluxSense also noted that during daylight Site A's emissions were "significantly diluted" by the time they reached the stationary monitor, likely "due to the distance" — about a mile — between the facility and the monitor.

Riddle, K-Solv's CEO, said the company is "responsible for less than 0.01% of the share of benzene emissions in the area," according to its environmental consultants. He did not respond to questions about the data supporting that number.

Riddle said that when TCEQ investigators visited the facility in 2021 and 2022, there were "at least four occasions" when they found no "visible emissions" or volatile organic compounds.

Investigations and a Fine

In May — two years after the TCEQ monitoring team's 2022 trip to Channelview — the agency finalized its last report and **proposed a $164,996 penalty** against K-Solv for 17 violations found during follow-up investigations.

Doty, the former TCEQ scientist, said the delay between the monitoring trips and the finalized reports was "ridiculous." He said it typically took his team four to six months to finalize reports.

"It's obvious that they didn't want people to see these numbers," Doty said. "Two years later is pretty outrageous — more than pretty outrageous."

The TCEQ said its timeline for preparing reports varies depending on the project.

"For this project, the scope was broad, there was new instrumentation, and there was a large volume of data," an agency spokesperson said. "In the interim period before the report was final, communication between the Monitoring Division and regional office occurred to facilitate follow-up activities."

The penalty document the TCEQ sent K-Solv detailed the company's 17 alleged violations.

It said the company ran its pollution control equipment improperly for nearly 74 hours between November 12 and December 31, 2021. It said K-Solv committed the same violation almost a year later: this time for 202 hours and 55 minutes between January and April 2023.

K-Solv also didn't load liquid chemicals in a way that limits emissions, the TCEQ document said, and it sometimes stored benzene at 100% concentration — twice as much as its permit allows. Five violations were

for not maintaining required records, including annual testing for tank trucks and weekly inspections for several pieces of equipment.

Tim Doty, the former manager of the TCEQ's mobile monitoring team, used a handheld, infrared camera to record volatile organic compounds — a class of chemicals that includes benzene — being released from a K-Solv storage tank on August 28, 2023. Credit: Tim Doty

The TCEQ gave K-Solv a month to respond to the state's allegations, and then approved a two-week extension. After K-Solv missed that deadline, the agency sent the case to its litigation division.

Riddle blamed one of the violations on a clerical error that led the company to mistakenly record that it had stored benzene at 100% concentration. He said K-Solv went ahead and signed the penalty documents — including the benzene violation — because it was "the simplest way to resolve the matter."

K-Solv did not pay the full $164,996 fine. Instead, it received a $32,999 "one-time" discount. The penalty document says companies get that discount if they "satisfactorily comply with all the ordering provisions within the time frames listed."

Public Health Watch asked the TCEQ why K-Solv qualified for the discount despite missing the original deadline and the two-week extension. An agency spokesperson said, "in September 2024, K-Solv signed the

order and paid the penalty amount in the proposed agreed order, thereby achieving settlement."

An Unreported Release

In November, K-Solv had another major chemical leak.

On a Saturday afternoon, the Channelview Fire Department received a call about a strong propane smell from an unknown source. Firefighters discovered that a 250-gallon tank at K-Solv was leaking liquid butyl acetate and "creating a vapor cloud" that was approaching homes, according to **the fire department's report**.

Benzene Releases Allowed

- One Channelview company, K-Solv, has been "known for benzene emissions" for years, according to state records. Still, the TCEQ let the company expand and legally release even more benzene. In November, the company had another leak that led to an evacuation of three nearby houses. K-Solv has denied that it's a major source of benzene in the area.

Butyl acetate is a highly flammable chemical found in lacquers and nail-polish removers. In large amounts, it can cause shortness of breath, confusion and fainting. In a statement to the media, K-Solv's director of environmental health, safety and security described butyl acetate as "a product used in everyday perfume and personal care products."

Firefighters suggested that residents of three nearby houses evacuate until the leak was contained, about two and a half hours later.

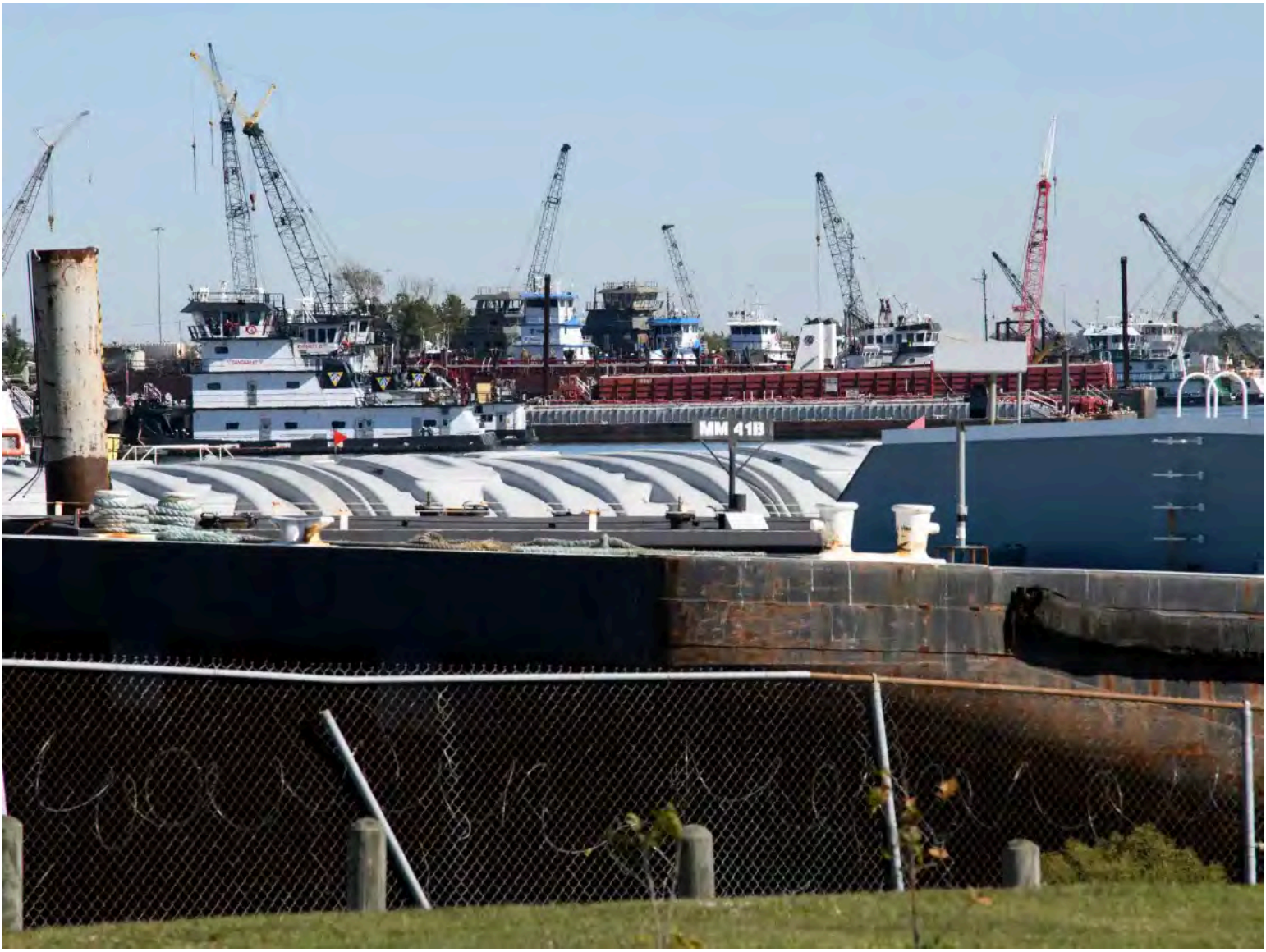
Polluting facilities are required to report butyl acetate leaks to the TCEQ only if the emissions exceed 100 pounds.

A TCEQ spokesperson said the agency contacted K-Solv about the incident and the company "indicated the release was below the reportable quantity." The spokesperson said that the agency coordinated with Harris County Pollution Control Services and was told "there were no offsite impacts and further assistance from TCEQ was not requested."

K-Solv said it is conducting an internal investigation to prevent similar incidents.

"K-Solv is proud of its proactive approach to environmental management," the company said in its statement to the media, "and will continue to work diligently to safeguard the health and well-being of Channelview residents – many of whom are our valued employees."

MORE ON TOXIC TEXAS AIR



‘Bad Actors Must Face Consequences’: Texas Legislator Ups Ante in Response to Public Health Watch Investigation in Channelview

New Report Calls Houston Ship Channel a ‘Racial Sacrifice Zone’ for Human Rights

A Texas Community Is Being Bombarded by Cancer-Causing Benzene. State Officials Have Known for Nearly Two Decades.

EXHIBIT 7C

The Trump Administration is working to reopen the government for the American people. Mission-critical activities of CDC will continue during the Democrat-led government shutdown. Certain federal government activities have ceased due to a lack of appropriated funding. During the government shutdown, only web sites supporting excepted functions will be updated. As a result, the information on this website may not be up to date and the agency may not be able to respond to inquiries.

Chemical Emergencies

Benzene

Chemical Fact Sheet

For Everyone

SEPTEMBER 6, 2024

KEY POINTS

- Benzene is a colorless or light-yellow liquid chemical at room temperature.
- Signs and symptoms of benzene poisoning depend on how you were exposed.
- Get clean and get medical care if you were exposed.

Background

Benzene is a liquid chemical at room temperature. It either has no color or is light-yellow. It has a sweet smell and is very flammable.

Benzene evaporates into the air very quickly. It is heavier than air and may sink into lower areas. Benzene dissolves only a little in water and will float on top of water.

Where it is found

Benzene is formed in nature and from human activities. Natural sources include volcanoes and forest fires. It is also a natural part of crude oil, gasoline, and cigarette smoke.

Benzene is used often in the United States. It is in the top 20 produced chemicals by quantity. Some industries use benzene to make other chemicals that are used to make plastics, resins, and nylon and synthetic fibers.

It is also used to make:

- Detergents
- Drugs
- Dyes
- Some types of lubricants
- Pesticides
- Rubbers

How it works

Benzene works by causing cells not to work correctly.

For example, it can cause bone marrow not to produce enough red blood cells. This can lead to anemia. It can also hurt the immune system by changing blood levels of antibodies and causing the loss of white blood cells.

Signs and symptoms

The level of benzene poisoning depends on the amount, how someone was exposed, and for how long. It also depends on the person's age and medical conditions they may have.

These signs and symptoms may show up within minutes to several hours. Showing these signs and symptoms does not necessarily mean that a person has been exposed to benzene.

If breathed in:

- Drowsiness and dizziness
- Fast or irregular heartbeat
- Headaches
- Tremors
- Confusion
- Unconsciousness
- Death (at very high levels)

If swallowed:

- Vomiting or irritation of the stomach
- Dizziness
- Sleepiness
- Convulsions (uncontrolled muscle shaking)
- Fast or irregular heartbeat
- Death (at very high levels)

If a person vomits because they ate or drank something with benzene, the vomit could be sucked into the lungs. This can cause breathing problems and coughing.

If benzene touches the eyes, skin, or lungs, it can cause injury and irritation.

Exposure

People working in jobs that make or use benzene may be exposed to the highest levels of it.

Outdoors

Low levels of benzene can be found at:

- Tobacco smoke
- Gas stations
- Car exhaust
- Industrial emissions

The air around hazardous waste sites or gas stations can contain higher levels of benzene than in other areas.

Benzene leaks from underground storage tanks or from hazardous waste sites containing benzene can contaminate well water.

Indoors

Indoor air generally contains levels of benzene higher than those in outdoor air. It can come from products such as:

- Glues
- Paints
- Furniture wax
- Detergents

What to do if you are exposed

Get fresh air by leaving the area where the benzene is. Moving to an area with fresh air is a good way to reduce the possibility of death from benzene.

If benzene was released outside, move away from the area. If benzene was released indoors, get out of the building.

If you're in immediate danger

If you swallowed benzene, do not induce vomiting or drink fluids. Get medical attention right away.

If you think you were exposed, take your clothes off, wash your body, and get medical care as quickly as possible.

Take off your clothes

Remove the clothing as quickly as possible. Cut clothes off instead of pulling it over the head. If you are helping others, do not touch unsafe areas.

Wash your body

Wash any benzene from your skin with lots of soap and water. Washing with soap and water will protect you from any chemicals on your body.

If your eyes are burning or your vision is blurred, rinse your eyes with plain water for 10 to 15 minutes.

If you wear contacts, remove them and put them with the dirty clothing. Do not put the contacts back in your eyes (even if they are not disposable contacts).

If you wear eyeglasses, wash them with soap and water. You can put your eyeglasses back on after you wash them.

Throw your clothes away

After you have washed yourself, place your clothing inside a plastic bag. Do not touch unsafe areas of the clothing. If you have to touch unsafe areas, or you aren't sure where the unsafe areas are, wear rubber gloves. You can also use tongs, tool handles, sticks, or similar objects to put the clothing in the bag.

Anything that touches the dirty clothing should also be placed in the bag. If you wear contacts, put them in the plastic bag, too.

Tie the bag, and then put that bag inside another plastic bag. Throwing away your clothes this way helps protect you and others from any chemicals that might be on your clothes.

When the local or state health department or emergency team arrive, tell them what you did with your clothes. The health department or emergency team will arrange for further disposal. Do not handle the plastic bags yourself.

For more information about cleaning your body and throwing away your clothes after a chemical exposure, visit "About Getting Clean."

Evacuate or "shelter in place"

If you are near a benzene release, emergency teams may tell you to evacuate the area or "shelter in place" inside.

For more information on evacuation during a chemical emergency, visit "Responding to Evacuation."

For more information on sheltering in place during a chemical emergency, visit "Responding to Sheltering in Place."

Treatment

The most important thing is for people to **seek medical treatment as soon as possible**.

No cure exists for benzene poisoning. Benzene poisoning is treated with supportive medical care in a hospital.

Long-term health effects

Blood

Long-term exposure, or exposure of a year or more, to benzene can affect the blood. Benzene causes harmful effects on bone marrow and can cause a decrease in red blood cells, leading to anemia. It can also cause excessive bleeding and affect the immune system, increasing the chance for infection.

Bones

Studies in animals show low birth weights, bones being formed late, and bone marrow damage when pregnant animals breathed benzene.

Cancer

The Department of Health and Human Services (DHHS) has said that benzene causes cancer in humans. Long-term exposure to high levels of benzene in the air can cause leukemia, a blood-related cancer.

Fertility

Some women who breathed high levels of benzene for many months had irregular menstrual periods. Some women also had a decrease in the size of their ovaries. It is not known whether benzene exposure affects the developing fetus in pregnant women or fertility in men.

More information

Pocket Guide to Chemical Hazards

You can also contact one of the following:

- Regional poison control center: 1-800-222-1222
- Centers for Disease Control and Prevention
  - Public Response Hotline (CDC): 800-CDC-INFO
  - Teletypewriter (TTY): 888-232-6348
  - E-mail inquiries: cdcinfo@cdc.gov

SOURCES

CONTENT SOURCE:
National Center for Environmental Health

SOURCES

- National Center for Environmental Health (NCEH)

EXHIBIT 8

Susan Foster

PO Box 1444
Lyons, CO 80540
susan.foster04@gmail.com
(858) 756-3532

July 14, 2025

To: San Francisco Planning Commissioners
49 South Van Ness Avenue, San Francisco, CA 95103

Chair So, Vice-Chair Moore, & Commissioners Braun, Williams, Campbell, Imperial, McGarry:
Cc: Commission Exec. Director, Commission Secretary, John Darcey Planner, Department of Recreation

RE: OPPOSE: ATT *proposed telecommunication facility at 350 Amber Drive in Diamond Heights Neighborhood*

I am a Fire and Utility Consultant, an Honorary Firefighter with the San Diego Fire Department, and I have worked with attorneys on telecommunications ordinances including fire prevention from 2001 to the present. Most recently, the unanimously passed Malibu Resolution 21-17 for macro towers on private property included our Fire Safety Protocol for all macro towers coming into Malibu. The City Council applied this to small cells, as well. I was the co-author with electrical engineer Tony Simmons, PE of the Fire Safety Protocol. We require all applicants submit eight electrical engineering design plans signed and sealed by a telecommunications electrical engineer guaranteeing their safety. This is the only city in the country that has this requirement.

Why was our team brought in? This is the city that has burned twice at the hands of telecom. In 2007 the Malibu Canyon Fire was caused by multiple carriers, including AT&T, overloading Southern California Edison utility poles. Three poles snapped in the Santa Ana winds and ignited the grass below. In 2018, the Woolsey Fire was started, in whole or in part, by electrical equipment belonging to a small telecommunications company that was incorporated into Southern California Edison.

In May 2018 a telecommunications inspector noticed some of the telecommunications equipment was broken and had lost its ground. The telecommunications inspector failed to mark this repair as urgent. In November 2018 this equipment, still in dangerous disrepair, was a significant part of the 2-part ignition source that caused the Woolsey Fire. Combined those fires caused over $6 billion in damages. Some burn scars from homes that were destroyed remain to this day.

I'm sure you are aware that the Palisades Fire destroyed one-third of Malibu in January. Even though the Palisades Fire was not telecommunications-related, it's destruction on the heels of two devastating fires heightens the vulnerability faced by the whole of California.

Macro towers do pose a fire risk. These fires can be due to deficient structural engineering or electrical engineering. Many of these fires are covered up by the telecommunications industry. I have worked with the firefighters of California for over two decades. I am aware that firefighting equipment worth millions of dollars is sometimes gifted to stations that do not submit fire incident reports on macro tower fires. No government agency is keeping track of these fires and some within the telecommunications industry do their best to cover them up.

When the carrier reads my letter, they will know exactly what I am referring to.

You have heard for years now that cell towers cannot be denied placement based on health concerns. However, what you may be unaware of based on self-serving advice from industry-leaning attorneys/consultants, is that safety <u>is</u> yours to regulate. Safety also means taking great care to ensure electrical and structural engineering rigor with respect to cell towers.

Safety is taking care to have appropriate setbacks from property and densely populated buildings like schools, neighborhoods, daycare centers and highly flammable parks. People need time to escape from a cell tower fire. Every cell tower is an electrical device, and every electrical device is going to fail. One of the likely consequences of electrical failure is fire. When a cell tower catches on fire, it cannot be extinguished through conventional means. Anyone putting water on a fire before the grid has been cut may be electrocuted. Cutting the grid can take between 30 and 60 minutes.

AT&T carries the FirstNET signal, FirstNET is for emergency services communication. All cell towers carrying emergency services communication must adhere to APCO ANSI 2.106.1–2019. This requirement consists of 15-pages of structural engineering requirements for site hardening for any structure that is going to convey emergency services communication. That is required by the federal government.

It is my understanding that the proposed AT&T site for this macro tower is on landfill. From a structural engineering point of view this does not make sense. In fact, it is a dangerous location.

It is also my understanding that the proposed site is adjacent to a park with abundant, flammable grass and it is surrounded by eucalyptus trees. From a fire perspective, I cannot think of a worse location. Eucalyptus trees are highly flammable and when they burn, they literally explode. Under Santa Ana or El Diablo conditions those embers may be carried for 2 – 3 miles. With low humidity and abundant dry fuel, a wind event would enable embers to ignite new fires miles ahead of the main fire front.

I would also point out that in the immediate and nearby neighborhoods which includes a children's playground, a veterinary hospital, a daycare/nursery, the police academy, a drugstore and countless homes, many would have an extremely difficult time exiting the neighborhood(s) if this macro tower catches on fire. Multiple neighbors with the close by, some within 500 feet.

Additionally, an electrical fire can take the temperature inside a macro tower to 4000° in less than a second. Temperatures of an arc flash inside the tower can reach as much is 35,000 °F. This is three times the estimated temperature of the sun's surface.

I will give you an example of what can happen to a macro tower when there is an electrical fire inside the cell tower. In March 2021, a Chula Vista, California fire was caused by an AT&T cell tower that was partially concealed in a light fixture around a track at Otay Ranch High School. The tower burst into flames at 7:30 PM on a Tuesday evening. The Fire Incident Report was obtained through a CPRA request. The area of origin was within the equipment; the heat source was "electrical arcing." When the fire department arrived, the 100-ft pole appeared to have an internal fire that traveled up the pole to the cell phone equipment and stadium lighting at the top of the pole. Firefighters maintained a safe distance until they could verify all power supply to the pole had been secured. As they were waiting for the representative from SDG&E to arrive to confirm the power had been cut, the heat of the fire due to arcing caused the steel pole to become molten plasma. It collapsed onto the bleachers near the football field, burning the track, and destroying the bleachers.

Because the grid must be cut before a cell tower fire can be extinguished through conventional means, a fire from this proposed cell tower fight could literally consume the adjacent neighborhood and the above-named vulnerable populations before people have a chance to evacuate. Safety must be your primary concern.

The FCC has repeatedly stated that safety belongs to the municipalities to regulate. *In the Matter of Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies; Acceleration of Broadband Deployment: Expanding the Reach and Reducing the Cost of Broadband Deployment by Improving Policies Regarding Public Rights of Way and Wireless Facilities Siting; 2012 Biennial Review of Telecommunications Regulations*, 29 FCC Rcd 12865, 12945, ¶188 (2014)

After scrutinizing engineering designs on applications coming into the cities where we have worked, our team engineer determined approximately 80% of the engineering designs for macro towers and small cells were deficient.

Our team working in Malibu – W. Scott McCollough, former Texas Assistant Attorney General for Telecommunications & Utilities, engineer Tony Simmons, P.E., and I, after extensive research, linked four major fires to telecommunications equipment within the last 15 years in Southern California alone, costing well over $6 billion in damages. In brief these fires are:

- Guejito Fire (2007) in San Diego which merged into the explosive Witch Creek Fire.
- Malibu Canyon Fire (2007).
- Woolsey Fire in Malibu & LA County (2018) which burned for one month, took the lives of three people trying to escape.
- Silverado Fire in Irvine (2020).

It is particularly germane to note that in the Malibu Canyon Fire, AT&T was directly involved in the initiation of this 2007 fire. The California Public Utilities Commission (CPUC) accused all parties the CPUC found to be negligent in the initiation of the Malibu Canyon Fire to have impeded the fire investigation.

These parties included: Southern California Edison (SCE), AT&T, Verizon, Sprint (now T-Mobile) and NextG, now owned by Crown Castle. Because AT&T, Verizon and Sprint admitted to their participation in the initiation of the fire without having to litigate, the CPUC and the Safety and Enforcement Division (SED) were more critical of and punitive with SCE and NextG.[1]

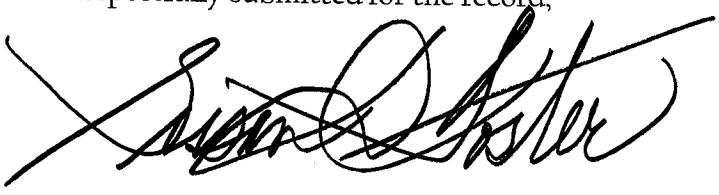
It should be of great significance to the San Francisco Planning Commission that the CPUC accused all parties – including AT&T – in the Malibu Canyon Fire of failing to cooperate fully in the fire investigation. If the parties are negligent in the first place, and fail to cooperate in or purposely impede the fire investigation, how can they be trusted with respect to fire safety going forward?

We are supposed to learn from mistakes whether it be structural overloading which falls under the umbrella of civil engineering, or an electrical design flaw which falls under electrical engineering. If mistakes are corrected, there is a greater level of trust for that party going forward. When the California Public Utilities Commission accuses all parties including AT&T of impeding the investigation, from a fire safety vantage point, trust is lost.

Please find two attachments. One is an aerial view of the proposed tower location, and another is titled "Monopole location". Both assisted me in making the best fire safety assessment with routes of egress in mind, and the nearby population in mind, as well. One of the most difficult evacuations involves young children. Please keep this vulnerable population at the top of your safety priority list as you make your critical decision.

Cell towers do cause fires, and I cannot emphasize enough how dangerous it is in this location surrounded by eucalyptus trees with a foliage filled canyon on one side and a cluster of densely populated areas on the other. Fires do occur when towers collapse for structural insecurity, and a cell tower of this height with the required ancillary equipment may present significant structural challenges in the future because they would be built on landfill. I do not know if the site could pass the required APCO ANSI 2.106.1–2019 protocol. The carrier may not have told you about this protocol, but the federal government requires it.

Respectfully submitted for the record,



SUSAN FOSTER
Honorary Firefighter SDFD
Fire & Utility Consultant

Attachments (2)

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[1] DECISION CONDITIONALLY APPROVING THE SOUTHERN CALIFORNIA EDISON COMPANY SETTLEMENT AGREEMENT REGARDING THE MALIBU CANYON FIRE, BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, Decision 13-09-028 September 19, 2013.

EXHIBIT 9

PROTECTING MALIBU'S FUTURE:

PREVENTING ELECTRICAL FIRES IN CELL TOWERS BY INTRODUCING ENHANCED BUT GENERALLY ACCEPTED ENGINEERING DESIGN RIGOR AND ADEQUATE PROOF OF WORK IN THE APPLICATION

Susan Foster & Tony Simmons, P.E.

[Updated 2/16/2022; S. Foster]

INTRODUCTION

The fire risk in Malibu is extreme. Wireless Communication Facility (WCF) proliferation increases the possibility of electrical fires. As such, electrical fire safety must be a priority for the City.

A group of Malibu residents (referred to here as the Community) have been attempting to work with the City to help minimize Malibu's fire risk from WCF installations. This white paper explains the Community's proposed safety design and application content requirements. These proposed requirements are tailored to Wireless Communications Facility installations in areas with dry vegetation, like Malibu. Some of the language was taken from ordinances in Encinitas and Sebastopol, while much of it is new. The new language is necessary because of the recent discovery that national, state and local electrical codes have expressed or implicit exemptions for "public utilities." *See, e.g.*, California Electric Code Section 89.101.3.3(4) and (5) and "public utility" exclusion in Los Angeles County Electric Code Sections 80-3 and 80.6. There are similar exemptions in NFPA documents. Therefore, merely adopting the Electric Code, as Staff proposes, will do nothing. Malibu will have <u>no electrical safety standards for WCFs</u> unless our proposals are adopted.

There are generally accepted standards for most other buildings and structures, including installations that house extensive and complicated electronics with similar characteristics to those employed as part of a WCF. The Community's proposed design standards incorporate those standards. In other words, we basically eliminated the "exception" so the general standards can apply. As a result, and consistent with FCC rules, Malibu will be enforcing "generally applicable building, structural, electrical, and safety codes and other laws codifying objective standards reasonably related to health and safety." *In the Matter of Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies; Acceleration of Broadband Deployment: Expanding the Reach and Reducing the Cost of Broadband Deployment by Improving Policies Regarding Public Rights of Way and Wireless Facilities Siting; 2012 Biennial Review of Telecommunications Regulations*, 29 FCC Rcd 12865, 12945, ¶188 (2014).

Separately, the Community's proposal sets out the information that must be contained in the application. The design is important, but it is equally crucial that applicants be required to show their work, provided in a way that allows for independent verification and analysis. Only then can Malibu residents be assured that every possible step has been taken to minimize the risk of yet another wildfire caused or made worse by equipment breakdown in a WCF.

This paper provides specific and detailed explanations for the requirements we propose to help mitigate the profound fire risks in Malibu. It explains what we need by way of engineering up-front design and what is required for the telecommunications carrier to "show its work" in the permit application. Carriers will have their own professional engineers run their equipment through basic tests or produce standard design diagrams with an engineer's seal. Those scrutinizing the application will be able to independently verify the work was indeed done by the appropriate qualified personnel. This design and application content rigor should catch most design flaws that could, if left undetected, put Malibu at greater risk for fire.

Malibu bears greater risk if telecom cuts corners in the engineering and design process. Our proposal requires just over a dozen documents in the Application, signed off on by a professional engineer employed by telecom. Those documents will be reviewed by Malibu's permitting and enforcement departments and, if everything is in order, facilities will be approved for installation in the city. We are simply asking carriers to do due diligence and submit the right paperwork to the City when they apply. If they are going to come into Malibu, they must do so safely. It's that simple.

We present examples below of failure to scrutinize electrical equipment and utilize professional engineers to help protect life, health and property. These examples will be familiar to every member of the Planning Commission and, we trust, will serve as a reminder to all of us that engineering rigor and proof of work applied early in the process will protect the City from potentially catastrophic failures later on.

We also provide several examples of the ways electrical fires can start in cell towers and why the new small cell infrastructure poses unique threats to Malibu. In addition, we demonstrate that setbacks and separation will accommodate telecommunications yet allow enough space and distance for residents to escape should an electrical fire still occur. Electrical fires cannot be extinguished by homeowners or even firefighters until power to the facility is cut by the utility. In some instances, de-energization of a cell tower has taken over 60 minutes. In such a circumstance, distance from residences, schools and other buildings may mean the difference between life and death.

Homeowners should never fight a cell tower fire even if it is directly in front of their home. To fight an electrical fire before the tower has been de-energized by the local utility (10 to 60 minutes) risks electrocution. Residents of Malibu must flee their homes in the event of an electrical fire and that is why distance between towers and setbacks from homes is critical.

Finally, we urge the Planning Commission and Staff to recognize that the federal government and public safety officials consider wireless infrastructure to be essential infrastructure. Therefore, any hesitation on the part of Staff to require our electric fire safety protocol may be allayed by appreciating that the infrastructure itself needs to be protected. Attempts by carriers to introduce slipshod and inferior design, materials and products in Malibu should be rejected.

We have been asked if our electric fire safety protocol is new and if electric fire safety requirements have been adopted by other cities. The answer is yes, and the answer is no. We know some cities are beginning to write into their small cell ordinances that electric codes should

be adhered to because of the growing awareness of electrical fire risk in cell towers very close to homes and schools. As such, cities have attempted to require electric fire safety protocols. But it appears most cities have not discovered the "loophole" arising from the public utility exception that renders their efforts to protect their cities ineffective. As far as we can tell, Malibu will be the first to identify this problem and actually force an objective, generally applicable standard for electric fire safety.

Our proposed electric fire safety requirements are the result of in-depth collaboration between Tony Simmons, P.E., a professional engineer with decades of electric fire safety experience and Susan Foster, writer and an Honorary Firefighter with the San Diego Fire Department and a member of the 2001 Task Force in San Diego County that created the County's first wireless ordinance. That ordinance survived a challenge all the way to the U.S. Supreme Court. Susan Foster has worked with rank-and-file firefighters in California and across the country over the last 20 years on the issue of RF radiation health and safety.

Mr. Simmons is a professional electrical engineer licensed by the States of California and Nevada. He is a recognized subject matter expert on electrical safety. As an employee of NV Energy, which served customers in California and Nevada, he was responsible for ensuring that no gap existed between the safety standards for customer-owned equipment and utility-owned equipment. Mr. Simmons designed a specialized test facility that integrated electrical equipment from East Asia, Europe, and the United States. This test site incorporated grounded and ungrounded electrical systems from all three regions and required Mr. Simmons to integrate standards from three regions to adhere to the technical requirements of the U.S. National Electric Code.

Residents and city planners in various California cities have contacted Susan Foster seeking assistance in their efforts to create safer WCF ordinances by taking electric fire safety into account. Additionally, Susan Foster has met with city councilmembers and engineering/IT personnel in several cities in Colorado, a state that also experienced an unprecedented fire threat in 2020 and more recently the December 2021 Marshall Fire which burned 6000 urban and suburban acres in six hours in Boulder County. Similarly, Tony Simmons' expertise has been requested by several California cities regarding electric fire safety and engineering. Mr. Simmons and Susan Foster are working on electric fire safety amendments for three Colorado cities.

As it relates to Malibu, Susan Foster and Tony Simmons have worked over the past six months with attorney W. Scott McCollough, who has an extensive 37-year career in law and policy and was the Assistant Texas Attorney General responsible for utility matters, to arrive at our proposed electric fire safety requirements so as to minimize the chances of WCF electrical fires in Malibu. We did not know, until we pooled our collective knowledge and compared federal and state laws and local ordinances and regulations, that telecom was exempt from otherwise generally applicable codes and standards. We anticipate telecom is aware of the exception but chose to remain silent. This problem has now arrived at Malibu's doorstep and must be solved. We hope it will be resolved in favor of ensuring the safety of the city and its residents. News of this issue and problem is spreading, but Malibu has the opportunity – and responsibility – to lead the way, as it is known to do in matters of great importance.

WHY ELECTRICAL FIRE SAFETY?

We propose fire safety requirements that consider Malibu's unique geographic location, its ongoing seismic activity, a marine climate conducive to expedited corrosion of WCF equipment, an abundance of dry brush, limited escape routes out of town, and year-round tourism which can swell the population by 4,000 visitors on any given weekend – adding to the burden on access/exit roads.

Fire risks in Malibu are not hypothetical conjecture. This city has burned twice just in the last 15 years. Over the last nine decades, at least 30 wildfires have destroyed parts of this coastal community, with the most recent Woolsey Fire (the largest in recorded history), consuming almost 100,000 acres. The ongoing, severe drought in California, along with record high temperatures, makes the focus on fire prevention more urgent than ever.

Preventing fires in Malibu has been a full-time job for Mayor Mikke Pierson since the beginning of his tenure on City Council. He was elected in 2018 two days before the Woolsey Fire broke out. Over 400 homes were lost with catastrophic impact on Malibu; many residents have still not made it through the permit stage for rebuilding. From a recent posting in Malibu's News Carousel:

> "*Wildfire has always been Malibu's number-one public safety threat, but the size, duration and severity of the Woolsey Fire was unprecedented, and showed us the dangerous new normal of drought, climate change and California mega-fires," said Mayor Mikke Pierson. "I am proud of the progress we have made in developing strategies to be even more prepared for disasters, including this siren system, which could be a powerful step toward community-wide preparedness*."

The documents provided to the Planning Commission by Staff do not show sufficient commitment to treating fire as Malibu's number one public safety threat, as articulated by Mayor Pierson. Our plea, and that of the Community, is that the Planning Commission and City Council rectify this error. There must be strong and specific design, application content and inspection language in the Ordinance and Resolution. The whole point of applying electric engineering rigor is to make sure that when a device fails – and they all do at some point – it fails safely. Without this kind of rigor for WCFs, Malibu will expose itself to significant risk of yet another preventable fire.

We have therefore been detailed and specific about what is required to reduce the risk. We are not asking for anything that is not already required of every business in Malibu that wants to install parking lot lighting, a sign in front of their place of business, or install complicated electronics inside their building. Citizens have a right to demand engineering rigor for the projects coming into Malibu extremely close to people's homes, schools, daycare centers, parks, places of business, restaurants and in every facet of life.

We presently have no idea what the Planning Director will require in the applications. If application content is left entirely up to the Planning Director, the form can be changed at whim, especially after a personnel change. The application, however, is not just for Staff. The Planning Commission extensively relies on it, as does anyone participating in the application process.

Unlike Staff and the Commission, public participants have no right or practical ability to require additional information beyond what is in the application. Their ability to reasonably participate and provide input is entirely dependent on the quantity and quality of the information in the application. The public needs and deserves more than the Staff materials provide.

The Community wants more rigorous requirements, particularly relating to up-front design by qualified and licensed personnel, and full disclosure in the application stage. In other words, we expect every application submitted to Malibu to have 14 documents indicating successful completion of a test, a diagram, a design schematic, and a list of any potentially hazardous substances, all signed and sealed by a licensed professional engineer. The Community's protocol was designed by an electrical engineer with decades of experience in applying engineering rigor to protect life, health and property. He knows what is needed for both design and proof of work. He knows what is feasible and reasonable.

To date, our fire safety proposals have been rejected by Staff/City Attorneys. We are particularly concerned that not only does our groundbreaking electric safety protocol get removed from every draft, but so does the fire safety wording we adopted from ordinances already passed by Encinitas and Sebastopol. That makes no sense for a city that has suffered two catastrophic fires in the last 15 years, and 30 over the last 90 years.

DESIGN AND PROOF OF WORK FOR THE APPLICATION

Tony Simmons, P.E. has synthesized an electric fire safety protocol tailored to the specific needs of fire-prone Malibu. The engineering documents listed below in our 14-step electric fire safety protocol are required to demonstrate compliance with the generally applicable technical requirements of the following codes: the National Electric Code, the California Electric Code and the Los Angeles County Electric Code. Item (N) below indicates text pertaining to structural engineering requirements that, unlike the electrical safety portions, has been accepted and incorporated by Staff.

Each of the 14 steps below represents a document to be included in each WCF application. Each document must be sealed by a professional engineer pursuant to the California Professional Engineer's Act. Documents A through E are routinely produced by commercially available software such as E-TAP or POWER TOOLS. Documents F through H are produced with CAD programs such as AutoCAD. Document I is required by all codes. Document J is a reaffirmation that all parties understand the service entrance switch is not readily accessible. Documents K, L, and M include information all employers are required to provide to their workers. Document N has been accepted by Staff.

(v) **Electrical and Structural Safety Information**. The following engineering documents prepared under the responsible charge of and sealed by a California licensed professional engineer must be included in the application:

(A) A short circuit and coordination study ("SCCS") calculated pursuant to the IEEE 551-2006: Recommended Practice for Calculating AC Short-Circuit Currents in Industrial and Commercial Power Systems or the latest version of that standard. The study must

demonstrate the protection devices will ensure the equipment enclosure will not be breached. The SCCS must include analysis of Voltage Transient Surges due to contact of conductors of different voltages;

REASON FOR REQUIRING THIS DOCUMENT: This study is required to demonstrate the installation complies with NEC Articles 110.9, 110.10, 110.16 and 240.

WHY THIS STUDY IS IMPORTANT: All electrical equipment will fail. This study ensures that electrical equipment will not catastrophically fail. As an example, electrical conductors may rub together and damage the insulation, allowing excessive current to flow. This study ensures that the fuse or circuit breaker de-energizes the circuit fast enough to prevent arcing or fire. This study could have identified beforehand that meters would catastrophically fail in Stockton in 2015. This study can ensure that a WCF mounted on poles with transmission and distribution circuits, like the pole on the corner of Malibu Canyon Road and Harbor Vista, does not fail like electric meters did in Stockton in 2015.

(B) A one-line diagram of the electrical system;

REASON FOR REQUIRING THIS DOCUMENT: This diagram provides a map of the electrical installation and serves as the primary reference for all the other documents.

WHY THIS DIAGRAM IS IMPORTANT: This document allows less experienced electrical workers to quickly trouble shoot electrical malfunctions and failures and to identify a de-energization point.

(C) Voltage Drop & Load Flow Study;

REASON FOR REQUIRING THIS DOCUMENT: This Study proves the electrical conductors are large enough to ensure that equipment supplied by the electricity flowing through conductors operate within the design range for that item of equipment.

WHY THIS STUDY IS IMPORTANT: If the voltage is too low or too high, electrical equipment may not operate correctly or be damaged.

(D) Load Calculation;

REASON FOR REQUIRING THIS DOCUMENT: The load calculation ensures each item of equipment is sized to safely carry the design load.

WHY THIS DOCUMENT IS IMPORTANT: This document lists all load connected to the electrical system.

(E) Panel Directories;

REASON FOR REQUIRING THIS DOCUMENT: Panel Directories are provided to show workers which switch or breaker de-energizes a specific circuit or piece of equipment.

WHY THIS DOCUMENT IS IMPORTANT: The panel directory is required by Electric Codes so that electrical workers or less experienced individuals can quickly de-energize a circuit in an emergency without a "trial and error" approach.

(F) A plot plan showing the location of the mounting structure including address, or structure designation, or GPS location;

REASON FOR REQUIRING THIS DOCUMENT: This document is necessary to quickly identify the location for prompt emergency and non-emergency response.

WHY THIS DOCUMENT IS IMPORTANT: This document shows the exact location of the WCF and the access route. Power poles are commonly assigned addresses that may be located several hundred feet from the actual location.

(G) A plot plan showing the location of the service disconnecting means;

REASON FOR REQUIRING THIS DOCUMENT: This document is necessary to demonstrate the location of the switch or circuit breaker that separates the customer electrical system from the utility electrical system. This is commonly called the "main switch" or the "main circuit breaker".

WHY THIS DOCUMENT IS IMPORTANT: A WCF has been proposed on a streetlight pole on Cross Creek Road. The WCF is powered from one electric service. The streetlight is powered from a separate electric service. In order to suppress a fire, the power to the streetlight and the power to the WCF must both be de-energized. This plan shows both de-energization points. Service disconnects for streetlights may be several hundred feet away on a different street.

(H) An elevation drawing of the equipment and the service disconnecting means;

REASON FOR REQUIRING THIS DOCUMENT: This drawing shows how the equipment will look once installed. It is critical to ensure the workspace has adequate room to operate safely.

WHY THIS DOCUMENT IS IMPORTANT: Performing work on electrical equipment is hazardous. Workers are entitled to sufficient room to safely work and to escape if an arc develops.

(I) A demonstration there will be signage as required by the California Electric Code or the Los Angeles County Fire Department Chief or his or her designee;

REASON FOR REQUIRING THIS DOCUMENT: The CEC requires that electric equipment be labeled.

WHY THIS DOCUMENT IS IMPORTANT: This is necessary to ensure that first responders or electrical workers safely de-energize the correct equipment.

(J) A demonstration the service disconnecting means shall be mounted at an elevation determined by the Los Angeles County Fire Chief or his or her designee in conjunction with the electric utility;

REASON FOR REQUIRING THIS DOCUMENT: The CEC specifies that the service disconnecting means be readily accessible, which generally means operatable without a ladder. To prevent vandalism of communication systems in public right of ways, the service disconnecting means may be mounted out of reach from the ground.

WHY THIS DOCUMENT IS IMPORTANT: To prevent casual vandalism, the service disconnect may be mounted at a height not reachable from ground level.

(K) A demonstration there will be instructions for deenergizing the equipment by First Responders.

REASON FOR REQUIRING THIS DOCUMENT: Certain electric equipment must be de-energized in a specific sequence to ensure safety.

WHY THIS DOCUMENT IS IMPORTANT: Certain electrical equipment can create an additional hazard if de-energized in the incorrect sequences.

(L) A list of toxic substances that may develop during arcing or fire that may impede fire suppression efforts;

REASON FOR REQUIRING THIS DOCUMENT: The intense heat of an electrical arc may turn non-hazardous substances into hazardous substances. Special protective equipment may be required.

WHY THIS DOCUMENT IS IMPORTANT: Electric arcs instantly reach temperatures of thousands of degrees. Normally non-hazardous material may become hazards. Metals may vaporize and damage lungs.

(M) A list of hazards that may develop during arcing or fire that may impede fire suppression efforts;

REASON FOR REQUIRING THIS DOCUMENT: Arcing or fire may create a pressure wave that can imperil life, health and property.

WHY THIS DOCUMENT IS IMPORTANT: Electric arcing can vaporize copper or aluminum. Copper expands 67,000 times when converted from solid to vapor, which can cause an air blast that throws an individual several feet with fatal force.

(N) Structural Safety Information. The structural/civil engineering documents as recommended by a California licensed professional civil or structural engineer employed by Center for Municipal Solutions.

NOTE: The proposed ordinance includes a standard recommended by APCO/ANSI. This issue has been adequately addressed in the documents provided by Staff.

Every draft we provided to Staff included the 14 documents listed above. As stated, each step represents a diagram, design schematic, or list of potentially hazardous substances that must be signed off on by a professional engineer as required in our fire safety and structural engineering protocol. Staff has persistently removed the protocol, with the notable exception of structural engineering. We do not know why.

FIRE PREVENTION LANGUAGE TAKEN FROM ENCINITAS & SEBASTOPOL SMALL CELL ORDINANCES

The following language was offered to Staff, having been taken from ordinances previously passed in Sebastopol and Encinitas, California. Those cities' Small Cell Ordinances expanded on fire safety language beyond basic adherence to local fire codes. Susan Foster contributed to writing the fire safety portion of the Encinitas Small Cell Ordinance passed initially in 2019 and amended in 2020. The intent of this language was to meet the needs imposed upon each city by the proliferation of small cells and the proximity of these electrical devices for the first time so close to residences, schools, hospitals, playgrounds, daycare centers and parks. Malibu Staff removed this language from the drafts provided by the Community.

APPLICATION AND REVIEW PROCEDURES

Fire Department Review. After submittal by the applicant, the Director shall transmit the entire application packet to the Fire Prevention Division. The Fire Chief (or his or her designee) shall review the application for compliance with objective health and safety standards related to fire hazards. The Fire Chief shall inform the Director in writing of its conclusions and any recommended conditions for public health and safety. Review by the Fire Prevention Division may reasonably require additional processing time, including potentially exceeding FCC Shot Clock timelines if necessary. The Fire Chief (or his or her designee) may select and retain an independent consultant with expertise and/or specialized training in fire safety and fire hazard mitigation and prevention satisfactory to the Fire Chief in connection with any permit application. The Fire Chief may request independent consultant review on any matter committed to Fire Department review or approval. Subject to applicable law, in the event that the Fire Chief elects to retain an independent consultant in connection with any permit application, the applicant shall be responsible for the reasonable costs in connection with the services provided,

which may include without limitation any costs incurred by the independent consultant to attend and participate in any meetings or hearings. The same procedures for fee deposits, cost reimbursements and refunds to the applicant as described above shall be applicable to independent consultant review required by the Fire Chief.

CONDITIONS OF APPROVAL

Safety Hazard Protocols. If the Fire Chief (or his or her designee) or Board of Chiefs of the Dispatch Joint Powers Authority finds good cause to believe that the facility (including, without limitation, its accessory equipment, antenna and/or base station) presents a fire risk, electrical hazard or other immediate threat to public health and safety in violation of any applicable law, such officials may order the facility to be shut down and powered off until such time as the fire risk or electrical hazard has been mitigated. Any mitigations required shall be at the permittee's sole cost and expense.

Continued Monitoring. The permittee's Registered Engineer shall certify in writing continued compliance with the safety standards of this policy on or before January 30th of each calendar year. The Fire Chief will continue to monitor the safety of wireless facilities in the City and publish a yearly review of fire safety considerations regarding potential risks posed by electrical components of new technologies, the presence of numerous small cell wireless facilities in the ROW and any fire events or near-miss events related to wireless facilities.

Oversight Authority. The Fire Chief, in his or her discretion, may issue written fire safety performance directives that shall apply to all existing permits within the scope of such directives and shall be considered as though incorporated into such permits. All permittees shall be required to comply with such directives at the permittee's sole cost and expense.

Fire Investigations.

(i) The Fire Chief shall receive and investigate any credible fire safety complaint made by a resident of the City regarding a wireless facility in the City. Cost of such investigation shall be borne by the permittee. Permittees shall also inform the Fire Chief in writing within one business day of any fire or near-ignition event at any facility or replacement of any facility component in connection with any malfunction pertaining to excess heat, arcing or discharged current. (ii) The Fire Chief shall further investigate any fire in or around the vicinity of a small cell wireless facility. If the conclusion of the investigation is that any facility component is at fault, the Fire Chief shall immediately notify the Malibu City Council of his/her findings, and the facility at issue shall be de-energized until such time as the permittee provides assurances or undertakes precautions satisfactory to the Fire Chief that such event or similar event will not reoccur. In the event that no such assurance is received, and the Fire Chief has good cause to believe that such

failure to comply constitutes a threat to health or safety, permit revocation shall be initiated by the Director.

DESIGN STANDARDS

Electric Meters. Small cells and other infrastructure deployments shall use flat-rate electric service or other method that obviates the need for a separate above-grade electric meter. If flat-rate service is not available, applicants may install a shrouded "smart meter" that shall not exceed the width of the pole provided that such smart meter shall be placed at least 10 feet above ground level. If the proposed project involves a ground-mounted equipment cabinet, an electric meter may be integrated with and recessed into the cabinet, but the Director shall not approve a separate ground-mounted electric meter pedestal unless (1) the separate ground-mounted meter pedestal would be placed off the sidewalk and (2) the applicant's Registered Engineer demonstrates with clear and convincing evidence that all other alternatives for the electric meter are technically infeasible.

Fire Safety Standards.

All wireless facilities shall include:

1) a power shut off readily accessible to fire service personnel, such as by means of rapid entry Knox or similar type systems installed as required by the Fire Chief, upon arrival at the scene of a fire and/or anticipated power surge due to power being turned off or on for any reason;

(2) surge protection devices capable of mitigating a direct or partial direct lightning discharge;

(3) surge protection devices capable of mitigating significant electrical disturbances that may enter the facility via conductive cables;

(4) at least one-hour fire resistant interior surfaces to be used in the composition of all structures and

(5) monitored automatic fire notification and extinguishing systems for all wireless facilities approved by the Fire Chief.

LEARN FROM PAST MISTAKES

The 14 documents must be included because past failures to employ them caused mistakes that put people and their homes in harm's way.

Four of the six tragedies below occurred in California. The California Public Utilities Commission (CPUC) has deferred to the utilities to have independent engineering review

performed. In other words, the utilities have been policing themselves. The utilities have been remiss in overall engineering design as demonstrated by the following:

- In 2007, the Malibu Canyon Fire started when three Southern California Edison power poles overloaded with wireless transceivers from Verizon, AT&T, Sprint (now T-Mobile) and NextG (now Crown Castle), in violation of state regulations, snapped in Santa Ana winds, igniting the tall grass at the base of the power poles. Southern California Edison (SCE) agreed to pay $37 million. AT&T, Verizon and Sprint shared equal parts in a $12 million fine. NextG was fined $14.5 million. All five parties were accused by the CPUC of attempting to mislead fire investigators.
- In 2015, nearly 5000 PG&E smart meters exploded and caused over 80 fires when a transmission line contacted a distribution line, sending a surge through the city that exceeded the smart meters' capacity.
- In Canada and the US between 2012 and 2015, 17 utilities removed 790,000 Sensus smart meters as a safety precaution because of a fire hazard.
- In 2018, the Woolsey Fire was started by utility owned equipment, including a telecommunications wire, that led to the most destructive fire in Malibu in the last 100 years. It burned over 400 homes, killing two people in Malibu, and cost over $6 billion.
- In June 2020, the head of PG&E pled guilty to 84 counts of manslaughter in the deaths of residents caused by the 2018 Camp Fire in Paradise, California. A nearly 100-year-old electrical transmission line owned and operated by PG&E was identified as the cause of the Camp Fire.
- In February 2021, the electric grid in Texas collapsed because electricity and natural gas providers had not winterized their equipment despite warnings 10 years earlier. Thousands of homes were damaged due to water leaks caused by freezing pipes, and so far, 69 deaths have been attributed to the energy grid collapse. Damages are estimated at $18 billion.

We believe a higher level of professionalism and a coming together of multiple disciplines will enhance the chances for a less hazardous outcome as largely untested small cell technology exponentially increases within Malibu's city limits.

WIRELESS FIRES ARE ELECTRICAL FIRES & THEY DO HAPPEN

Three fire officials, including Battalion Chief Drew Smith, recently stated they have not specifically fought 5G tower fires and claimed data is not available on 5G tower fires. It is early for data to be available on 5G cell tower fires and it is worth noting that no agency or industry in the United States, except those who have done so on a private basis, has kept track of cell tower fires from the installation of the first cell tower to the present. Yet proof of electrical fires in cell towers after the 1990s is available. This evidence has been collected in media reports and by some firefighters who have personal records and photographs; some have willingly shared that information. Additionally, we have obtained fire incident reports on cell tower fires around the country and confirmed arcing as a frequent heat source and "electrical" as a frequent cause.

Thanks to the pioneering work of retired Los Alamos Laboratory physicist Dr. David Stupin, we have a reasonable sense of how often cell tower fires were occurring up to the point where he

stopped keeping statistics in 2015. Dr. Stupin's research led him to believe that approximately one cell tower fire happens every month somewhere in the United States. The majority occurred because of electrical malfunction or because there was a deficiency of structural integrity and the collapse itself triggered a fire. We now face an exponential increase in small cell WCFs in the US. The CTIA is the telecommunications industry lobbying entity. They recently commissioned a study focusing on the increase in small cells in the United States. From the CTIA website:

> "The Accenture analysis commissioned by CTIA also found that the United States will see a **550% rise in small cells by this year**, underscoring the timeliness of the FCC's action to jumpstart broadband investment. Small cell deployments will escalate rapidly from roughly 13,000 deployed in 2017 to over 800,000 cumulatively deployed by 2026, according to the analysis." [2018]

We urge you not to wait for the data on 5G cell tower fires before protecting Malibu from what we consider to be an inevitable increase in cell tower fire risks. If the industry has not been keeping track of cell tower fires during the last four generations of wireless, there is no foundation on which to place our hope that they will keep track of 5G cell tower fires. We choose to act with the knowledge of how electrical devices fail, and the fact there is nothing about small cells – the 5th generation of wireless that is being brought into our communities in greater numbers and in closer proximity to people – that can lead us to any conclusion other than the fact the risk of wireless fires in Malibu is increasing with the installation of every small cell.

From the December 16, 2020, Community Meeting, we feel the impression was left, based upon statements by fire officials, that 5G towers are not fire risks. Yet for fire officials of the Malibu section of the Los Angeles County Fire Department to state they have not fought 5G fires does not mean 5G tower fires do not exist. 5G WCFs *are* fire risks in the same way that 2G, 3G, 4G WCFs are fire risks. They are electrical devices. They will fail. Our goal is to put the WCFs through no more engineering rigor than would be required of the signage and electrical lighting in front of Malibu restaurants, gas stations and other commercial establishments in hopes of catching design flaws that could eventually result in fire. And if they do result in fire, we want the diagrams in place with the city of Malibu to show the First Responders the most pertinent information with respect to design features and chemicals involved so that our First Responders can respond as expeditiously and safely as possible.

FIRE RISKS WITH WIRELESS COMMUNICATION FACILITIES

The 2015 Stockton, CA fires (multiple homes) were caused by smart meters used to measure electric use on the sides of homes. Smart/AMI meters may be deficient in suppressing transients/surges and the catastrophic failure of smart meters to handle a massive surge in the City of Stockton demonstrates that electronics close to the home, which many WCFs are and will be in the future, may pose a threat to life, health and property if not screened initially through our recommended Short Circuit and Coordination Study (SCCS). What happened in Stockton can happen in Malibu. If the utility pole on the corner of Malibu Canyon Road and Harbor Vista is hit by a car, and the transmission line contacts the distribution line, we could expect the electric meter and possibly the WCF to catastrophically fail. It would be necessary to de-energize the transmission line and thereby de-energize the area from City Hall and Cross Creek Road to

Pepperdine and beyond. Using the Coordination Study will make it clear what the appropriate fuse size should be. If the WCF is utilizing the appropriate fuse size, the fuse will instantly de-energize the circuit and prevent catastrophic failure.

For metered WCFs, SCE uses electronic meters that may have the same susceptibility as the meters in Stockton. Metered wireless facilities must go through the Community's electric fire safety protocol to determine if they have adequate surge protection against the type of fault that occurred in Stockton.

Lightning strikes can contain more energy than the electrical mishap that occurred in Stockton. California is experiencing more lightning strikes due to the evolving climate. Therefore, electrical installations in Malibu must mitigate the increased frequency of lightning.

The January 28, 2019, edition of The Los Angeles Times reported that California utility equipment sparked more than 2,000 fires in over a three-year period. Cal Fire determined 17 of 21 California fires in 2018 were attributed to pole issues. The deadly Campfire was confirmed to be started by power lines and pole loading. In order to accommodate the newest wireless facilities, companies like Verizon are requiring an increase of pole height by 20-25% (adding 10-ft extension onto 40-ft or 50-ft pole) significantly lengthening the pole while decreasing the force of wind required to topple a pole.

No community outside Paradise, California has been more devastated by wildfire than Malibu. The overloading of three SCE utility poles by four different telecommunications carriers sparked the Malibu Canyon Fire in 2007 and in November 2018, a downed telecommunications lashing wire ignited the Woolsey Fire, forever scarring Malibu by taking out over 400 homes and costing over $6 billion. With the exponential increase of WCFs and the administrative exemptions offered to telecom, our concern is that this problem will increase rather than decrease. Thus, electric fire safety protocol and structural site hardening are essential for Malibu.

EXAMPLES OF WCF FIRES

There is a common misperception that WCF fires are primarily caused by arson. While there are documented cases of arson in 2020 related to misinformation about 5G and COVID-19, these cases were a short-term phenomenon. The examples below are representative of WCF fires that have occurred through the years as documented by the news media. Electrical malfunction and welding on WCFs for routine maintenance are the cause of the vast majority of cell tower fires. The examples below are representative of the genuine risks that could be facing Malibu.

> **July 2013 – Besalem, Pennsylvania:** An AT&T cell tower fire was sparked when welders were working 70 feet in the air on a tower; sparks set off an intense fire ten feet above them. They tried to put it out but ended up having to race down to get help. The fire spread quickly and left the 10-story tower leaning over precariously. Initially, firefighters could not throw water on the fire because electricity was still surging through the tower and it took utility crews longer than expected to get it turned off. Essentially the fire was allowed to burn itself out.

July 2014 – Columbus, Ohio: Black smoke poured from a light pole with a WCF in Grandview Heights around 10:00 AM. The pole held lights for the football field as well as cell phone equipment. Streets were blocked off while emergency crews were on the scene. Homes within a one-block radius of the school were evacuated. Suspected electrical fire.

September 2014 – Thurston, Oregon: A cell tower fire at Thurston High School sent up a smoky plume above the Colts sport field. The cause of this fire was undetermined but Battalion Chief Marcus Lay explained, referring to the fire, that "It is contained and basically under control, but we have to wait until Springfield Utility Board gets here to get the power completely shut off to finish extinguishing it." Cause undetermined.

June 26, 2020 – Hanover, Virginia: A cell tower caught on fire overnight; a heavy storm with lightning moved through the area shortly before the call. Hanover Fire was able to extinguish flames on top of a cell phone tower. When they arrived around 11:15 PM, they saw a cell tower completely covered in flames. The fire was safely put out and officials believe that it was an accidental fire as the result of electrical/mechanical issues.

October 2020 – Irvine, California: Silverado Fire Southern California Edison Co. may seek contributions from T-Mobile as it is suspected the company's lashing wire touched an adjacent power line and sparked the fire. On October 26 SCE told the CPUC that a lashing wire attached to a telecommunications line running under the utility's 12-kV power line may have ignited the wildfire. The blaze seriously injured two firefighters and scorched more than 12,000 acres in Orange County and forced the evacuation of over 60,000 people, according to the California Department of Forestry and Fire Protection. In general, multiple companies can use the same utility poles, but each is responsible for managing its own equipment. Utilities are supposed to regularly look for any threats from telecom equipment installed on shared poles. This is not a foolproof system of governance.

November 2020 – Lapeer, Michigan: Wiring in a 197-foot-tall cell tower caught fire shortly after 9 p.m. Flames were visible shooting from the top of the hollow tower, while near the base of the structure the interior fire was so hot the metal glowed orange and pink. As a result of the fire that weakened the strength of the tower, there was a visible lean to the structure — the height of a 15-story building. The tower was dismantled and replaced.
March 2021 – Chula Vista, California: An AT&T cell tower partially concealed in a light fixture around a track at Otay Ranch High School burst into flames at 7:30 PM on a Tuesday evening. The Fire Incident Report was obtained through a public records request. The area of origin was within the equipment; the heat source was "electrical arcing". When the fire department arrived the 100-ft pole appeared to have an internal fire that traveled up the pole to the cell phone equipment and stadium lighting at the top of the pole. The fire department requested utility SDG&E to respond to the location. Firefighters maintained a safe distance until they could verify all power supply to the pole had been secured. As they were waiting for the representative from SDG&E to arrive to confirm the power had been cut, the heat of the fire due to arcing caused the steel pole to become molten plasma. It collapsed onto the bleachers near the football field, burning the track and destroying the bleachers. Once the rep from SDG&E arrived on scene and verified the power had been secured and that there was no electrical hazard, firefighters extinguish the fire using a water and foam combination.

WHY DOES 5G INFRASTRUCTURE POSE A GREATER FIRE RISK TO RESIDENTS

It is not the frequency of cell tower fires that concerns us the most. It is the severity of what a single cell tower fire can do. The biggest risk is that WCFs have been brought much closer to local populations and those installations are much more densely situated. Every electrical device including every WCF must be deenergized before a fire can be fought. On a good day that can happen in 10 minutes. Some cities find that it is 30 minutes or more before the electric company cuts the power. If the firefighters fight the fire before the tower is deenergized, they can be electrocuted. A lightning strike is a type of transient event that may lead to WCF catastrophic failure. Malibu residents will recall in May of 2019, just before Memorial Day weekend, several beaches were closed in Malibu because of a lightning storm that created unsafe conditions. **Thus, the placement of WCFs must allow time and space for escape because a fire originating in a WCF must not be fought by residents or by firefighters until SCE has turned off the power. This is why we propose separation and setback requirements as strategies to mitigate risk to residents**.

One firefighter who is accustomed to fighting fires under Santa Ana conditions in California understood the extreme risk posed by a cell tower fire near a populated area. He described how he would fight such a fire:

> *"If the fire involves energized equipment, do not put water on it. Use water only to extinguish anything like trees, grass, vegetation, etc. that it may spread to, and then use water in short bursts if it's adjacent to the pole. Call the utility company immediately so they can de-energize. Keep people back for 2 spans in either direction and make sure all personnel and equipment stay out from under the power lines. Focus on public safety and exposure protection until it's confirmed that the power has been shut off."*

We firmly believe the greater the distance between WCFs, the more likely an individual(s) would be able to escape homes, schools, hospitals, nursing homes. Distance between towers and from property lines will be critical to escape. Distance from WCFs and property lines may mean the difference between life and death. Due to the length of time it can take to cut the electricity and subsequently fight a fire, particularly one that has spread, we feel it is not worth the very real potential for loss of life if cell towers, small cells or macro towers, are located within residential neighborhoods. Additionally, care should be taken to keep cell towers away from roots of entrance and egress for neighborhoods. The same caution should be taken with densely populated facilities like schools, daycare centers and special zones as designated by the city.

The scars from the 2007 Malibu Canyon Fire and the 2018 Woolsey Fire are still evident on the land. The human toll appears greater. The residents speak openly about PTSD, particularly on those days when the winds blow as they did during the Malibu Canyon Fire and the Woolsey Fire. The winds remind residents of the Santa Anas that carried burning embers sideways, whipped flames such that they consumed many residents' homes, blocked exit routes out of the city and literally terrorized the whole of Malibu – the land, the air, and most of all the residents, their animals and wildlife.

FALL ZONE: We would like to add that we believe expansion of the fall zone should be carefully considered. It must be at least the height of the tower with 50% or at least 25% added onto that because of the falling debris field.

UNIQUE FIRE RISKS TO MALIBU

VERY HIGH FIRE HAZARD SEVERITY ZONE: The City of Malibu is designated as a Very High Fire Hazard Severity Zone. The City was devastated by major fires in 2007 and 2018 due to power pole failures. In each instance the utility structures supported wireless communications facilities that either initiated or significantly contributed to the ignition. The 2018 Woolsey Fire consumed over 96,000 acres, destroyed at least 1,643 structures, killed three people, and prompted the evacuation of more than 295,000 people. It was one of several fires in California that ignited on the same day. Malibu has still not recovered. The 2007 fire burned 3,836 acres, 36 vehicles and 14 structures, including Castle Kashan and the Malibu Presbyterian Church, and damaged 19 other structures. It is essential that wireless communications facilities be engineered to prevent fire and withstand fire events as much as possible, and at least in a manner comparable to other commercial facilities with extensive, complicated electronics and wiring, as well as flammable, sometimes hazardous and toxic, materials on site.

SEISMICALLY ACTIVE: Malibu is geographically defined by the Santa Monica Mountains to the North, the Pacific Ocean to the South, the Santa Monica Fault to the East and Ventura County to the West. Malibu is a seismically active area with five active faults in the general vicinity. These nearby faults include Malibu Coast Fault, Las Flores Thrust Fault, Santa Monica Fault, Palos Verdes Hills Fault, and the Newport-Inglewood Fault. There are also potential seismic hazards and soil hazards in Malibu. Seismically-induced soil hazards include liquefaction – a temporary, but substantial loss of strength in granular solids, such as sand, silt, and gravel, usually occurring during or after a major earthquake. Seismic activity can also induce subsidence and settlement. Subsidence is deep settlement due to the withdrawal of fluid (oil, natural gas, or water). Seismically-induced settlement occurs in loose to medium dense unconsolidated soil above groundwater. These soils compress or settle with seismic shaking. Settlement can also result from human activities including improperly placed artificial fill, and/or structures built on bedrock or soil with differential settlement rates. There is also risk from expansive soils such as clay; it can swell when wetted and shrink when dried. Wetting can occur from rainfall, groundwater fluctuations, lawn watering, broken water or sewer lines. Expansive soils can result in cracks in foundations. Expansive soils located on slopes can cause slope failure. Unstable soils can produce landslides, debris flows, and rock falls. Hill slopes, which occur in Malibu, have a tendency to fail. Unless engineered properly, development in hillside areas tends to increase the potential for slope failure.

MARINE ENVIRONMENT: Malibu is a marine environment. Thus, there are accelerated corrosion issues due to the combination of increased moisture and salt in the air. Metal parts within wireless facilities fail faster in this corrosive environment. This corrosion may adversely affect the structural and electrical integrity of a wireless facility. In addition, corrosion may pose a risk to internal parts which, if corroded and not replaced on a very conservative maintenance schedule, may become fire risks themselves. Therefore, the failure rate of wireless facilities is higher and the need for stricter standards in the very beginning is essential.

GREATER NEED FOR STRUCTURAL INTEGRITY: Because of seismic and soil displacement and/or settlement risks as well as the potential for fires, heavy rains, mudslides and landslides, all wireless facility sites must be built to the standards of ANSI/APCO Public Safety Grade Site Hardening Requirements. This standard represents public safety requirements regarding various characteristics to make mission critical communications network sites sufficiently robust to meet the service availability requirements of public safety. These safety standards can be found in APCO ANSI 2.106.1–2019, or their replacements. Collapsed WCFs are a cause of multiple wireless facility fires. Structural integrity is paramount to keeping Malibu safe from fire started by collapsed wireless equipment.

This confluence of geographic and climate characteristics means that Malibu needs greater fire safety regulations than non-marine, low fire hazard, seismically stable regions. Malibu is the first local government to be informed that the exemption for telecom utilities render the National Electric Code, the California Electric Code, and the Los Angeles County Electrical Code insufficient to protect the public from the electrical risks of WCFs. Malibu can protect itself and its residents by adopting the safety provisions we propose.

WIRELESS CELLULAR FACILITIES AS CRITICAL INFRASTRUCTURE

This final subsection recognizes that the Federal government and state public safety organizations have declared that wireless networks are critical infrastructure for national security and public safety purposes – often at the urging of the wireless industry. Critical infrastructure must be protected too, through appropriate fire and structural safety requirements. We are not aware of any evidence indicating telecom objects to a stronger electric safety protocol. If such an objection exists, it should be made on the record and the basis fully explained.

Cell towers are considered critical infrastructure to maintain communication during times of natural and man-made disasters. Pandemics are one example, as illustrated by the timing of the US Department of Homeland Security, Cybersecurity & Infrastructure Security Agency's (CISA) March 28, 2020 Guidance on the Essential Critical Infrastructure Workforce: Ensuring Community and National Resilience in COVID-19 Response Version 3.0 (updated on April 17, 2020), available at https://www.cisa.gov/sites/default/files/publications/Version_3.0_CISA_Guidance_on_Essential_Critical_Infrastructure_Workers_1.pdf. The Wireless Infrastructure Association applauded the designation. See https://wia.org/wia-applauds-dhs-action-for-access-to-critical-infrastructure/.

In Malibu, we are simply asking telecommunications carriers to treat their facilities like the essential infrastructure that it is. Anything less is counterintuitive and ill-advised.

Further, even before the DHS guidance the Association of Public-Safety Communications Officials (APCO) International received final approval from the American National Standards Institute (ANSI) in 2019 for an American National Standard (ANS) that identifies hardening requirements for public safety grade sites. In other words, structural engineering for WCF sites has gone from the concept practiced by some to a standard that should be followed by all.

APCO ANSI 2.106.1-2019 was developed by the Public Safety Grade Site Hardening Working Group. This standard was derived from the 2014 National Public Safety Telecommunications Council (NPSTC) report (Chapter 9) and the work of the original APCO Broadband Committee. The document is intended to assist public-safety communications network builders with the guidelines necessary to build hardened public safety grade networks.

With five (5) active earthquake faults running through Malibu, this is a welcome standard. It reads, in part:

> This standard represents public safety requirements regarding various characteristics to make mission critical communications network sites sufficiently robust to meet the service availability requirements of public safety. In other words, what it takes to make network sites "public safety grade" or the extent to which they are "hardened."
>
> The document is intended to assist public safety communications network builders with the guidelines necessary to build hardened public safety grade networks. This document addresses hardening for wireless transmission and reception sites. Specifically, it addresses the hardening requirements to provide the appropriate site conditions and characteristics for wireless system electronics (e.g., transmitters and receivers) and wireless passive components (e.g., coaxial cables and antennas).
>
> These sites need to withstand the onslaught of natural or manmade conditions and consider the distinct requirements for different geographic locations of the United States, including their likelihood to be subject to severe storms, earthquakes, tornadoes, and other disasters.

In the face of increasing federal emphasis on WCFs as essential to Public Safety and no record of opposition from the telecom industry, we question why anyone would be reluctant about embracing our safety protocol and application content requirements.

<u>Application Requirements Regarding Fire Prevention and Management</u>

Los Angeles County requires:
(v) Electrical and Structural Safety Information. The following engineering documents prepared under the responsible charge of and sealed by a California licensed professional engineer must be included in the application:
(A) A short circuit and coordination study ("SCCS") calculated pursuant to the IEEE 551-2006: Recommended Practice for Calculating AC Short-Circuit Currents in Industrial and Commercial Power Systems or the latest version of that standard. The study must demonstrate the protection devices will ensure the equipment enclosure will not be breached. The SCCS must include analysis of Voltage Transient Surges due to contact of conductors of different voltages;
(B) A one-line diagram of the electrical system;
(C) Voltage Drop & Load Flow Study;
(D) Load Calculation;
(E) Panel Directories;
(F) A plot plan showing the location of the mounting structure including address, or structure designation, or GPS location;
(G) A plot plan showing the location of the service disconnecting means;
(H) An elevation drawing of the equipment and the service disconnecting means;

(I) A demonstration there will be signage as required by the California Electric Code or the Los Angeles County Fire Department Chief or his or her designee;

(J) A demonstration the service disconnecting means shall be mounted at an elevation determined by the Los Angeles County Fire Chief or his or her designee in conjunction the electric utility;

(K) A demonstration there will be instructions for deenergizing the equipment by First Responders.

(L) A list of toxic substances that may develop during arcing or fire that may impede fire suppression efforts;

(M) A list of hazards that may develop during arcing or fire that may impede fire suppression efforts;

(N) Structural Safety Information. The structural/civil engineering documents as recommended by a California licensed professional civil or structural engineer. The standard recommended by APCO/ANSI Public Safety Grade Site Hardening Requirements – APCO ANS 2.106.1-2019 is required by Federal law and the County of Los Angeles. https://www.apcointl.org/~documents/standard/21061-2019-psg-site-hardening/?layout=default

Further Important Fire Considerations

- The final diagrams submitted after approval and before construction and operation must contain enough detail for the building official and planning department to reaffirm safety compliance.
- The County of Los Angeles must impose on each permittee an ongoing duty to maintain safety compliance for so long as the facility is in operation.
- Cell towers must be set back from all entrances and exits to residential neighborhoods and schools as well as daycare centers because of the fire risk inherent in telecommunications equipment, including but not limited to the fact that cell towers invite lightning strikes. Even when proper lightning mitigation systems are installed, they cannot mitigate the effects of ground potential rise. Because telecommunications lines and electric lines are often bound together throughout neighborhoods and nearby buildings, the potential for insufficient mitigation of a lightning strike can trigger electrical fires within homes and other structures such as schools and daycare centers within 300 – 500 feet. Because cell tower fires are electrical fires, these fires cannot be fought through conventional means and therefore the power must be cut. Because this takes between 10 and 60 minutes, residents and children need time to escape.

EXHIBIT 10

PROTECTING LA COUNTY'S FUTURE:

HOW FIRE RISKS FROM TELECOMMUNICATIONS EQUIPMENT, CLIMATE CHALLENGES & A DANGEROUS SHIFT AWAY FROM ENVIRONMENTAL REVIEW THREATEN LOS ANGELES COUNTY'S FUTURE

Susan Foster, Co-Founder
California Fires and Firefighters

November 15, 2022

INTRODUCTION TO TELECOM FIRE RISKS

Cell towers and related telecommunications equipment can cause wildfires. Each cell tower is an electrical device. When electrical devices fail, electrical fires can be triggered. Cell tower fires cannot be extinguished through conventional means. Anyone putting water on a cell tower fire before the electricity is cut, which can take up to 60 minutes,[1] will be electrocuted. Imagine a cell tower fire in a neighborhood or next to a school in the midst of a Santa Ana windstorm and there is nothing you can do until Southern California Edison (SCE) cuts the power.

Our team working in Malibu – telecommunication's attorney W. Scott McCollough, electrical engineer Tony Simmons, P.E., and Susan Foster, Fire & Utility Consultant and Honorary Firefighter with the San Diego Fire Department – linked four major fires to telecommunications equipment within the last 15 years in Southern California alone, costing well over $6 billion in damages. These fires will be evaluated within this paper but in brief they are the Guejito Fire (2007) in San Diego which merged into the explosive Witch Creek Fire, Malibu Canyon Fire (2007), Woolsey Fire in Malibu & LA County (2018) in Supervisor Kuehl's district which burned for one month, took the lives of three people trying to escape, and the Silverado Fire in Irvine (2020). Please note three of those fires were in or adjacent to LA County.

Though these fires are always well reported in the media at the time, fire investigations can take years and very often the telecommunication industry's role in the initiation of fires is proven years down the road, so the general public and even local leaders may have no awareness of the role telecommunications plays in the initiation of these fires. The fault most often lies with telecommunications' failures in electrical engineering, structural safety, and maintenance; these faults are often understated and/or covered up.[2]

According to the Federal Communications Commission (FCC), <u>safety</u> belongs to the locality to regulate.[3] [4] That includes safety setbacks. Because of the risk of fire due to telecommunications

[1] "Protecting Malibu's Future: Preventing Electrical Fires in Cell Towers by Introducing Enhanced But Generally Accepted Engineering Design Rigor and Adequate Proof of Work in the Application," Susan Foster & Tony Simmons, P. E., Updated May 8, 2022 by S. Foster. Attachment 1 Community Memo, Memorandum from W. Scott McCollough to Malibu City Council, "Response to Planning Commission Recommendation and Staff Draft Conforming Provisions," April 8, 2021.

[2] Ibid.

[3] 2014 Infrastructure Order ¶ 202.

[4] 2020 Section 6409 Dec R and NPRM ¶43.

equipment, Los Angeles County leaders would be well advised to keep cell towers out of residential areas to allow residents time to escape in the event of a cell tower fire. The same caution should be used for school and daycare facilities, and in all areas where a vulnerable portion of the population has limited access to escape, which may include transportation shortcomings, and limited time in which to escape.

The use of ministerial permits should be discouraged because then electrical, structural and fire safety will be left unchecked, and the telecommunications industry will be policing telecom. We have seen the results of that with over $6 billion worth of damage in the last 15 years alone, thousands of homes lost or damaged, dozens of casualties, lives disrupted, and the environment and wildlife threatened.

It is particularly germane to note that in the Malibu Canyon Fire, the California Public Utilities Commission (CPUC) accused all parties the CPUC found to be negligent in the initiation of the Malibu Canyon Fire to have impeded the fire investigation. These parties included: Southern California Edison (SCE), AT&T, Verizon, Sprint (now T-Mobile) and NextG, now owned by Crown Castle. Because AT&T, Verizon and Sprint admitted to their participation in the initiation of the fire without having to litigate, the CPUC and the Safety and Enforcement Division (SED) were more critical of and punitive with SCE and NextG.[5] All of these parties conduct business in Los Angeles County and provide telecommunications services and electrical services (SCE) to Los Angeles County.

In addition to the Malibu Canyon Fire, the $6 billion Woolsey Fire was the fault of Southern California Edison's own telecommunications company. Edison impeded the fire investigation; details will be forthcoming in this paper.

It is therefore relevant to ask all parties who participate in the safety of the residents of Los Angeles County if appropriate due diligence is being exercised by the County with respect to telecommunications equipment that already has been permitted or will be permitted in the future in Los Angeles County. If the parties who participated in causing the Malibu Canyon Fire impeded the subsequent fire investigation, what makes the leaders of Los Angeles County have any confidence whatsoever in the telecommunications industry continuing to police their own installation of telecommunications equipment?

Los Angeles County must not rely on inexperienced agencies such as the LA County Public Works Department which has never before dealt with wireless installations being in charge of the small cell buildout, for example. It is indeed possible to accomplish electrical, structural and fire and building code safety inspections with all telecom applications for permits within the constraints of the shot clock, difficult though that may be, by requiring electrical, structural and fire safety code inspections in an application checklist <u>upfront</u>.

If the LA County Planning Department evaluated all incoming Wireless Telecommunications Facility applications according to a posted checklist, and an applicant failed to provide required

[5] DECISION CONDITIONALLY APPROVING THE SOUTHERN CALIFORNIA EDISON COMPANY SETTLEMENT AGREEMENT REGARDING THE MALIBU CANYON FIRE, BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, Decision 13-09-028 September 19, 2013.

information, the shot clock could be tolled with a written letter to the carrier from the Planning Department. That stops the shot clock until the appropriate information is provided to the County of Los Angeles.

This does not guarantee that all telecommunications fires will be avoided in the future, but it does help reduce future fires by allowing an opportunity to review Wireless Telecommunications Facility designs and placement upfront, and it preserves an essential aspect of due process for the residents of Los Angeles County. Again, for emphasis, safety belongs to the municipality to regulate. Without federal, state, and county code enforcement, the telecommunications industry will be left to police itself. Any and all entities that have established a reputation with the CPUC for failing to cooperate in a fire investigation should not be left to supervise themselves.

Our team's recommendations to the Malibu Planning Commission and the Malibu City Council were accepted and passed unanimously by both bodies. We presented the facts about the Malibu Canyon Fire and the known risks at the time of the Woolsey Fire, both of them telecommunications-initiated in whole or in part, and we presented a plan we had constructed for the appropriate electrical, structural, fire and building code safety to be evaluated at the application stage. That plan is provided in this paper along with additional information that supports the need for the Los Angeles County Planning Department and its requisite safety consultants to review every application according to a very specific application checklist that has safety as its central theme.

We strongly advise against ministerial permits because this upfront evaluation will be omitted with a rubberstamp. To discard safety, and environmental review is an integral part of ensuring safety, as a "solution" to the shot clock requirement is the opposite of what is needed. The more cell towers Los Angeles County permits, the greater the fire risk. More scrutiny is needed with every cell tower that enters Los Angeles County, not less. The shot clock should not be a reason for knowingly adding to Los Angeles County's fire risk. The shot clock simply requires that Los Angeles County hire staff and/or consultants sufficient to effectively and efficiently shift the compliance requirements so that the onus is on the telecom applicants to have completed applications with design requirements upfront when they enter Los Angeles County. This can be accomplished in a reasonable and balanced manner.

For context, let us look at the Malibu Canyon Fire and the Woolsey Fire, and understand why they occurred. For the sake of the residents of Los Angeles County, we implore you to remedy what appears to be a very dangerous direction where Los Angeles County is neglecting safety and neglecting environmental review in favor of expediency and marching to the FCC and telecommunications industry's shot clock. To suggest that environmental review is no longer relevant is astonishing with the challenges faced by changing climate, rising temperatures, a drought with no end in sight, and increased fire risk with every single Wireless Telecommunications Facility permitted in Los Angeles County.

Understanding how these telecommunications fires start may help Los Angeles County appreciate that to turn away from WTF design requirements and scrutiny through use of 1) ministerial permits, and 2) by dismissing environmental review altogether invites an unmitigated

fire risk this County and its inhabitants cannot afford. It is crucial to understand that environmental review includes fire and climate challenges.

First, let us take the Malibu Canyon Fire. The fire occurred in October 2007 when three utility poles fell to the ground during a Santa Ana windstorm. The California Public Utilities Commission (CPUC) approved settlement agreements totaling $51.5 million with Southern California Edison (SCE) and NextG Networks (now owned by Crown Castle) as both punishment and enhancement of public safety moving forward. Again, AT&T, Verizon and Sprint (now T-Mobile) admitted to their part in the fire and thus were fined though not as significantly as SCE and NextG Networks.[6]

The Woolsey Fire started on November 8, 2018. The Ventura County Fire Department received notice of a fire, soon-to-be known as the Woolsey Fire, at the Santa Susana Field Laboratory in the Simi Hills, just south of Simi Valley. The fire ignited at two points simultaneously and these two locations were designated by CalFire as Sites 1 and 2.

To quote directly from INVESTIGATION REPORT OF THE WOOLSEY FIRE: "The messenger wire extended about one quarter mile east to Site 1 between poles number 4650857E and 4557126E; these two poles supported several other communications conductors in addition to an ECS communications conductor from Site 2. Trees in this area had been growing into the communication conductors between these poles and pressing them together. This overgrowth caused the energized messenger wire and its lashing wire to make contact with another messenger wire and its lashing in the same span. The contact between the two sets of wires caused an arc, which partially melted the lashing wires and caused hot fragments of lashing wire to fall into the brush below. These hot metal fragments ignited the brush and started a second fire there at Site 1."[7]

These two brush fires converged as they burned south and became the Woolsey Fire. The Woolsey Fire burn 96,949 acres of land, destroyed 1,643 structures, caused three fatalities, and prompted the evacuation of more than 295,000 people in the area. The total damage to property was estimated to be $6 billion.[8]

The telecommunications role in this fire is as follows: The negligence for the Woolsey Fire was not placed at the feet of one of the telecommunications giants but rather Southern California Edison's own telecommunications backhaul line which was SCE's responsibility to maintain.

The Safety and Enforcement Division (SED) found that on a May 10, 2018 telecommunications inspection of their equipment, an SCE employee failed to assign a priority level to the condition associated with a broken Edison messenger wire and a broken Edison lashing wire. This condition should have been marked as urgent and it was not. The failure to repair

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[6] CPUC ENHANCES SAFETY, ISSUES $51.5 MILLION IN PENALTIES AND REMEDIATION AGAINST SCE AND NEXTG FOR MALIBU CANYON FIRE, Docket #: I.09-01-018, Press Release, Sept. 19, 2013.

[7] INVESTIGATION REPORT OF THE WOOLSEY FIRE, SAFETY AND ENFORCEMENT DIVISION ELECTRIC SAFETY AND RELIABILITY BRANCH LOS ANGELES.

[8] Ibid.

telecommunications equipment went unrecognized for six months. Southern California Edison did not contest the SED's findings. In other words, telecommunications equipment belonging to Southern California Edison and a failure to maintain that equipment properly played a significant role in the initiation of the Woolsey Fire.[9]

Just as the CPUC accused all parties in the Malibu Canyon Fire of failing to cooperate fully in the fire investigation, the same failure to cooperate in the Woolsey Fire investigation conducted by the Safety and Enforcement Division (SED) was well-documented.

Wildfires by their very nature are extraordinarily destructive, which makes fire investigation observations at the earliest possible time critical to understanding the events that occurred and finding the cause or causes. Southern California Edison failed to provide a comprehensive set of data and evidence that Safety and Enforcement Division (SED) requested. Edison impeded and prolonged SED's investigation, according to the Fire Investigation Report.[10] Edison's actions prevented SED from reviewing all available information from the point at which the fire had least disturbed the electric facilities.

According to the Report: "The actions of Edison's first responders cannot preemptively be under the direction of Edison counsel. Any notes, reports, or text messages that SED requested would not be generated under the direction of Edison counsel and accordingly should not be subject to attorney-client or work product privilege. For the reasons stated above, SED's investigation determined that Edison is in violation of PU Code § 316 and GO 95, Rule 19 for failing to provide: the list of evidence and records used for Edison's own investigation, as well as photographs, notes, reports, and text messages generated by first responders. In the spirit of full and transparent cooperation with the Commission and its staff, it is imperative that Edison respond to SED data requests with the most comprehensive information available. Without such comprehensive information, SED cannot conduct a thorough investigation, determine the root cause of the incident, expeditiously remedy any issues and prevent future similar incidents from occurring."[11]

Los Angeles County leaders need only look within the geographical boundaries of their responsibilities to understand that Southern California Edison has a history of negligence in electrical safety, structural safety and maintenance of its equipment. It was the reckless disregard for safety by overloading utility poles because it is profitable to do so that triggered the Malibu Canyon Fire. It was a failure by SCE to maintain their telecommunications equipment that contributed to the initiation of the Woolsey Fire, the most destructive fire in California's history up until that point.

To compound SCE's reckless disregard for safety [Malibu Canyon Fire] and the negligence of its existing equipment [Woolsey Fire] with impeding fire investigations that they participated in

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[9] [PROPOSED] ADMINISTRATIVE CONSENT ORDER AND AGREEMENT, Issued pursuant to Commission Resolution M-4846 (adopting Commission Enforcement Policy on November 5, 2020), October 21, 2021.

[10] INVESTIGATION REPORT OF THE WOOLSEY FIRE, SAFETY AND ENFORCEMENT DIVISION ELECTRIC SAFETY AND RELIABILITY BRANCH LOS ANGELES.

[11] Ibid.

[Malibu Canyon Fire] or were, in fact, fully responsible for [Woolsey Fire] should immediately shift the calculus for Los Angeles County planners and leaders.

The above facts should compel both planners and leaders to seriously call into question whether Los Angeles County should be trusting SCE and its telecommunications partners with policing themselves by rubberstamping applications through ministerial permits. Furthermore, the above facts should compel both planners and leaders to immediately reconsider allowing a Public Works Department that has never before dealt with wireless applications, permits, notifications or appeals to rollout small cells in front of people's homes and/or under the canopies of highly flammable trees.

The reckless disregard for safety will no longer belong to the utilities alone if environmental review is set aside in favor of bowing to shot clocks when a solution – tolling the shot clock because an application is incomplete – is available.

CLIMATE CHALLENGES COMPOUND TELECOM FIRE RISKS

The fire risk in Los Angeles County is extreme, as it is throughout most of the state. In July 2022 Gov. Gavin Newsom met with lawmakers in Washington DC in an attempt to secure better equipment to battle climate-driven fires that start for a variety of reasons, one of which, telecommunications equipment, is addressed in this paper. Gov. Newsom and Sen. Alex Padilla announced the U.S. Department of Defense will be allocating seven C-130 planes for California for purposes of fighting fires. Newsom announced that seven aircraft are officially on the Defense Department's schedule for 2023, with the expected delivery to be sometime around the end of next summer. The massive military transport planes can be retrofitted and modified to serve multiple purposes, including wildfire suppression.

In spite of the fact California is the most populated state in the nation, and one of the states with the highest fire dangers, California has often had to borrow firefighting aircraft from the federal government, other states and even other countries. [12]

Climate changes compound that fire risk, and the LA County Climate Vulnerability Assessment dated October 2021 is cautionary. Taken directly from the Executive Summary, Los Angeles County leaders were warned in these stark terms:

> "In recent years, LA County has experienced record-breaking high temperatures, prolonged drought, and more intense wildfires. Each unprecedented event strains our communities, directly harming our health, infrastructure, and the natural resources we rely on. Such climate hazards are projected to become increasingly severe and frequent in the coming decades.

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[12] Travis Schlepp, *California to receive 7 firefighting planes from Defense Department, Gov. Newsom says* (KTLA Los Angeles, July 16, 2022).

> "This report, the LA County Climate Vulnerability Assessment (CVA), fulfills a commitment outlined in the Our County Sustainability Plan, identified by stakeholders as a top priority: to assess how people and infrastructure in LA County may be vulnerable to the changing climate. The County's vision of sustainability demands that we work to understand increasingly dangerous threats. High climate vulnerability is generally defined as a combination of increased exposure to climate hazards; high sensitivity, or susceptibility, to negative impacts of exposure; and low adaptive capacity, or ability to manage and recover from exposure." [13]

In his Foreword, Los Angeles County Chief Sustainability Officer Gary Gero addresses the danger in preparing a Climate Vulnerability Assessment such as the one he and colleagues prepared for LA County in that the "projected impacts could be mistaken for established facts of what will happen in the future."

Yet Chief Gero explains the care that has been taken with this report. "In conducting this assessment," the Chief Sustainability Officer offers, "we looked at the best available science on climate projections." The 141-page report includes 246 Endnotes, most of them scientific in nature, as well as Staff Reports, input from the Los Angeles City/County Native American Indian Commission, multiple references to the U.S. Environmental Protection Agency, and papers on wildfires and health, many of them specific to those vulnerable members of the population who are disproportionately impacted.

According to Chief Gero: "The results are frightening but not inevitable. We still have the power to create a safer and healthier future by taking bold and aggressive action to reduce emissions today. And, doing so, we will help clean up our air and water, create good jobs, improve our neighborhoods, and address some of our most intractable environmental justice issues." [14]

The wildfire references were particularly compelling in the Climate Vulnerability Assessment. Wildfires were predicted in 2021 to become larger, more frequent and more destructive – especially in the San Gabriel Mountains where "the wildfire burn area may increase up to 40% by mid-century." [15]

The LA County Climate Vulnerability Assessment goes on to predict: "Although much of the additional destruction will likely occur in unpopulated areas, more than a million housing units in the wildland-urban interface will continue to be at risk. Furthermore, wildfire smoke will continue to affect people across the County, with 40 percent of residents already reporting that they have avoided going outside because of air quality impacts." [16]

The LA County Climate Vulnerability Assessment emphasizes that wildfire also jeopardizes water quality and energy assets serving residents across the County, and it points out several

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[13] LA County Climate Vulnerability Assessment, October 2021, pp 4-5.

[14] Ibid., p. 3.

[15] Ibid., p. 6.

[16] Ibid., p. 6; University of Southern California, Dana and David Dornsife College of Letters, Arts and Sciences, Center for Economic and Social Research. LABarometer: Top 5 Takeaways from The Sustainability and Resilience Report. University of Southern California, Sept. 25, 2020, cesr.usc.edu/sites/default/files/Top5_sustainability. pdf. Accessed Sept. 10, 2021.

areas of particular vulnerability including limited transportation to escape, as well as risk to the last remnants of a culture that must be honored.

With respect to escape, Santa Clarita is highlighted as being at risk of exposure to both extreme heat and wildfire, which has a high proportion of older adults living alone and low transit access.[17] Low transit access can severely threaten anyone's ability to escape the wildfire, but older adults are particularly vulnerable and are thus disproportionately impacted when it comes to the ability to escape.[18]

The Assessment also highlights Native populations as being disproportionately impacted when it comes to events like wildfires. Not only do they add to "historical trauma and ongoing injustice that puts these populations at greater risk of negative impacts, the reduction of the region's natural biodiversity decreases access to traditional foods and culturally significant plants," wildfire can destroy irreplaceable cultural sites and sacred land.[19]

MALIBU'S SOLUTION: ELECTRICAL, STRUCTURAL, FIRE & BUILDING CODE EVALUATIONS AT THE APPLICATION STAGE

Wireless Communications Facility (WCF) proliferation increases the possibility of electrical fires. As such, electrical fire safety became a priority for Malibu, a city that has burned twice at the hands of telecommunications equipment in just the last 15 years alone.

A group of Malibu residents (referred to here as the Community) worked with the city to help minimize Malibu's fire risk from WCF installations. The following is taken directly from the white paper written by our team with a telecommunications attorney, a Professional Engineer (PE), and a Fire & Utility Consultant and Honorary Firefighter with the San Diego Fire Department.:[20]

"This white paper explains the Community's proposed safety design and application content requirements. These proposed requirements are tailored to Wireless Communications Facility installations in areas with dry vegetation, like Malibu. Some of the language was taken from ordinances in Encinitas and Sebastopol, while much of it is new. The new language is necessary because of the recent discovery that national, state and local electrical codes have expressed or implicit exemptions for "public utilities." *See, e.g.*, California Electric Code Section 89.101.3.3(4) and (5) and "public utility" exclusion in Los Angeles County Electric Code Sections 80-3 and 80.6. There are similar exemptions in NFPA documents. Therefore, merely adopting the Electric Code, as Staff proposes, will do nothing. Malibu will have <u>no electrical safety standards for WCFs</u> unless our proposals are adopted.

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[17] LA County Climate Vulnerability Assessment, October 2021, p, 7.

[18] Ibid., p. 7.

[19] Ibid.

[20] "Protecting Malibu's Future: Preventing Electrical Fires in Cell Towers by Introducing Enhanced But Generally Accepted Engineering Design Rigor and Adequate Proof of Work in the Application," Susan Foster & Tony Simmons, P. E., Updated May 8, 2022 by S. Foster. Attachment 1 Community Memo, Memorandum from W. Scott McCollough to Malibu City Council, "Response to Planning Commission Recommendation and Staff Draft Conforming Provisions," April 8, 2021.

"There are generally accepted standards for most other buildings and structures, including installations that house extensive and complicated electronics with similar characteristics to those employed as part of a WCF. The Community's proposed design standards incorporate those standards. In other words, we basically eliminated the "exception" so the general standards can apply. As a result, and consistent with FCC rules, Malibu will be enforcing "generally applicable building, structural, electrical, and safety codes and other laws codifying objective standards reasonably related to health and safety." *In the Matter of Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies; Acceleration of Broadband Deployment: Expanding the Reach and Reducing the Cost of Broadband Deployment by Improving Policies Regarding Public Rights of Way and Wireless Facilities Siting; 2012 Biennial Review of Telecommunications Regulations*, 29 FCC Rcd 12865, 12945, ¶188 (2014).

"Separately, the Community's proposal sets out the information that must be contained in the application. The design is important, but it is equally crucial that applicants be required to show their work, provided in a way that allows for independent verification and analysis. Only then can Malibu residents be assured that every possible step has been taken to minimize the risk of yet another wildfire caused or made worse by equipment breakdown in a WCF.

"This paper provides specific and detailed explanations for the requirements we propose to help mitigate the profound fire risks in Malibu. It explains what we need by way of engineering up-front design and what is required for the telecommunications carrier to "show its work" in the permit application. Carriers will have their own professional engineers run their equipment through basic tests or produce standard design diagrams with an engineer's seal. Those scrutinizing the application will be able to independently verify the work was indeed done by the appropriate qualified personnel. This design and application content rigor should catch most design flaws that could, if left undetected, put Malibu at greater risk for fire.

"Malibu bears greater risk if telecom cuts corners in the engineering and design process. Our proposal requires just over a dozen documents in the Application, signed off on by a professional engineer employed by telecom. Those documents will be reviewed by Malibu's permitting and enforcement departments and, if everything is in order, facilities will be approved for installation in the city. We are simply asking carriers to do due diligence and submit the right paperwork to the City when they apply. If they are going to come into Malibu, they must do so safely. It's that simple.

"We present examples below of failure to scrutinize electrical equipment and utilize professional engineers to help protect life, health and property. These examples will be familiar to every member of the Planning Commission and, we trust, will serve as a reminder to all of us that engineering rigor and proof of work applied early in the process will protect the City from potentially catastrophic failures later on.

"We also provide several examples of the ways electrical fires can start in cell towers and why the new small cell infrastructure poses unique threats to Malibu. In addition, we demonstrate that setbacks and separation will accommodate telecommunications yet allow enough space and distance for residents to escape should an electrical fire still occur. Electrical fires cannot be extinguished by homeowners or even firefighters until power to the facility is cut by the utility.

“In some instances, de-energization of a cell tower has taken over 60 minutes. In such a circumstance, distance from residences, schools and other buildings may mean the difference between life and death.

“Homeowners should never fight a cell tower fire even if it is directly in front of their home. To fight an electrical fire before the tower has been de-energized by the local utility (10 to 60 minutes) risks electrocution. Residents of Malibu must flee their homes in the event of an electrical fire and that is why distance between towers and setbacks from homes is critical.

“Finally, we urge the Planning Commission and Staff to recognize that the federal government and public safety officials consider wireless infrastructure to be essential infrastructure. Therefore, any hesitation on the part of Staff to require our electric fire safety protocol may be allayed by appreciating that the infrastructure itself needs to be protected. Attempts by carriers to introduce slipshod and inferior design, materials and products in Malibu should be rejected.

“We have been asked if our electric fire safety protocol is new and if electric fire safety requirements have been adopted by other cities. The answer is yes, and the answer is no. We know some cities are beginning to write into their small cell ordinances that electric codes should be adhered to because of the growing awareness of electrical fire risk in cell towers very close to homes and schools. As such, cities have attempted to require electric fire safety protocols. But it appears most cities have not discovered the “loophole” arising from the public utility exception that renders their efforts to protect their cities ineffective. As far as we can tell, Malibu will be the first to identify this problem and actually force an objective, generally applicable standard for electric fire safety.

“Our proposed electric fire safety requirements are the result of in-depth collaboration between Tony Simmons, P.E., a professional engineer with decades of electric fire safety experience and Susan Foster, writer and an Honorary Firefighter with the San Diego Fire Department and a member of the 2001 Task Force in San Diego County that created the County’s first wireless ordinance. That ordinance survived a challenge all the way to the U.S. Supreme Court. Susan Foster has worked with rank-and-file firefighters in California and across the country over the last 20 years on the issue of RF radiation health and safety.

“Mr. Simmons is a professional electrical engineer licensed by the States of California and Nevada. He is a recognized subject matter expert on electrical safety. As an employee of NV Energy, which served customers in California and Nevada, he was responsible for ensuring that no gap existed between the safety standards for customer-owned equipment and utility-owned equipment. Mr. Simmons designed a specialized test facility that integrated electrical equipment from East Asia, Europe, and the United States. This test site incorporated grounded and ungrounded electrical systems from all three regions and required Mr. Simmons to integrate standards from three regions to adhere to the technical requirements of the U.S. National Electric Code.

“Residents and city planners in various California cities have contacted Susan Foster seeking assistance in their efforts to create safer WCF ordinances by taking electric fire safety into account. Additionally, Susan Foster has met with city councilmembers and engineering/IT

personnel in several cities in Colorado, a state that also experienced an unprecedented fire threat in 2020 and more recently the December 2021 Marshall Fire which burned 6000 urban and suburban acres in six hours in Boulder County. Similarly, Tony Simmons' expertise has been requested by several California cities regarding electric fire safety and engineering. Mr. Simmons and Susan Foster are working on electric fire safety amendments for three Colorado cities.

"As it relates to Malibu, Susan Foster and Tony Simmons have worked over the past six months with attorney W. Scott McCollough, who has an extensive 37-year career in law and policy and was the Assistant Texas Attorney General responsible for utility matters, to arrive at our proposed electric fire safety requirements so as to minimize the chances of WCF electrical fires in Malibu. We did not know, until we pooled our collective knowledge and compared federal and state laws and local ordinances and regulations, that telecom was exempt from otherwise generally applicable codes and standards. We anticipate telecom is aware of the exception but chose to remain silent. This problem has now arrived at Malibu's doorstep and must be solved. We hope it will be resolved in favor of ensuring the safety of the city and its residents. News of this issue and problem is spreading, but Malibu has the opportunity – and responsibility – to lead the way, as it is known to do in matters of great importance.

WHY ELECTRICAL FIRE SAFETY?

"We propose fire safety requirements that consider Malibu's unique geographic location, its ongoing seismic activity, a marine climate conducive to expedited corrosion of WCF equipment, an abundance of dry brush, limited escape routes out of town, and year-round tourism which can swell the population by 4,000 visitors on any given weekend – adding to the burden on access/exit roads.

"Fire risks in Malibu are not hypothetical conjecture. This city has burned twice just in the last 15 years. Over the last nine decades, at least 30 wildfires have destroyed parts of this coastal community, with the most recent Woolsey Fire (the largest in recorded history), consuming almost 100,000 acres. The ongoing, severe drought in California, along with record high temperatures, makes the focus on fire prevention more urgent than ever.

"Our team in Malibu discovered the following four (4) California wildfires had been initiated, at least in part, by telecommunications equipment:

- **Guejito Fire (2007)** in San Diego which became part of the Witch Creek Fire, the worst fire in San Diego history.
- **Malibu Canyon Fire (2007)**; three utility poles overloaded with equipment from the following carriers snapped in the wind and ignited the grass below: Sprint (now T-Mobile), AT&T, Verizon, and NextG (now owned by Crown Castle). All four carriers as well as SCE were accused by the CPUC of attempting to mislead fire investigators.
- **Woolsey Fire (2018)**; A telecommunications lashing wire came loose igniting at least one of the two ignition points for the $6 billion fire. Southern California Edison (SCE) was cited for 28 violations by the CPUC. One critical violation involved the failure by SCE to mark as a priority the repair of a broken communications line and a

broken telecommunications lashing wire. The broken equipment was found during a May 2018 telecommunications inspection. Without priority designation for repair, this known electrical hazard remained in disrepair. In November 2018 the broken Edison telecommunications equipment was involved as part of the ignition of the month-long fire.

- **Silverado Fire in Irvine (2020)** involved SCE and a T-Mobile lashing wire. Silverado merged with a second fire causing the evacuation of 130,000 people.

"Preventing fires in Malibu has been a full-time job for Mayor Mikke Pierson since the beginning of his tenure on City Council. He was elected in 2018 two days before the Woolsey Fire broke out. Over 400 homes were lost with catastrophic impact on Malibu; many residents have still not made it through the permit stage for rebuilding. From a recent posting in Malibu's News Carousel:

> "*Wildfire has always been Malibu's number-one public safety threat, but the size, duration and severity of the Woolsey Fire was unprecedented, and showed us the dangerous new normal of drought, climate change and California mega-fires," said Mayor Mikke Pierson. "I am proud of the progress we have made in developing strategies to be even more prepared for disasters, including this siren system, which could be a powerful step toward community-wide preparedness*."

"The documents provided to the Planning Commission by Staff do not show sufficient commitment to treating fire as Malibu's number one public safety threat, as articulated by Mayor Pierson. Our plea, and that of the Community, is that the Planning Commission and City Council rectify this error. There must be strong and specific design, application content and inspection language in the Ordinance and Resolution. The whole point of applying electric engineering rigor is to make sure that when a device fails – and they all do at some point – it fails safely. Without this kind of rigor for WCFs, Malibu will expose itself to significant risk of yet another preventable fire.

"We have therefore been detailed and specific about what is required to reduce the risk. We are not asking for anything that is not already required of every business in Malibu that wants to install parking lot lighting, a sign in front of their place of business, or install complicated electronics inside their building. Citizens have a right to demand engineering rigor for the projects coming into Malibu extremely close to people's homes, schools, daycare centers, parks, places of business, restaurants and in every facet of life.

"We presently have no idea what the Planning Director will require in the applications. If application content is left entirely up to the Planning Director, the form can be changed at whim, especially after a personnel change. The application, however, is not just for Staff. The Planning Commission extensively relies on it, as does anyone participating in the application process. Unlike Staff and the Commission, public participants have no right or practical ability to require additional information beyond what is in the application. Their ability to reasonably participate and provide input is entirely dependent on the quantity and quality of the information in the application. The public needs and deserves more than the Staff materials provide.

"The Community wants more rigorous requirements, particularly relating to up-front design by qualified and licensed personnel, and full disclosure in the application stage. In other words, we expect every application submitted to Malibu to have 14 documents indicating successful completion of a test, a diagram, a design schematic, and a list of any potentially hazardous substances, all signed and sealed by a licensed professional engineer. The Community's protocol was designed by an electrical engineer with decades of experience in applying engineering rigor to protect life, health and property. He knows what is needed for both design and proof of work. He knows what is feasible and reasonable.

"To date, our fire safety proposals have been rejected by Staff/City Attorneys. We are particularly concerned that not only does our groundbreaking electric safety protocol get removed from every draft, but so does the fire safety wording we adopted from ordinances already passed by Encinitas and Sebastopol. That makes no sense for a city that has suffered two catastrophic fires in the last 15 years, and 30 over the last 90 years.

DESIGN AND PROOF OF WORK FOR THE APPLICATION

"Tony Simmons, P.E. has synthesized an electric fire safety protocol tailored to the specific needs of fire-prone Malibu. The engineering documents listed below in our 14-step electric fire safety protocol are required to demonstrate compliance with the generally applicable technical requirements of the following codes: the National Electric Code, the California Electric Code and the Los Angeles County Electric Code. Item (N) below indicates text pertaining to structural engineering requirements that, unlike the electrical safety portions, has been accepted and incorporated by Staff.

"Each of the 14 steps below represents a document to be included in each WCF application. Each document must be sealed by a professional engineer pursuant to the California Professional Engineer's Act. Documents A through E are routinely produced by commercially available software such as E-TAP or POWER TOOLS. Documents F through H are produced with CAD programs such as AutoCAD. Document I is required by all codes. Document J is a reaffirmation that all parties understand the service entrance switch is not readily accessible. Documents K, L, and M include information all employers are required to provide to their workers. Document N has been accepted by Staff.

(v) **Electrical and Structural Safety Information**. The following engineering documents prepared under the responsible charge of and sealed by a California licensed professional engineer must be included in the application:

(A) A short circuit and coordination study ("SCCS") calculated pursuant to the IEEE 551-2006: Recommended Practice for Calculating AC Short-Circuit Currents in Industrial and Commercial Power Systems or the latest version of that standard. The study must demonstrate the protection devices will ensure the equipment enclosure will not be breached. The SCCS must include analysis of Voltage Transient Surges due to contact of conductors of different voltages;

REASON FOR REQUIRING THIS DOCUMENT: This study is required to demonstrate the installation complies with NEC Articles 110.9, 110.10, 110.16 and 240.

WHY THIS STUDY IS IMPORTANT: All electrical equipment will fail. This study ensures that electrical equipment will not catastrophically fail. As an example, electrical conductors may rub together and damage the insulation, allowing excessive current to flow. This study ensures that the fuse or circuit breaker de-energizes the circuit fast enough to prevent arcing or fire. This study could have identified beforehand that meters would catastrophically fail in Stockton in 2015. This study can ensure that a WCF mounted on poles with transmission and distribution circuits, like the pole on the corner of Malibu Canyon Road and Harbor Vista, does not fail like electric meters did in Stockton in 2015.

(B) A one-line diagram of the electrical system;

REASON FOR REQUIRING THIS DOCUMENT: This diagram provides a map of the electrical installation and serves as the primary reference for all the other documents.

WHY THIS DIAGRAM IS IMPORTANT: This document allows less experienced electrical workers to quickly trouble shoot electrical malfunctions and failures and to identify a de-energization point.

(C) Voltage Drop & Load Flow Study;

REASON FOR REQUIRING THIS DOCUMENT: This Study proves the electrical conductors are large enough to ensure that equipment supplied by the electricity flowing through conductors operate within the design range for that item of equipment.

WHY THIS STUDY IS IMPORTANT: If the voltage is too low or too high, electrical equipment may not operate correctly or be damaged.

(D) Load Calculation;

REASON FOR REQUIRING THIS DOCUMENT: The load calculation ensures each item of equipment is sized to safely carry the design load.

WHY THIS DOCUMENT IS IMPORTANT: This document lists all load connected to the electrical system.

(E) Panel Directories;

REASON FOR REQUIRING THIS DOCUMENT: Panel Directories are provided to show workers which switch or breaker de-energizes a specific circuit or piece of equipment.

WHY THIS DOCUMENT IS IMPORTANT: The panel directory is required by Electric Codes so that electrical workers or less experienced individuals can quickly de-energize a circuit in an emergency without a "trial and error" approach.

(F) A plot plan showing the location of the mounting structure including address, or structure designation, or GPS location;

REASON FOR REQUIRING THIS DOCUMENT: This document is necessary to quickly identify the location for prompt emergency and non-emergency response.

WHY THIS DOCUMENT IS IMPORTANT: This document shows the exact location of the WCF and the access route. Power poles are commonly assigned addresses that may be located several hundred feet from the actual location.

(G) A plot plan showing the location of the service disconnecting means;

REASON FOR REQUIRING THIS DOCUMENT: This document is necessary to demonstrate the location of the switch or circuit breaker that separates the customer electrical system from the utility electrical system. This is commonly called the "main switch" or the "main circuit breaker".

WHY THIS DOCUMENT IS IMPORTANT: A WCF has been proposed on a streetlight pole on Cross Creek Road. The WCF is powered from one electric service. The streetlight is powered from a separate electric service. In order to suppress a fire, the power to the streetlight and the power to the WCF must both be de-energized. This plan shows both de-energization points. Service disconnects for streetlights may be several hundred feet away on a different street.

(H) An elevation drawing of the equipment and the service disconnecting means;

REASON FOR REQUIRING THIS DOCUMENT: This drawing shows how the equipment will look once installed. It is critical to ensure the workspace has adequate room to operate safely.

WHY THIS DOCUMENT IS IMPORTANT: Performing work on electrical equipment is hazardous. Workers are entitled to sufficient room to safely work and to escape if an arc develops.

(I) A demonstration there will be signage as required by the California Electric Code or the Los Angeles County Fire Department Chief or his or her designee;

REASON FOR REQUIRING THIS DOCUMENT: The CEC requires that electric equipment be labeled.

WHY THIS DOCUMENT IS IMPORTANT: This is necessary to ensure that first responders or electrical workers safely de-energize the correct equipment.

(J) A demonstration the service disconnecting means shall be mounted at an elevation determined by the Los Angeles County Fire Chief or his or her designee in conjunction with the electric utility;

REASON FOR REQUIRING THIS DOCUMENT: The CEC specifies that the service disconnecting means be readily accessible, which generally means operatable without a ladder. To prevent vandalism of communication systems in public right of ways, the service disconnecting means may be mounted out of reach from the ground.

WHY THIS DOCUMENT IS IMPORTANT: To prevent casual vandalism, the service disconnect may be mounted at a height not reachable from ground level.

(K) A demonstration there will be instructions for deenergizing the equipment by First Responders.

REASON FOR REQUIRING THIS DOCUMENT: Certain electric equipment must be de-energized in a specific sequence to ensure safety.

WHY THIS DOCUMENT IS IMPORTANT: Certain electrical equipment can create an additional hazard if de-energized in the incorrect sequences.

(L) A list of toxic substances that may develop during arcing or fire that may impede fire suppression efforts;

REASON FOR REQUIRING THIS DOCUMENT: The intense heat of an electrical arc may turn non-hazardous substances into hazardous substances. Special protective equipment may be required.

WHY THIS DOCUMENT IS IMPORTANT: Electric arcs instantly reach temperatures of thousands of degrees. Normally non-hazardous material may become hazards. Metals may vaporize and damage lungs.

(M) A list of hazards that may develop during arcing or fire that may impede fire suppression efforts;

REASON FOR REQUIRING THIS DOCUMENT: Arcing or fire may create a pressure wave that can imperil life, health and property.

WHY THIS DOCUMENT IS IMPORTANT: Electric arcing can vaporize copper or aluminum. Copper expands 67,000 times when converted from solid to vapor, which can cause an air blast that throws an individual several feet with fatal force.

(N) Structural Safety Information. The structural/civil engineering documents as recommended by a California licensed professional civil or structural engineer employed by Center for Municipal Solutions.

NOTE: The proposed ordinance includes a standard recommended by APCO/ANSI. This issue has been adequately addressed in the documents provided by Staff.

"Every draft we provided to Staff included the 14 documents listed above. As stated, each step represents a diagram, design schematic, or list of potentially hazardous substances that must be signed off on by a professional engineer as required in our fire safety and structural engineering protocol. Staff has persistently removed the protocol, with the notable exception of structural engineering. We do not know why.

FIRE PREVENTION LANGUAGE TAKEN FROM ENCINITAS & SEBASTOPOL SMALL CELL ORDINANCES

"The following language was offered to Staff, having been taken from ordinances previously passed in Sebastopol and Encinitas, California. Those cities' Small Cell Ordinances expanded on fire safety language beyond basic adherence to local fire codes. Susan Foster contributed to writing the fire safety portion of the Encinitas Small Cell Ordinance passed initially in 2019 and amended in 2020. The intent of this language was to meet the needs imposed upon each city by the proliferation of small cells and the proximity of these electrical devices for the first time so close to residences, schools, hospitals, playgrounds, daycare centers and parks. Malibu Staff removed this language from the drafts provided by the Community.

APPLICATION AND REVIEW PROCEDURES

"Fire Department Review. After submittal by the applicant, the Director shall transmit the entire application packet to the Fire Prevention Division. The Fire Chief (or his or her designee) shall review the application for compliance with objective health and safety standards related to fire hazards. The Fire Chief shall inform the Director in writing of its conclusions and any recommended conditions for public health and safety. Review by the Fire Prevention Division may reasonably require additional processing time, including potentially exceeding FCC Shot Clock timelines if necessary. The Fire Chief (or his or her designee) may select and retain an independent consultant with expertise and/or specialized training in fire safety and fire hazard mitigation and prevention satisfactory to the Fire Chief in connection with any permit application. The Fire Chief may request independent consultant review on any matter committed to Fire Department review or approval. Subject to applicable law, in the event that the Fire Chief elects to retain an independent consultant in connection with any permit application, the applicant shall be responsible for the reasonable costs in connection with the services provided, which may include without limitation any costs incurred by the independent consultant to attend and participate in any meetings or hearings. The same procedures for fee deposits, cost reimbursements and refunds to the applicant as described above shall be applicable to independent consultant review required by the Fire Chief.

CONDITIONS OF APPROVAL

"Safety Hazard Protocols. If the Fire Chief (or his or her designee) or Board of Chiefs of the Dispatch Joint Powers Authority finds good cause to believe that the facility (including, without limitation, its accessory equipment, antenna and/or base station) presents a fire risk, electrical hazard or other immediate threat to public health and safety in violation of any applicable law, such officials may order the facility to be shut down and powered off until such time as the fire risk or electrical hazard has been mitigated. Any mitigations required shall be at the permittee's sole cost and expense.

"Continued Monitoring. The permittee's Registered Engineer shall certify in writing continued compliance with the safety standards of this policy on or before January 30th of each calendar year. The Fire Chief will continue to monitor the safety of wireless facilities in the City and publish a yearly review of fire safety considerations regarding potential risks posed by electrical components of new technologies, the presence of numerous small cell wireless facilities in the ROW and any fire events or near-miss events related to wireless facilities.

"Oversight Authority. The Fire Chief, in his or her discretion, may issue written fire safety performance directives that shall apply to all existing permits within the scope of such directives and shall be considered as though incorporated into such permits. All permittees shall be required to comply with such directives at the permittee's sole cost and expense.

Fire Investigations.

"(i) The Fire Chief shall receive and investigate any credible fire safety complaint made by a resident of the City regarding a wireless facility in the City. Cost of such investigation shall be borne by the permittee. Permittees shall also inform the Fire Chief in writing within one business day of any fire or near-ignition event at any facility or replacement of any facility component in connection with any malfunction pertaining to excess heat, arcing or discharged current. (ii) The Fire Chief shall further investigate any fire in or around the vicinity of a small cell wireless facility. If the conclusion of the investigation is that any facility component is at fault, the Fire Chief shall immediately notify the Malibu City Council of his/her findings, and the facility at issue shall be de-energized until such time as the permittee provides assurances or undertakes precautions satisfactory to the Fire Chief that such event or similar event will not reoccur. In the event that no such assurance is received, and the Fire Chief has good cause to believe that such failure to comply constitutes a threat to health or safety, permit revocation shall be initiated by the Director.

DESIGN STANDARDS

"Electric Meters. Small cells and other infrastructure deployments shall use flat-rate electric service or other method that obviates the need for a separate above-grade electric meter. If flat-rate service is not available, applicants may install a shrouded "smart meter" that shall not exceed the width of the pole provided that such smart meter shall be placed at least 10 feet above ground level. If the proposed project involves a ground-mounted equipment cabinet, an electric meter may be integrated with and recessed into the cabinet, but the Director shall not approve a separate ground-mounted electric meter pedestal unless (1) the separate ground-mounted meter pedestal would be placed off the sidewalk and (2) the applicant's Registered Engineer demonstrates with clear and convincing evidence that all other alternatives for the electric meter are technically infeasible.

Fire Safety Standards.

"All wireless facilities shall include:

1) a power shut off readily accessible to fire service personnel, such as by means of rapid entry Knox or similar type systems installed as required by the Fire Chief, upon arrival at the scene of a fire and/or anticipated power surge due to power being turned off or on for any reason;

(2) surge protection devices capable of mitigating a direct or partial direct lightning discharge;

(3) surge protection devices capable of mitigating significant electrical disturbances that may enter the facility via conductive cables;

(4) at least one-hour fire resistant interior surfaces to be used in the composition of all structures and

(5) monitored automatic fire notification and extinguishing systems for all wireless facilities approved by the Fire Chief.

LEARN FROM PAST MISTAKES

"The 14 documents must be included because past failures to employ them caused mistakes that put people and their homes in harm's way.

"Four of the six tragedies below occurred in California. The California Public Utilities Commission (CPUC) has deferred to the utilities to have independent engineering review performed. In other words, the utilities have been policing themselves. The utilities have been remiss in overall engineering design as demonstrated by the following:

- In 2007, the Malibu Canyon Fire started when three Southern California Edison power poles overloaded with wireless transceivers from Verizon, AT&T, Sprint (now T-Mobile) and NextG (now Crown Castle), in violation of state regulations, snapped in Santa Ana winds, igniting the tall grass at the base of the power poles. Southern California Edison (SCE) agreed to pay $37 million. AT&T, Verizon and Sprint shared equal parts in a $12 million fine. NextG was fined $14.5 million. All five parties were accused by the CPUC of attempting to mislead fire investigators.
- In 2015, nearly 5000 PG&E smart meters exploded and caused over 80 fires when a transmission line contacted a distribution line, sending a surge through the city that exceeded the smart meters' capacity.
- In Canada and the US between 2012 and 2015, 17 utilities removed 790,000 Sensus smart meters as a safety precaution because of a fire hazard.
- In 2018, the Woolsey Fire was started by utility owned equipment, including a telecommunications wire, that led to the most destructive fire in Malibu in the last 100 years. It burned over 400 homes, killing two people in Malibu, and cost over $6 billion.
- In June 2020, the head of PG&E pled guilty to 84 counts of manslaughter in the deaths of residents caused by the 2018 Camp Fire in Paradise, California. A nearly 100-year-old

electrical transmission line owned and operated by PG&E was identified as the cause of the Camp Fire.

- In February 2021, the electric grid in Texas collapsed because electricity and natural gas providers had not winterized their equipment despite warnings 10 years earlier. Thousands of homes were damaged due to water leaks caused by freezing pipes, and so far, 69 deaths have been attributed to the energy grid collapse. Damages are estimated at $18 billion.

"We believe a higher level of professionalism and a coming together of multiple disciplines will enhance the chances for a less hazardous outcome as largely untested small cell technology exponentially increases within Malibu's city limits.

WIRELESS FIRES ARE ELECTRICAL FIRES & THEY DO HAPPEN

"Three fire officials, including Battalion Chief Drew Smith, recently stated they have not specifically fought 5G tower fires and claimed data is not available on 5G tower fires. It is early for data to be available on 5G cell tower fires and it is worth noting that no agency or industry in the United States, except those who have done so on a private basis, has kept track of cell tower fires from the installation of the first cell tower to the present. Yet proof of electrical fires in cell towers after the 1990s is available. This evidence has been collected in media reports and by some firefighters who have personal records and photographs; some have willingly shared that information. Additionally, we have obtained fire incident reports on cell tower fires around the country and confirmed arcing as a frequent heat source and "electrical" as a frequent cause.

"Thanks to the pioneering work of retired Los Alamos Laboratory physicist Dr. David Stupin, we have a reasonable sense of how often cell tower fires were occurring up to the point where he stopped keeping statistics in 2015. Dr. Stupin's research led him to believe that approximately one cell tower fire happens every month somewhere in the United States. The majority occurred because of electrical malfunction or because there was a deficiency of structural integrity and the collapse itself triggered a fire. We now face an exponential increase in small cell WCFs in the US. The CTIA is the telecommunications industry lobbying entity. They recently commissioned a study focusing on the increase in small cells in the United States. From the CTIA website:

> "The Accenture analysis commissioned by CTIA also found that the United States will see a **550% rise in small cells by this year**, underscoring the timeliness of the FCC's action to jumpstart broadband investment. Small cell deployments will escalate rapidly from roughly 13,000 deployed in 2017 to over 800,000 cumulatively deployed by 2026, according to the analysis." [2018]

"We urge you not to wait for the data on 5G cell tower fires before protecting Malibu from what we consider to be an inevitable increase in cell tower fire risks. If the industry has not been keeping track of cell tower fires during the last four generations of wireless, there is no foundation on which to place our hope that they will keep track of 5G cell tower fires. We choose to act with the knowledge of how electrical devices fail, and the fact there is nothing about small cells – the 5th generation of wireless that is being brought into our communities in

greater numbers and in closer proximity to people – that can lead us to any conclusion other than the fact the risk of wireless fires in Malibu is increasing with the installation of every small cell.

"From the December 16, 2020, Community Meeting, we feel the impression was left, based upon statements by fire officials, that 5G towers are not fire risks. Yet for fire officials of the Malibu section of the Los Angeles County Fire Department to state they have not fought 5G fires does not mean 5G tower fires do not exist. 5G WCFs *are* fire risks in the same way that 2G, 3G, 4G WCFs are fire risks. They are electrical devices. They will fail. Our goal is to put the WCFs through no more engineering rigor than would be required of the signage and electrical lighting in front of Malibu restaurants, gas stations and other commercial establishments in hopes of catching design flaws that could eventually result in fire. And if they do result in fire, we want the diagrams in place with the city of Malibu to show the First Responders the most pertinent information with respect to design features and chemicals involved so that our First Responders can respond as expeditiously and safely as possible.

FIRE RISKS WITH WIRELESS COMMUNICATION FACILITIES

"The 2015 Stockton, CA fires (multiple homes) were caused by smart meters used to measure electric use on the sides of homes. Smart/AMI meters may be deficient in suppressing transients/surges and the catastrophic failure of smart meters to handle a massive surge in the City of Stockton demonstrates that electronics close to the home, which many WCFs are and will be in the future, may pose a threat to life, health and property if not screened initially through our recommended Short Circuit and Coordination Study (SCCS). What happened in Stockton can happen in Malibu. If the utility pole on the corner of Malibu Canyon Road and Harbor Vista is hit by a car, and the transmission line contacts the distribution line, we could expect the electric meter and possibly the WCF to catastrophically fail. It would be necessary to de-energize the transmission line and thereby de-energize the area from City Hall and Cross Creek Road to Pepperdine and beyond. Using the Coordination Study will make it clear what the appropriate fuse size should be. If the WCF is utilizing the appropriate fuse size, the fuse will instantly de-energize the circuit and prevent catastrophic failure.

"For metered WCFs, SCE uses electronic meters that may have the same susceptibility as the meters in Stockton. Metered wireless facilities must go through the Community's electric fire safety protocol to determine if they have adequate surge protection against the type of fault that occurred in Stockton.

"Lightning strikes can contain more energy than the electrical mishap that occurred in Stockton. California is experiencing more lightning strikes due to the evolving climate. Therefore, electrical installations in Malibu must mitigate the increased frequency of lightning.

"The January 28, 2019, edition of The Los Angeles Times reported that California utility equipment sparked more than 2,000 fires in over a three-year period. Cal Fire determined 17 of 21 California fires in 2018 were attributed to pole issues. The deadly Campfire was confirmed to be started by power lines and pole loading. In order to accommodate the newest wireless facilities, companies like Verizon are requiring an increase of pole height by 20-25% (adding 10-

ft extension onto 40-ft or 50-ft pole) significantly lengthening the pole while decreasing the force of wind required to topple a pole.

"No community outside Paradise, California has been more devastated by wildfire than Malibu. The overloading of three SCE utility poles by four different telecommunications carriers sparked the Malibu Canyon Fire in 2007 and in November 2018, a downed telecommunications lashing wire ignited the Woolsey Fire, forever scarring Malibu by taking out over 400 homes and costing over $6 billion. With the exponential increase of WCFs and the administrative exemptions offered to telecom, our concern is that this problem will increase rather than decrease. Thus, electric fire safety protocol and structural site hardening are essential for Malibu.

EXAMPLES OF WCF FIRES

"There is a common misperception that WCF fires are primarily caused by arson. While there are documented cases of arson in 2020 related to misinformation about 5G and COVID-19, these cases were a short-term phenomenon. The examples below are representative of WCF fires that have occurred through the years as documented by the news media. Electrical malfunction and welding on WCFs for routine maintenance are the cause of the vast majority of cell tower fires. The examples below are representative of the genuine risks that could be facing Malibu.

July 2013 – Besalem, Pennsylvania: An AT&T cell tower fire was sparked when welders were working 70 feet in the air on a tower; sparks set off an intense fire ten feet above them. They tried to put it out but ended up having to race down to get help. The fire spread quickly and left the 10-story tower leaning over precariously. Initially, firefighters could not throw water on the fire because electricity was still surging through the tower and it took utility crews longer than expected to get it turned off. Essentially the fire was allowed to burn itself out.

July 2014 – Columbus, Ohio: Black smoke poured from a light pole with a WCF in Grandview Heights around 10:00 AM. The pole held lights for the football field as well as cell phone equipment. Streets were blocked off while emergency crews were on the scene. Homes within a one-block radius of the school were evacuated. Suspected electrical fire.

September 2014 – Thurston, Oregon: A cell tower fire at Thurston High School sent up a smoky plume above the Colts sport field. The cause of this fire was undetermined but Battalion Chief Marcus Lay explained, referring to the fire, that "It is contained and basically under control, but we have to wait until Springfield Utility Board gets here to get the power completely shut off to finish extinguishing it." Cause undetermined.

June 26, 2020 – Hanover, Virginia: A cell tower caught on fire overnight; a heavy storm with lightning moved through the area shortly before the call. Hanover Fire was able to extinguish flames on top of a cell phone tower. When they arrived around 11:15 PM, they saw a cell tower completely covered in flames. The fire was safely put out and officials believe that it was an accidental fire as the result of electrical/mechanical issues.

October 2020 – Irvine, California: Silverado Fire Southern California Edison Co. may seek contributions from T-Mobile as it is suspected the company's lashing wire touched an adjacent power line and sparked the fire. On October 26 SCE told the CPUC that a lashing wire attached to a telecommunications line running under the utility's 12-kV power line may have ignited the wildfire. The blaze seriously injured two firefighters and scorched more than 12,000 acres in Orange County and forced the evacuation of over 60,000 people, according to the California Department of Forestry and Fire Protection. In general, multiple companies can use the same utility poles, but each is responsible for managing its own equipment. Utilities are supposed to regularly look for any threats from telecom equipment installed on shared poles. This is not a foolproof system of governance.

November 2020 – Lapeer, Michigan: Wiring in a 197-foot-tall cell tower caught fire shortly after 9 p.m. Flames were visible shooting from the top of the hollow tower, while near the base of the structure the interior fire was so hot the metal glowed orange and pink. As a result of the fire that weakened the strength of the tower, there was a visible lean to the structure — the height of a 15-story building. The tower was dismantled and replaced.

March 2021 – Chula Vista, California: An AT&T cell tower partially concealed in a light fixture around a track at Otay Ranch High School burst into flames at 7:30 PM on a Tuesday evening. The Fire Incident Report was obtained through a public records request. The area of origin was within the equipment; the heat source was "electrical arcing". When the fire department arrived the 100-ft pole appeared to have an internal fire that traveled up the pole to the cell phone equipment and stadium lighting at the top of the pole. The fire department requested utility SDG&E to respond to the location. Firefighters maintained a safe distance until they could verify all power supply to the pole had been secured. As they were waiting for the representative from SDG&E to arrive to confirm the power had been cut, the heat of the fire due to arcing caused the steel pole to become molten plasma. It collapsed onto the bleachers near the football field, burning the track and destroying the bleachers. Once the rep from SDG&E arrived on scene and verified the power had been secured and that there was no electrical hazard, firefighters extinguish the fire using a water and foam combination.

WHY DOES 5G INFRASTRUCTURE POSE A GREATER FIRE RISK TO RESIDENTS

"It is not the frequency of cell tower fires that concerns us the most. It is the severity of what a single cell tower fire can do. The biggest risk is that WCFs have been brought much closer to local populations and those installations are much more densely situated. Every electrical device including every WCF must be deenergized before a fire can be fought. On a good day that can happen in 10 minutes. Some cities find that it is 30 minutes or more before the electric company cuts the power. If the firefighters fight the fire before the tower is deenergized, they can be electrocuted. A lightning strike is a type of transient event that may lead to WCF catastrophic failure. Malibu residents will recall in May of 2019, just before Memorial Day weekend, several beaches were closed in Malibu because of a lightning storm that created unsafe conditions. **Thus, the placement of WCFs must allow time and space for escape because a fire originating in a WCF must not be fought by residents or by firefighters until SCE has turned off the power. This is why we propose separation and setback requirements as strategies to mitigate risk to residents**.

"One firefighter who is accustomed to fighting fires under Santa Ana conditions in California understood the extreme risk posed by a cell tower fire near a populated area. He described how he would fight such a fire:

> *"If the fire involves energized equipment, do not put water on it. Use water only to extinguish anything like trees, grass, vegetation, etc. that it may spread to, and then use water in short bursts if it's adjacent to the pole. Call the utility company immediately so they can de-energize. Keep people back for 2 spans in either direction and make sure all personnel and equipment stay out from under the power lines. Focus on public safety and exposure protection until it's confirmed that the power has been shut off."*

"We firmly believe the greater the distance between WCFs, the more likely an individual(s) would be able to escape homes, schools, hospitals, nursing homes. Distance between towers and from property lines will be critical to escape. Distance from WCFs and property lines may mean the difference between life and death. Due to the length of time it can take to cut the electricity and subsequently fight a fire, particularly one that has spread, we feel it is not worth the very real potential for loss of life if cell towers, small cells or macro towers, are located within residential neighborhoods. Additionally, care should be taken to keep cell towers away from roots of entrance and egress for neighborhoods. The same caution should be taken with densely populated facilities like schools, daycare centers and special zones as designated by the city.

"The scars from the 2007 Malibu Canyon Fire and the 2018 Woolsey Fire are still evident on the land. The human toll appears greater. The residents speak openly about PTSD, particularly on those days when the winds blow as they did during the Malibu Canyon Fire and the Woolsey Fire. The winds remind residents of the Santa Anas that carried burning embers sideways, whipped flames such that they consumed many residents' homes, blocked exit routes out of the city and literally terrorized the whole of Malibu – the land, the air, and most of all the residents, their animals and wildlife.

"FALL ZONE: We would like to add that we believe expansion of the fall zone should be carefully considered. It must be at least the height of the tower with 50% or at least 25% added onto that because of the falling debris field.

UNIQUE FIRE RISKS TO MALIBU & GERMANE TO OTHER PARTS OF CALIFORNIA, AS WELL AS OTHER STATES

"VERY HIGH FIRE HAZARD SEVERITY ZONE: The City of Malibu is designated as a Very High Fire Hazard Severity Zone. The City was devastated by major fires in 2007 and 2018 due to power pole failures. In each instance the utility structures supported wireless communications facilities that either initiated or significantly contributed to the ignition. The 2018 Woolsey Fire consumed over 96,000 acres, destroyed at least 1,643 structures, killed three people, and prompted the evacuation of more than 295,000 people. It was one of several fires in California that ignited on the same day. Malibu has still not recovered. The 2007 fire burned 3,836 acres, 36 vehicles and 14 structures, including Castle Kashan and the Malibu Presbyterian Church, and damaged 19 other structures. It is essential that wireless communications facilities be engineered to prevent fire and withstand fire events as much as possible, and at least in a

manner comparable to other commercial facilities with extensive, complicated electronics and wiring, as well as flammable, sometimes hazardous and toxic, materials on site.

"SEISMICALLY ACTIVE: Malibu is geographically defined by the Santa Monica Mountains to the North, the Pacific Ocean to the South, the Santa Monica Fault to the East and Ventura County to the West. Malibu is a seismically active area with five active faults in the general vicinity. These nearby faults include Malibu Coast Fault, Las Flores Thrust Fault, Santa Monica Fault, Palos Verdes Hills Fault, and the Newport-Inglewood Fault. There are also potential seismic hazards and soil hazards in Malibu. Seismically-induced soil hazards include liquefaction – a temporary, but substantial loss of strength in granular solids, such as sand, silt, and gravel, usually occurring during or after a major earthquake. Seismic activity can also induce subsidence and settlement. Subsidence is deep settlement due to the withdrawal of fluid (oil, natural gas, or water). Seismically-induced settlement occurs in loose to medium dense unconsolidated soil above groundwater. These soils compress or settle with seismic shaking. Settlement can also result from human activities including improperly placed artificial fill, and/or structures built on bedrock or soil with differential settlement rates. There is also risk from expansive soils such as clay; it can swell when wetted and shrink when dried. Wetting can occur from rainfall, groundwater fluctuations, lawn watering, broken water or sewer lines. Expansive soils can result in cracks in foundations. Expansive soils located on slopes can cause slope failure. Unstable soils can produce landslides, debris flows, and rock falls. Hill slopes, which occur in Malibu, have a tendency to fail. Unless engineered properly, development in hillside areas tends to increase the potential for slope failure.

"MARINE ENVIRONMENT: Malibu is a marine environment. Thus, there are accelerated corrosion issues due to the combination of increased moisture and salt in the air. Metal parts within wireless facilities fail faster in this corrosive environment. This corrosion may adversely affect the structural and electrical integrity of a wireless facility. In addition, corrosion may pose a risk to internal parts which, if corroded and not replaced on a very conservative maintenance schedule, may become fire risks themselves. Therefore, the failure rate of wireless facilities is higher and the need for stricter standards in the very beginning is essential.

"GREATER NEED FOR STRUCTURAL INTEGRITY: Because of seismic and soil displacement and/or settlement risks as well as the potential for fires, heavy rains, mudslides and landslides, all wireless facility sites must be built to the standards of ANSI/APCO Public Safety Grade Site Hardening Requirements. This standard represents public safety requirements regarding various characteristics to make mission critical communications network sites sufficiently robust to meet the service availability requirements of public safety. These safety standards can be found in APCO ANSI 2.106.1–2019, or their replacements. Collapsed WCFs are a cause of multiple wireless facility fires. Structural integrity is paramount to keeping Malibu safe from fire started by collapsed wireless equipment.

"This confluence of geographic and climate characteristics means that Malibu needs greater fire safety regulations than non-marine, low fire hazard, seismically stable regions. Malibu is the first local government to be informed that the exemption for telecom utilities render the National Electric Code, the California Electric Code, and the Los Angeles County Electrical Code

insufficient to protect the public from the electrical risks of WCFs. Malibu can protect itself and its residents by adopting the safety provisions we propose.

WIRELESS CELLULAR FACILITIES AS CRITICAL INFRASTRUCTURE

"This final subsection recognizes that the Federal government and state public safety organizations have declared that wireless networks are critical infrastructure for national security and public safety purposes – often at the urging of the wireless industry. Critical infrastructure must be protected too, through appropriate fire and structural safety requirements. We are not aware of any evidence indicating telecom objects to a stronger electric safety protocol. If such an objection exists, it should be made on the record and the basis fully explained.

"Cell towers are considered critical infrastructure to maintain communication during times of natural and man-made disasters. Pandemics are one example, as illustrated by the timing of the US Department of Homeland Security, Cybersecurity & Infrastructure Security Agency's (CISA) March 28, 2020 Guidance on the Essential Critical Infrastructure Workforce: Ensuring Community and National Resilience in COVID-19 Response Version 3.0 (updated on April 17, 2020), available at https://www.cisa.gov/sites/default/files/publications/Version_3.0_CISA_Guidance_on_Essential_Critical_Infrastructure_Workers_1.pdf. The Wireless Infrastructure Association applauded the designation. See https://wia.org/wia-applauds-dhs-action-for-access-to-critical-infrastructure/.

"In Malibu, we are simply asking telecommunications carriers to treat their facilities like the essential infrastructure that it is. Anything less is counterintuitive and ill-advised.

"Further, even before the DHS guidance the Association of Public-Safety Communications Officials (APCO) International received final approval from the American National Standards Institute (ANSI) in 2019 for an American National Standard (ANS) that identifies hardening requirements for public safety grade sites. In other words, structural engineering for WCF sites has gone from the concept practiced by some to a standard that should be followed by all.

"APCO ANSI 2.106.1-2019 was developed by the Public Safety Grade Site Hardening Working Group. This standard was derived from the 2014 National Public Safety Telecommunications Council (NPSTC) report (Chapter 9) and the work of the original APCO Broadband Committee. The document is intended to assist public-safety communications network builders with the guidelines necessary to build hardened public safety grade networks.

"With five (5) active earthquake faults running through Malibu, this is a welcome standard. It reads, in part:

> This standard represents public safety requirements regarding various characteristics to make mission critical communications network sites sufficiently robust to meet the service availability requirements of public safety. In other words, what it takes to make network sites "public safety grade" or the extent to which they are "hardened."
>
> The document is intended to assist public safety communications network builders with the guidelines necessary to build hardened public safety grade networks. This document addresses hardening for wireless transmission and reception sites. Specifically, it addresses the hardening requirements to provide the appropriate site conditions and characteristics

for wireless system electronics (e.g., transmitters and receivers) and wireless passive components (e.g., coaxial cables and antennas).

These sites need to withstand the onslaught of natural or manmade conditions and consider the distinct requirements for different geographic locations of the United States, including their likelihood to be subject to severe storms, earthquakes, tornadoes, and other disasters.

"In the face of increasing federal emphasis on WCFs as essential to Public Safety and no record of opposition from the telecom industry, we question why anyone would be reluctant about embracing our safety protocol and application content requirements."

End Malibu White Paper

CONCLUSION

The Malibu solution is not a guarantee that telecommunications equipment evaluated through established design criteria at the application stage will never cause another fire. Yet it is a workable solution within the challenging confines of the FCC promoted and telecom-preferred shot clocks.

Two very important takeaways are: 1) safety belongs to the municipalities to regulate; 2) shot clocks may be tolled with a written letter to the carrier if an application is deemed incomplete. A tolling letter must be sent to the carrier or the carriers' representative(s) expeditiously. Sufficient staff needs to be in place to process applications.

We strongly recommend adding sufficient planners including outside consultants capable of evaluating code compliance to assess incoming applications. Los Angeles County would be well advised to effectively and efficiently shift the compliance requirements so that the onus is on the telecom applicants to have completed applications in accordance with design requirements listed by the Planning Department when they enter Los Angeles County. This can be accomplished in a reasonable and balanced manner.

It is not enough to evaluate safety at the backend. Safety must be evaluated upfront. Code compliance must be evaluated upfront. Specifying and posting design criteria as part of the application checklist for the telecommunications applicants is essential.

To discard environmental review – which includes climate change and the synergistic effect of climate and fire, further compounded by the fact that telecommunications equipment can and does cause wildfires – in order to comply with the confines of the shot clock is a failure of the most precious responsibility entrusted to our local leaders. This is indeed a dangerous cocktail in any location but particularly California. Some of the most vulnerable members of our community will be at the greatest risk.

We are imploring the leaders of Los Angeles County and the Planning Staff to include environmental review and forgo the temptation to utilize ministerial permits. The future of Los Angeles County and the safety of your residents' lives, their property, the County's wildlife, and the County's yet dwindling remnants of our rich Native American heritage rest in the decisions you are about to make.

Susan Foster

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November 15, 2022

Holly J. Mitchell, Chair
Sheila Kuehl Chair, Pro Tem
Hilda L. Solis, Supervisor
Janice Hahn, Supervisor
Kathryn Barger, Supervisor
Celia Zavala, Executive Officer

Agenda Item 7 – Wireless Ordinances

To the Honorable Board of Supervisors:

Please accept these written comments submitted by California Fires and Firefighters. This nonprofit is organized under Colorado law.

As Co-Founder of California Fires and Firefighters, much of my experience working on fire prevention in California is reflected in multiple local zoning ordinances and appeals on behalf of California firefighters from San Diego County in 2001 to the City of Malibu in 2021.

The comments are contained within the attached White Paper:

PROTECTING LA COUNTY'S FUTURE:

HOW FIRE RISKS FROM TELECOMMUNICATIONS EQUIPMENT, CLIMATE CHALLENGES & A DANGEROUS SHIFT AWAY FROM ENVIRONMENTAL REVIEW THREATEN LOS ANGELES COUNTY'S FUTURE

These comments are submitted on behalf of the organization and in a representational capacity for all of Los Angeles County residents, including the firefighters who live and work in Los Angeles County and their families, who will be affected by any revision to the County's wireless ordinances.

Respectfully submitted,

Susan Foster
Co-Founder, California Fires and Firefighters

Attachment

EXHIBIT 11

WORLD RESOURCES INSTITUTE

4 Graphics Explain Los Angeles' Rare and Devastating January Fires

February 5, 2025 By **James MacCarthy** and **Jessica Richter** Cover Image by: Kit Karzen/Alamy Stock Photo

Charted

Topic **Forests** *Region* **North America**

Editor's note: This article was first published on Jan. 9, 2025. It was updated on Jan. 14 and Feb. 5 to reflect the latest information.

Wildfires tore through the Los Angeles area this January, displacing tens of thousands of people and claiming at least 29 lives as of Feb. 4. The Palisades fire — the first to

erupt — engulfed over 23,000 acres and devastated surrounding communities. Four weeks later, both the Palisades and Eaton fires are now fully contained. But they rank among the deadliest and most destructive fires in California history.

While California is no stranger to summer wildfires, this January outbreak was an extreme outlier, fueled by unusually severe fire weather conditions across the state's southern region. It will take time to unravel the many factors contributing to the situation. Yet it is a stark reminder that climate change is making wildfires more frequent, intense and destructive than ever before — with individual lives, homes and businesses paying the price.

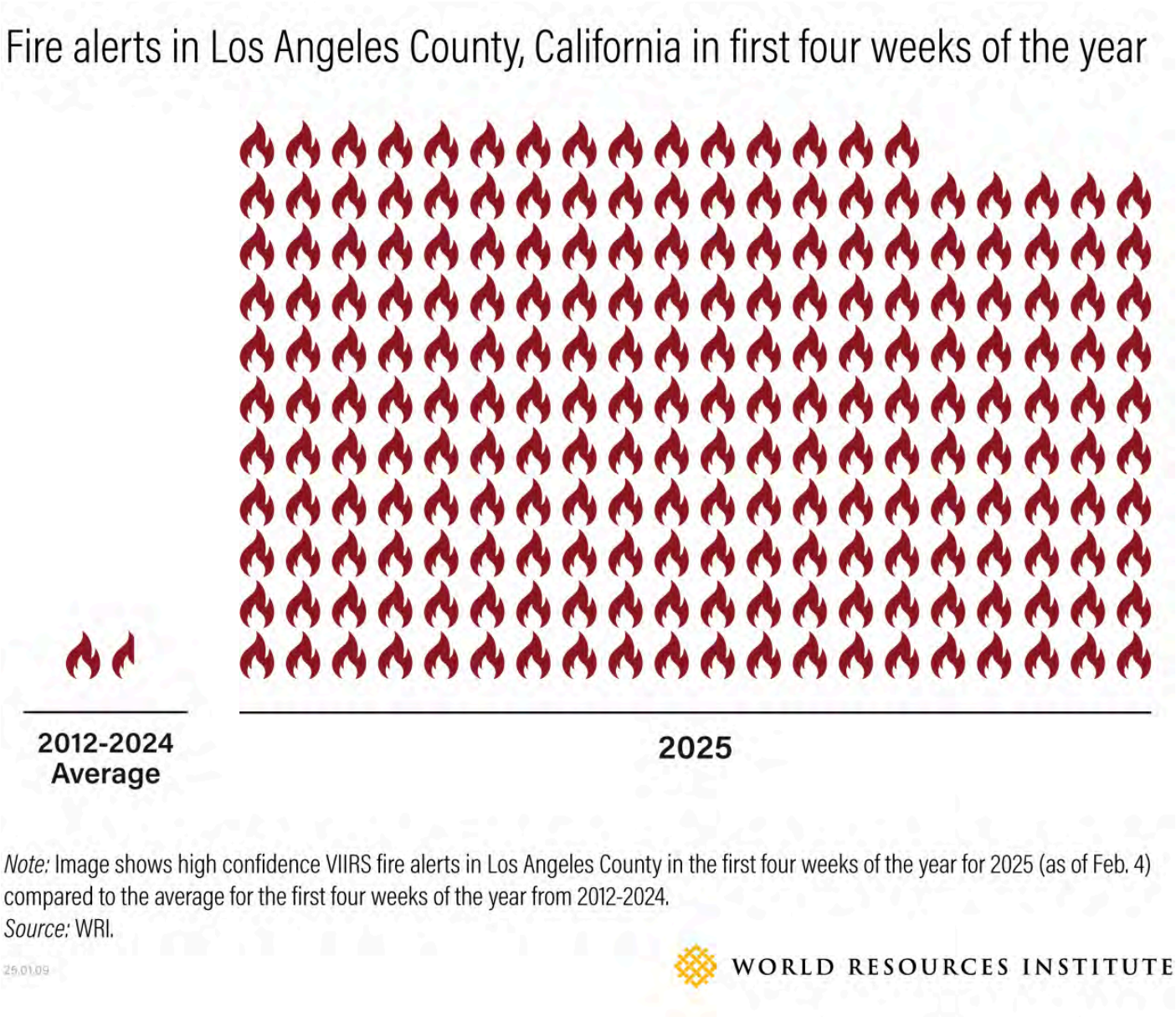
Data on WRI's Global Forest Watch platform shows just how uncommon these fires were, and how fire trends are changing as the planet warms.

Large Wildfires Are Rare in California this Early in the Year

Fire alerts, which use satellite data to detect fires based on the heat they generate, rose quickly as fires spread across Los Angeles County. Over 200 fire alerts were detected in the area between Jan. 7 and Jan. 22 — more than 130 times the average for the first four weeks of the year from 2012-2024. (No new high confidence fire alerts were detected between Jan. 22 and Feb. 4.)

During most years, no fire alerts are detected in Los Angeles in the first three months of the year, let alone the first few weeks. Only one other year, 2021, had more than 10

fire alerts in Los Angeles between January and March. That year went on to become one of California's most devastating for wildfires.



In California, wildfire season typically starts in June and continues through October, when the weather is hot and dry. Weather conditions change toward the end of the year, bringing rainfall to much of the state. Cool temperatures and rain during the winter months typically keep wildfire activity low.

This year, the rain came late in Los Angeles. Following a summer of record-breaking temperatures and extreme heat, rainfall between October and January was far below normal for the time of year: only about 4% of the typical amount. This lack of rainfall,

combined with strong and dry Santa Ana winds, created the right conditions for a surge in fire activity.

Fire Activity Is on the Rise in California

While these early season fires are rare, forest fires in general have become increasingly devastating for Californians over the past two decades, threatening lives and communities from Napa County in the north to San Diego in the south.

Fire is, on average, the largest driver of tree cover loss in the state. In 2020 and 2021, California lost a record amount of tree cover to fire: over 700,000 hectares (1.73 million acres), or more than 5 times the area of Los Angeles. These wildfires had catastrophic impacts; claiming lives, creating hazardous air quality, ravaging ecosystems and causing billions of dollars in property damage.

Tree cover loss due to fires in California, United States

Fire related loss Non-fire related loss Moving average

Source: Global Forest Watch •
Non-fire related loss can occur from mechanical clearing for agriculture and logging, as well as natural causes such as wind damage and river meandering. The three-year moving

What's Fanning the Flames?

The increasing frequency and intensity of wildfires in California can be attributed to both natural and human-induced factors, with climate change playing a central role.

Rising global temperatures have created hotter, drier conditions across the landscape. This makes fires not only more likely to ignite but also easier to spread. The hottest years on record globally — 2023 and 2024 — have seen extreme heat intensify droughts and dry out vegetation, creating an ideal fuel source for wildfires.

Indeed, one recent study estimated that climate change made L.A.'s January fires 35% more likely to occur.

Average annual temperatures are increasing in California

Source: NOAA National Centers for Environmental Information (NCEI)
Note: 2024 is year to date

Southern California is also frequently affected by the Santa Ana winds, which bring strong, dry gusts that further fuel the fires and make containment difficult. This combination of heat, dryness and wind is compounded by the fact that communities are increasingly being built near vegetated areas (known as the "wildland-urban interface"), putting both people and their built environment at greater risk. As average temperatures in California continue to rise, so does its vulnerability to catastrophic fires.

Increasing Wildfires Are Both a Local and Global Challenge

The increasing size and severity of wildfires in California is not an isolated event. Climate change is making wildfires more frequent and intense around the globe, resulting in larger forest fires worldwide. Hot and dry weather conditions brought on by climate change result in longer and more severe fire seasons and make bigger areas more prone to wildfires.

With each fraction of a degree of warming, the risk of wildfires significantly increases. As one of the primary risk factors associated with wildfires, it is critical that countries work together to reduce carbon emissions and keep global temperatures below the threshold set by the Paris Climate Agreement.

Meanwhile, communities on the frontlines don't have to wait for a global climate response. There are steps they can take now to reduce wildfire risks and protect residents, such as restoring degraded forests and using controlled burns and other strategies to reduce fire fuel.

New models to pay for these activities are emerging across the U.S. In California, Forest Resilience Bonds developed by Blue Forest and WRI raised $29 million for restoration and wildfire risk reduction across 63,000 acres in the Sierra Nevada mountains. Expanding such approaches in the U.S. and elsewhere can play an important role in safeguarding communities, homes and businesses from the growing threat of wildfires.

While it is too early to tell how bad 2025 will be for wildfires, we know which direction long-term trends are headed. Taking steps to protect communities and curb climate change cannot wait.

To view historical fire trends, track fire activity in 2025 and sign up to receive fire alert notifications, visit the Global Forest Watch map and platform.

Relevant Work

FORESTS

California's Wine Country Wildfires Are Among the Worst on Record

Insights OCTOBER 17, 2017

FORESTS

California Made Headlines, but 5 Other U.S. States Also Broke Wildfire Records in 2018

Insights MARCH 7, 2019

FORESTS

6 Graphics Explain South America's Forest Fires

Insights SEPTEMBER 19, 2024

CLIMATE

Weather Patterns that Fueled Great Smoky Mountains Forest Fire Could Increase with Climate Change

Insights DECEMBER 14, 2016

Tracking the damage and devastation from the Los Angeles wildfires in maps

By Renée Rigdon and Rachel Wilson, CNN

2 minute read · Updated 5:40 PM EST, Mon January 27, 2025

(CNN) — Entire neighborhoods burned to the ground. Dozens of casualties after people either couldn't leave, or chose not to flee their homes**.** The Los Angeles wildfires of 2025 have left incredible devastation in their wakes.

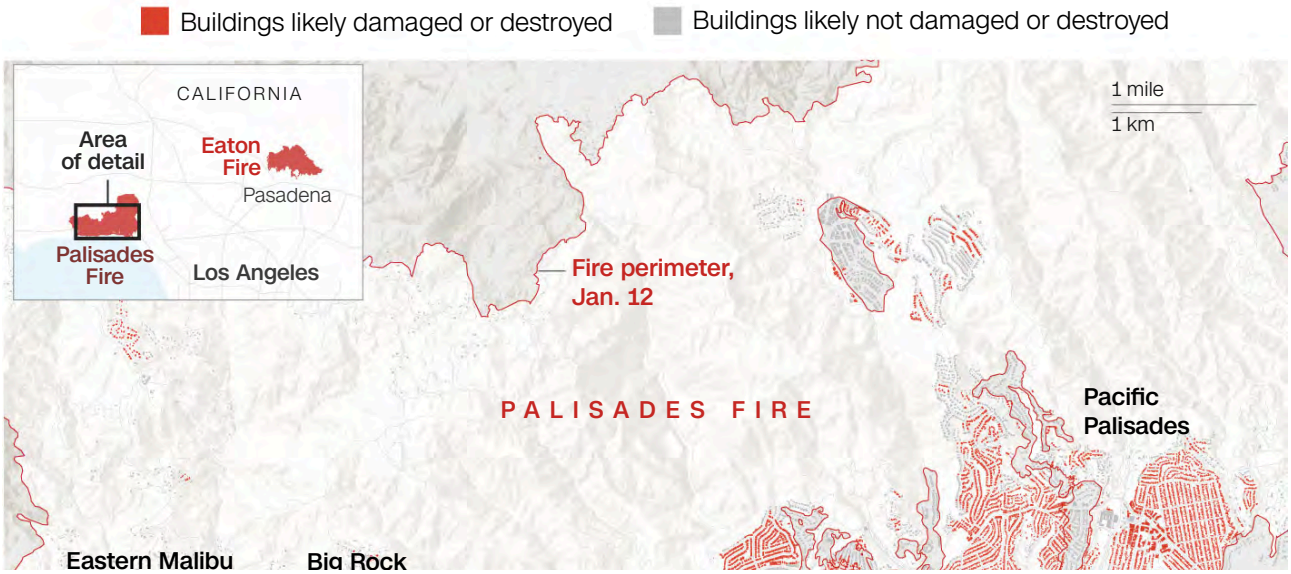
Although official damage assessments are still ongoing, the California Department of Forestry and Fire Protection estimates that more than more than 16,200 structures have been damaged or destroyed in the Palisades and Eaton fires.

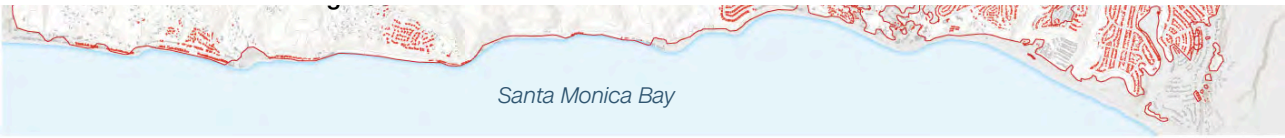
RELATED ARTICLE
Visualizing the Los Angeles wildfires in maps and charts

The Palisades Fire has been the largest in terms of burned areas. The iconic Malibu restaurant Moonshadows was completely destroyed, as was the Palisades Branch Library. The Palisades Charter High School suffered extensive damage. Here's an analysis of the building damage with what we know now:

Thousands of buildings likely damaged or destroyed in Palisades Fire

At least 4,900 buildings were damaged or destroyed in the Pacific Palisades and Eastern Malibu areas, according to an analysis of January 21 satellite imagery by CUNY and Oregon State University.





Data as of 5:52 a.m. PT on January 21, 2025

Sources: Damage analysis of Copernicus Sentinel-1 satellite data by Corey Scher of CUNY Graduate Center and Jamon Van Den Hoek of Oregon State University; Oak Ridge National Laboratory; Federal Emergency Management Agency Geospatial Response Office USA Structures; California Department of Forestry and Fire Protection (fire perimeter)
Graphic: Renée Rigdon, CNN

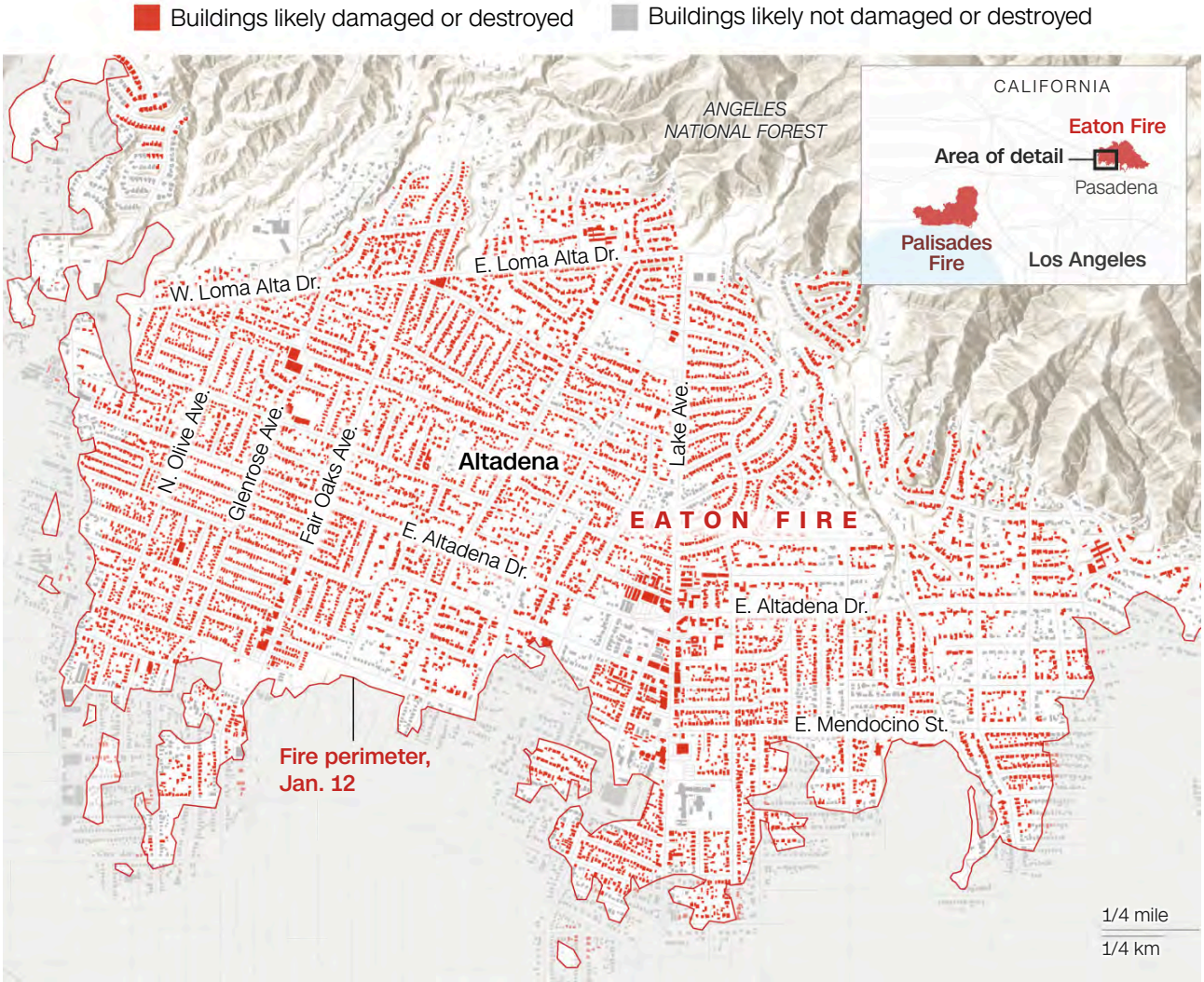
Kevin Marshall sifts through his mother's fire-ravaged property in the Pacific Palisades neighborhood of Los Angeles on Saturday. John Locher/AP

The Eaton Fire, while smaller in perimeter than the Palisades Fire, has likely claimed more buildings, estimates suggest. Here's an analysis of what we know about the damage to Los Angeles County's hard-hit Altadena neighborhood:

At least 7,000 buildings damaged or destroyed by the Eaton Fire

At least 7,900 buildings damaged or destroyed by the Eaton Fire

Most of these buildings are in the Altadena, California, area, according to an analysis of January 21 satellite imagery by CUNY and Oregon State University.



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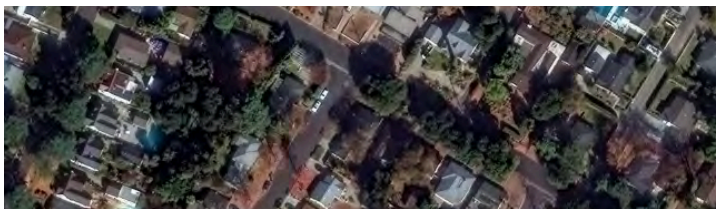
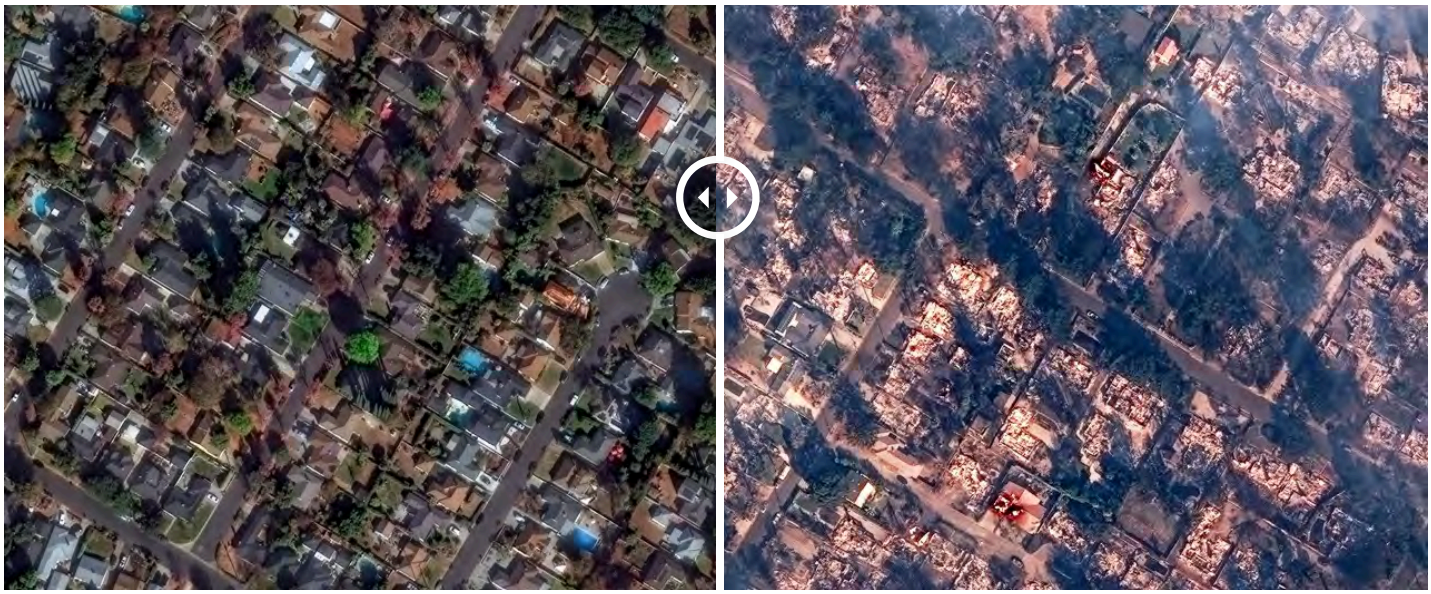
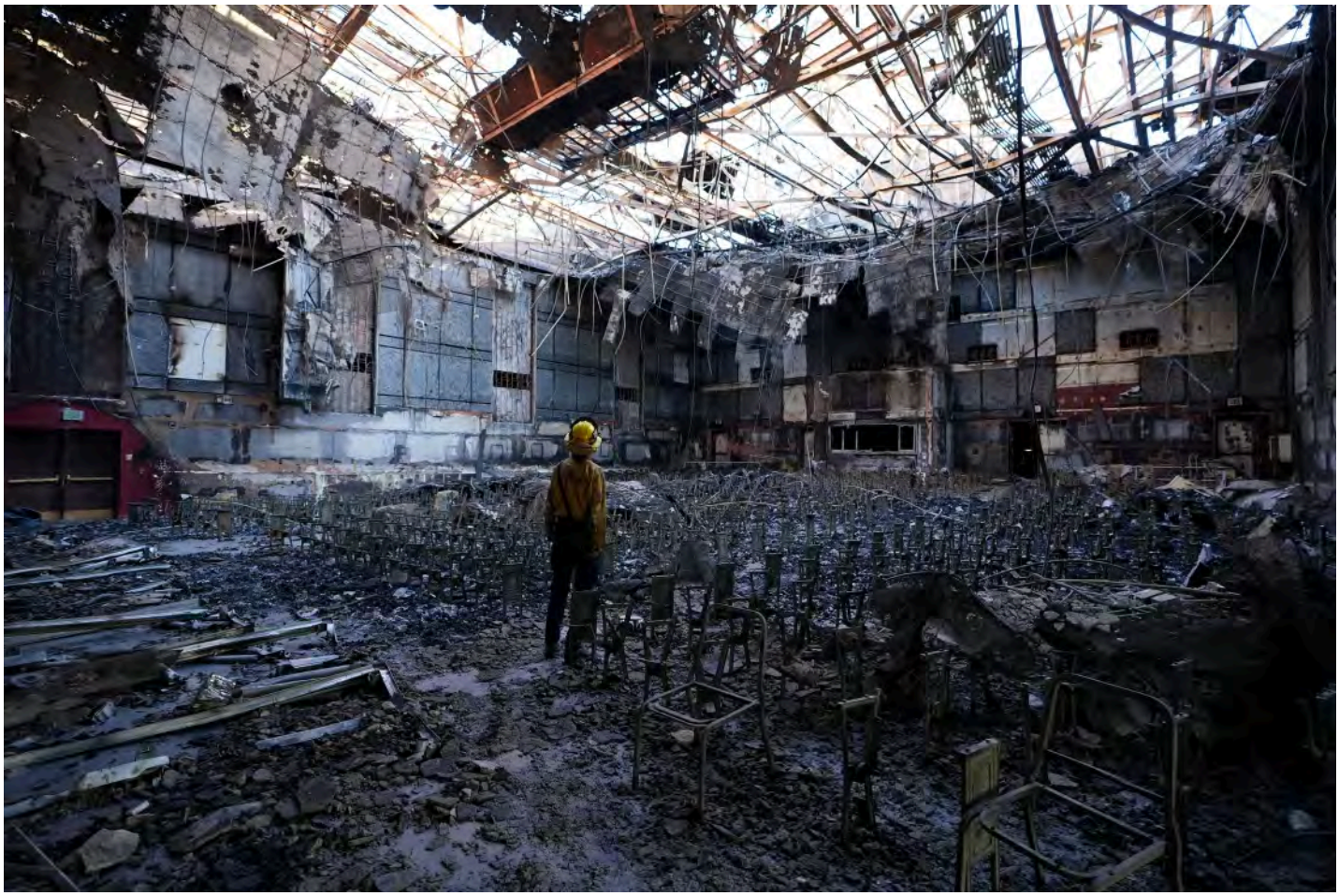
Graphic: Renée Rigdon, CNN

See satellite images, from Maxar, of part of Altadena before and after the Eaton Fire ravaged the area.





Destroyed structures in Altadena, California Satellite image ©2025 Maxar Technologies



A firefighter stands in the burnt down auditorium of the Eliot Arts Magnet Academy in Altadena on Sunday. Lokman Vural Elibol/Anadolu via Getty Images

The severity of the LA fires has also highlighted that many US communities have limited emergency evacuation plans in place. After the Palisades Fire first sparked on January 7, many residents in the Pacific Palisades neighborhood struggled to get out because of traffic bottlenecks, with some forced

to abandon their cars and flee on foot. Small communities can be especially at risk: Hundreds of towns were identified as having limited evacuation routes, according to an analysis by Streetlight Data, an analytics service that tracks transportation data.

Limited routes out of the Pacific Palisades caused evacuation chaos

Close to 25,000 people live in Pacific Palisades in Los Angeles. Almost 4,000 reside in the northern area of the neighborhood around The Summit community, which jammed traffic when a mass of people tried to exit taking Palisades Drive on January 7 when the wildfire first started.

The Palisades and Eaton fires have already climbed to the top of the list of most destructive fires in LA County history, and currently sit in the No. 3 and No. 4 slots on the list of most destructive wildfires in California state history, since at least 1991.

Palisades and Eaton fires are the most destructive to ever hit Los Angeles County

The two fires rank among the top five most destructive fires in California's history, having destroyed at least 12,000 structures, according to Cal Fire. They have burned more than 37,800 acres (approximately 59.1 square miles) in just over a week.

Top 10 most destructive California wildfires by number of destroyed structures

Name	County	Destroyed structures
Camp Fire, 2018	Butte	18,804
Eaton Fire, 2025* Active	**Los Angeles**	7,000
Tubbs Fire, 2017	Napa, Sonoma	5,636
Palisades Fire, 2025* Active	**Los Angeles**	5,000
Tunnel Fire, 1991	Alameda	2,900
Cedar Fire, 2003	San Diego	2,820
North Complex Fire, 2020	Butte, Plumas, Yuba	2,352
Valley Fire, 2015	Lake, Napa, Sonoma	1,955
Witch Fire, 2007	San Diego	1,650
Woolsey Fire, 2018	Los Angeles, Ventura	1,643

*Numbers are preliminary and based on aerial assessments that detect heat signatures. These may include not only homes and businesses but also outbuildings, such as sheds, chicken coops, or motorhomes.

Data as of Jan. 14, 2025

Source: California Department of Forestry and Fire Protection

This story is developing and will be updated.

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What's the latest on Los Angeles wildfires and how did they start?

14 January 2025

James FitzGerald
BBC News

Watch: LA County District Attorney releases footage of LA looters and arson suspect arrest

At least 25 people have died in the Los Angeles fires as two major blazes continue to burn across the sprawling US city.

Firefighters made progress over the weekend in containing the Palisades and Eaton fires but warn that the return of high winds - forecast until Wednesday - could see these two spread again, or fuel new ones.

The fires are already among the most destructive in LA's history when measured by the number of buildings destroyed. Rebuilding work will cost "tens of billions" of dollars, US President Joe Biden has said.

What's the latest?

An area to the north-west of the city centre is described by officials as "particularly dangerous".

A red flag warning - indicating a high level of fire danger - is in place until 18:00 (02:00 GMT) on Wednesday, with the strongest Santa Ana winds expected on Tuesday.

Nearby, the largest fire is in the Palisades area, and has burnt through more than 23,000 acres. It is still only about 14% contained, despite the efforts of thousands of firefighters.

The blaze is moving east, threatening the exclusive neighbourhood of Brentwood, home to the Getty Center, a world-famous art museum that has evacuated its staff.

- Follow live updates
- What are the Santa Ana winds?
- LA fire victims fear new housing crisis

Another fire, Eaton, is more deadly than Palisades so far - responsible for 16 of the deaths.

The overall destruction is immense, with more than 12,000 structures - homes, outbuildings, sheds, mobile homes and cars - destroyed. Celebrities Mel Gibson and Paris Hilton are among those who have lost their homes.

Tens of thousands of homes are also without power.

The fires could turn out to be the costliest in US history, with damage projected at up to $150bn, according to a preliminary estimate by AccuWeather.

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Where are the fires?

There are three active fires in the wider area, while a smaller fire is nearly contained, say California fire officials:

- **Palisades**: The first fire to erupt a week ago and the biggest in the region. It has scorched more than 23,000 acres as of Tuesday, including the upmarket Pacific Palisades neighbourhood, and is only 14% contained
- **Eaton**: Affecting the northern part of LA, blazing through areas such as Altadena. It is the second biggest fire in the area, burning more than 14,000 acres. It is now 33% contained

- **Hurst**: Located just north of San Fernando, it began burning last Tuesday. It has grown to 799 acres, but is almost fully contained
- **Auto:** Broke out on Monday. It has reportedly been stopped from moving forwards after spanning 56 acres, according to Ventura County officials

The earlier Kenneth, Archer, Sunset, Lidia, Woodley and Olivas fires have been contained.

What does it mean for a fire to be contained?

Containment describes the progress firefighters make in controlling the spread of flames. It is often listed as a percentage. For example, if a fire is 14% contained, that means fire crews have established barriers around 14% of the fire's perimeter.

Natural barriers include roads, rivers and oceans. Firefighters can also create barriers using equipment such as bulldozers, hoses and shovels to remove vegetation down to the bare soil, meaning there is nothing for the fire to burn.

A fire being 100% contained doesn't mean it has been extinguished, but rather that the flames have been fully encircled and the spread has been effectively stopped.

- Maps and images reveal scale of LA wildfire devastation
- What we know about the victims

What caused the fires?

Detectives continue to investigate the possible causes.

Lightning - the most common source of fires in the US - has been ruled out as a cause for the Palisades and Eaton fires.

There has been no official indication so far that arson or utility lines - the next two biggest culprits in sparking fires - caused any of the conflagrations.

However, in the case of the Eaton fire, legal cases have been filed against the electrical company, Southern California Edison Company (SCE), claiming there is evidence that the blaze - one of the largest - was ignited due to negligence of the firm's overhead wires.

SCE has vowed to "review the complaint when it is received", pointing out that "the cause of the fire continues to be under investigation".

A spokeswoman added that the company "remains committed" to supporting communities affected by the fires.

On Friday, SCE said authorities were investigating whether its infrastructure was involved in the ignition of the separate Hurst fire.

- 'I have nothing to go back to': BBC reporter loses home
- How one street went up in flames

California's very wet years of 2022-23 brought about a huge growth of vegetation, which dried out in the drought of last year, creating abundant kindling.

Conditions have been ripe for wildfires thanks to a combination of an exceptionally dry period - downtown LA has only received 0.16 inches (0.4cm) of rain since October - and powerful offshore gusts known as the Santa Ana winds.

Was LA prepared for the fires?

A political row about the city's preparedness has erupted after it emerged some fire crews' hoses ran dry.

California Governor Gavin Newsom has called for an independent investigation into the loss of water pressure to hydrants and why the Santa Ynez Reservoir was closed for maintenance and empty when the fire broke out.

"Losing supplies from fire hydrants likely impaired the effort to protect some homes and evacuation corridors," he wrote.

- Fact-checking criticism of California Democrats over fires

LA Mayor Karen Bass, who was on a previously arranged trip to Ghana when the fires began, has faced intense questions about the region's preparedness and the water issues. On Saturday, she deflected questions about her handling of the emergency.

Before the fires broke out, the city of LA's fire chief warned in a memo that budget cuts were hampering the department's ability to respond to emergencies. But another official, the LA County fire chief, denied his department had been unprepared.

Watch: Before and after footage reveals scale of damage after LA wildfires

What role has climate change played?

Although strong winds and lack of rain are driving the blazes, experts say climate change is altering the background conditions and increasing the likelihood of such fires.

Much of the western United States including California experienced a decades-long drought that ended just two years ago, making the region vulnerable.

"Whiplash" swings between dry and wet periods in recent years created a massive amount of tinder-dry vegetation that was ready to burn.

- Climate 'whiplash' linked to raging LA fires

US government research is unequivocal in linking climate change to larger and more severe wildfires in the western US.

"Climate change, including increased heat, extended drought, and a thirsty atmosphere, has been a key driver in increasing the risk and extent of wildfires in the western United States," the National Oceanic and Atmospheric Administration says.

Fire season in southern California is generally thought to stretch from May to October - but the Governor Newsom has pointed out earlier that blazes are now a perennial issue. "There's no fire season," he said. "It's fire year."

- A simple guide to climate change

- Why LA is so hard to evacuate

How long will the fires last?

No one can say when the Los Angeles fires will finally go out. The city is bracing for continued burning and a possible spread amid the latest wind warnings.

The Santa Ana winds that fanned the flames are set to strengthen, with strong gusts on Tuesday before the severity is expected to drop. There are now new red flag warnings for dangerous wind storms.

The other conditions that fed the fire - dry brush and lack of precipitation - continue as well.
Have you been affected by the fires in California? **Get in touch here.**

Sign up for our Future Earth newsletter to get exclusive insight on the latest climate and environment news from the BBC's Climate Editor Justin Rowlatt, delivered to your inbox every week. Outside the UK? **Sign up to our international newsletter here**.

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SCIENCE | FEBRUARY 5, 2025

Here’s How the Los Angeles Wildfires Are Affecting Animals, From Fish to Snakes to Birds

While scientists were able to save and move some creatures in the aftermath, researchers are worried about the prospects for other species

The coast horned lizard (*Phrynosoma blainvillii*) depends on chaparral habitat to survive. It has declined across much of its range due to habitat loss, whether from development or invasion of non-native grasses. After fires, non-native grasses often fill in habitat and create problems for the species. Anton Sorokin

Anton Sorokin

On January 23, dozens of biologists laden with electrified backpacks, nets and buckets marched into the smoldering moonscape that the Palisades Fire had created in the Santa Monica Mountains. A rescue mission was afoot, with no

time to waste—rain was coming. While moisture would help quell the fires that had been burning for weeks, water flowing over denuded slopes would wash toxic ash into Topanga Creek, suffocating much of the life within. This waterway was home to precious steelhead trout, the genetically unique southern population that persists in only a few creeks in Southern California—hence this massive and heroic deployment by the Resource Conservation District of the Santa Monica Mountains, the California Department of Fish and Wildlife, California State Parks and others. Before the day was done, the fish rescue teams trekked over miles of creek, used electrofishing and nets to nab as many fish as possible, put them in buckets, and climbed up steep slopes to trucks waiting to take the fish to safety.

Steelhead trout (*Oncorhynchus mykiss irideus*) are the ocean-going variant of coastal rainbow trout. The southern populations ranging from San Luis Obispo to San Diego are considered endangered. Anton Sorokin

In the weeks following the outbreak of the Eaton and Palisades Fires, the conflagrations engulfed neighborhoods, forested canyons and chaparral—a type of shrubland. These fires killed more than two dozen people, displaced tens of thousands of others and affected untold numbers of animals. Mountain lions bolted across roads. People outside the fire zone suddenly saw new bird species appear in their neighborhoods. Other animals, like the trout, had no option except to shelter in place. For some long-lived animals, this wasn't their first blaze. Intense fires that historically happened once in generations are now so commonplace that a humble California newt, which typically lives for 10 to 20 years, may have already lived through multiple blazes. Together, we have witnessed the kindling of an epoch that some environmental scientists have dubbed the Pyrocene, characterized by the frequency and intensity of its fires exacerbated by climate change.

Ironically, the seasonal drought that had turned Los Angeles County into a tinderbox kept many reptiles and amphibians safe initially. As rain never arrived, amphibians failed to become active and emerge from underground. Similarly, reptiles are less active in dry winter conditions. Many snakes and lizards must have escaped the inferno, inactive and tucked safely below. The depths would have provided refuge for some soil-dwelling invertebrates, and, for the most part, burrowing small mammals like mice and kangaroo rats should have been able to descend deep enough to avoid the heat.

Unfortunately, for some animals neither fleeing nor sheltering underground was an option. Topanga Canyon was the second-largest overwintering site for monarch butterflies this winter in Los Angeles County according to counts by the Xerces Society, a nonprofit focusing on the conservation of invertebrates. The monarchs, having completed a long migration from the Rocky Mountains to coastal California, picked a cool, shady spot to aggregate until spring. Flames encroached on the trees where butterflies roosted and, while the tree grove

remains standing but singed, the status of butterflies is unclear. In a year with low returns across California, the loss of any monarchs is a harsh blow.

Overwintering western monarch butterflies (*Danaus plexippus*) aggregate in cool, shady groves in coastal California. Scientists aren't sure exactly how the fires affected the butterflies, but they worry many of the insects may not have been able to escape in time. Anton Sorokin

Scott Black, a conservationist and executive director of the Xerces Society, is hopeful some butterflies, both monarchs and other species, may have escaped. But, he acknowledges, "Some insects might be able to fly away, but I doubt it. I really doubt that almost any butterfly or bee could escape them when these fires were raging. I can't imagine. These fires came in fast." After the blazes, Black laments the fate of the less mobile invertebrates. "Springtails, aphids, planthoppers or parasitoid wasps. … Studies show that they're basically just gone from the sites."

Jann Vendetti, the associate curator of malacology at the Natural History Museum of Los Angeles County, is also hopeful some of the threatened shoulderband snails she studies have sheltered and survived, but she says that native snail response to fire is understudied. "[A population] becomes extinct before we even know it ever existed, because who was studying that tiny population?" says Vendetti, noting few other scientists look at snails, and not enough to investigate each population. "And then fire went through, and its gone." On the bright side, Vendetti adds, the shoulderbands are hermaphroditic, so it just takes any two to reproduce. If the habitat is still there and some snails are left, they can start to repopulate. However, if they're all gone, recolonization is unlikely given snails' limited ability to travel. And that would be a shame, she says: A high proportion of native Californian land mollusks are already threatened, and this would be another blow.

Some larger mammals and birds had a chance to escape advancing flames, but even they would have been exposed to smoke. Olivia Sanderfoot, an ecologist at the La Kretz Center for California Conservation Science at the University of California, Los Angeles, emphasizes that smoke from this wildland-urban interface is not just any smoke: "Air pollution from more urban fires is going to have a greater health impact on birds, just as it is expected to have a greater impact on people because of all the particulates in the smoke that are so much more toxic given what's gone up in flame: plastic, tires, flame retardant." Sanderfoot, who studies the effects of smoke inhalation on birds, says that bird lungs are particularly efficient at moving air, but that this efficiency comes at the cost of making them particularly vulnerable to inhaled particulates. As miners had canaries in the coal mine to warn of bad air, paying attention to birds in the Pyrocene will help us better understand the physiological effects of smoke inhalation. "Thinking about smoke is very new, and it's increasingly critical that we really think about this disturbance because it's impacting people and wildlife alike in new and profound ways," says Sanderfoot.

Anna's hummingbird (*Calypte anna*) is the most common hummingbird species in the areas affected by the L.A. fires. Anton Sorokin

Following smoke exposure, Sanderfoot has observed birds in poorer body condition and underweight, even far from the actual fires themselves. Early evidence suggests that even one bad smoke event could affect people and animals for the rest of their lives, says Sanderfoot, diminishing lung capacity and leading to strings of health effects. Birds are a varied group: Some species choose to stay and bear the brunt of smoke, while others leave. Project Phoenix enlists volunteers across western states to keep tabs on birds before, during and after fire events to ascertain how bird distributions are affected by smoke.

As animals return and remerge into the scorched habitat, some, like coyotes and birds of prey, could initially favor the burned regions. Catching prey is easier with less vegetation. Thinking of animals that may benefit, Kendall

Calhoun, an ecologist at the University of California, Los Angeles, recalls camera-trapping burned areas, "Black-tailed jackrabbits are good at adjusting to open landscape and grassland," he says. "We would see that they were kind of everywhere after the fire." Medium-sized animals like skunks, bobcats and foxes also did not vanish. They're at least able to maintain usage of the areas that burned, although potentially in different ways and taking advantage of different resources, but they're around, says Calhoun.

Bobcats (*Lynx rufus*) are secretive predators that occur in the areas affected by and around the Palisades and Eaton Fires. Anton Sorokin

But immediately, the lack of shade will harm sensitive animals most prone to drying out, like mollusks and amphibians. This also means less cover for ambush predators, like mountain lions. In the aftermath of the 2018 Woolsey Fire, lions struggled to hunt, faced starvation and transversed wider and wider swaths of habitat, frequently risking road crossings. The behavioral shift was

observed for well over a year post-fire. Calhoun studied deer response to wildfire and found that they also increased the size of their range and initially avoided the burn scars, but they eventually moved back into the area. "In the interim, a lot of larger animals, like mountain lions and deer, might be displaced," he says. "Where that could cause issue is if they're just displaced into people's spaces and maybe increase conflict between some of these mammal species and people."

Back in Topanga Creek, following a grueling 12-hour day of fish rescues, 271 trout were saved. Additionally, over 500 tidewater gobies were saved from a lagoon at the base of the creek in a separate effort. The trout were taken to Fillmore Hatchery, which, in a cruel twist, came under threat from the Hughes Fire almost immediately. Luckily, in the end, another move was not necessary. For the trout and gobies, this isn't just a brief sojourn; after mudslides into the creek, it might be years until they can return home. Meanwhile, the Resource Conservation District of the Santa Monica Mountains is raising funds to help cover the costs of keeping them alive.

The coming years will be tough for stream-breeding amphibians like threatened red-legged frogs and California newts, observes Greg Pauly, the curator of herpetology at the Natural History Museum of Los Angeles County. While they won't immediately suffocate like fish from the influx of ash and mud, they need deep breeding pools. The amphibians have no choice but to hunker down and wait for the stream to naturally clear sediment before breeding, a process that can take years even with no additional fires to create stream-clogging sediment. Pauly wonders, "Will we see enough habitat recovery in time? Can populations hold out long enough that there's still individuals to repopulate once conditions get better?"

After fire in a chapparal ecosystem, little shade remains, and the sun bakes the ground. The chaparral is fire-adapted and will eventually grow back—if faster-growing invasive grasses do not take over. Anton Sorokin

Another danger to native species in coming months and years are invasive grasses. The coast horned lizard is a species Pauly is particularly concerned about. Already this species has become uncommon in the region. The horned lizards rely on chaparral. After burning, the chaparral is slow to recover, whereas invasive grasses are quick to move in. While it looks dense, chaparral is open close to the ground. Pauly likens a lizard in healthy chaparral to a human running through the open understory of a redwood forest. Once the grass springs up, it creates vegetative mats, impeding movement and limiting animals' ability to forage, thermoregulate, find mates and escape predators. The rapid growth of invasive grasses hinders many groups of small animals that might otherwise flourish in a post-fire landscape, driving population declines and local extinctions. Adding salt to the wound, the profusion of

grasses also creates a significant fuel source, shortening the gaps between fires.

Scientists are still learning how animals cope with fires, especially in urban settings. But concerned community members can help increase understanding, and local scientists confirm the need for community science following fires. Once it's safe to return, the Natural History Museum's Vendetti says, "It would be fascinating to go to some of the burned areas and just kind of take stock. … We can go to sites where these species were recently. … Do we see nothing? Are they still there?"

The ensatina salamander (*Ensatina eschscholtzii eschscholtzii*) spends its life on land but is sensitive to aridification and loss of ground cover. Anton Sorokin

Wherever a person's interests lie—mammal, bird, bug or slug—a community science effort exists for them that will provide scientists with important data

regarding animals' reactions to fires. The collected data will shed light on how species adapt and recolonize—or don't. These efforts harnessing community science power include: Project Phoenix for birds, Snail Search to see what snails are active and where, Xerces Society's Western Monarch Milkweed Mapper, Bumble Bee Atlas, and iNaturalist for all wildlife in and around the burn zone.

The California kingsnake (*Lampropeltis californiae*) is a recognizable species in and around Los Angeles.
Anton Sorokin

The reality of climate change and living in the West is that fires are going to keep happening. The big question going forward, says the Xerces Society's Black, is, "How do we have diverse landscapes that both provide for biodiversity and minimize potential for fire?"

Bird conservationist Sanderfoot echoes the sentiment and reminds people: "There is an opportunity in L.A. right now to think about the way we rebuild, to live in harmony with the wildlands we are blessed with and the wildlife that brings us joy."

"I wish people would care more about the fires and smoke when the skies are clear," she adds. "This is something that requires our attention year-round."

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Anton Sorokin

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CALIFORNIA WILDFIRES

The LA County fires devastated homes in the wildland urban interface. Here's what that is

BY JEREMIA KIMELMAN
JANUARY 28, 2025

Republish

The burning hills of Mandeville Canyon as the Palisades Fire continues to spread in Los Angeles on Jan. 10, 2025. Photo by Jules Hotz for CalMatters

IN SUMMARY

A CalMatters analysis has found that as of 2020, nearly 14 million Californians lived in the sprawling 7-million-acre zone that makes up the wildland urban interface. And when fires sweep through it, they often leave destruction.

In just a single month, 2025 is the second most destructive fire year in California history, with more than 16,000 homes and other structures damaged or destroyed by two fires in the Los Angeles area. Most of those structures were in neighborhoods where the boundaries between human development and natural landscapes blur — the area fire officials and researchers call the wildland urban interface or WUI (woo-ee).

When a wildfire approaches one of these areas, the results can be hazardous as a fire can transition from consuming trees, shrubs and plants to devouring homes and other structures often constructed in ways that are vulnerable to burning. And it's also where California has been building homes for decades — nearly 45% of homes built between 1990 and 2020 are located in places with lots of vegetation ready to fuel a fire.

A CalMatters analysis has found that as of 2020, nearly 14 million Californians, or 1 in 3, lived in the sprawling 7-million-acre zone that makes up the WUI. And this isn't just a problem for Californians living in rural parts of the state: All 58 counties in California have WUIs, along with many areas across the country. The WUI grows by about 2 million acres per year nationwide, according to the U.S. Fire Administration.

The wildland-urban interface in California has grown over the last 30 years

Source: Silvis Lab, University of Wisconsin-Madison • Embed • Download image

Sarah McCaffrey, a social scientist who worked for the U.S. Forest Service for decades, put it another way: Structural fires and wildland fires — and the interface is where the two come together.

Just because a development is located within the WUI doesn't mean a fire will occur there, but there may be deadly and destructive consequences if one does. While under 3% of the statewide WUI has been affected by wildfire in the last decade, thousands of homes in the zone have been destroyed, according to a CalMatters analysis.

> **“I think sometimes it’s more useful to talk about building in high wildfire hazard places.”**
>
> — JUDSON BOOMHOWER, ASSISTANT PROFESSOR IN THE ECONOMICS DEPARTMENT OF UC SAN DIEGO, ON THE WILDLAND URBAN INTERFACE

Since 2018, Cal Fire, the state’s fire agency, has inspected all of the buildings within 100 meters of a fire perimeter and assessed the level of damage. The most destructive fires in California history have largely damaged or destroyed homes within the WUI, including the two largest fires in Los Angeles County this year – the Palisades and Eaton fires, which demolished entire neighborhoods and **killed 28 people** as of Jan. 24.

The Eaton Fire killed at least 17 people and destroyed more than 9,400 structures, roughly 9,200 of which were within the WUI as is much of Altadena, where the San Gabriel Valley rises to meet the San Gabriel Mountains. The map below shows inspections of buildings conducted by Cal Fire following the Eaton Fire along with the WUI, illustrating just how destructive a major conflagration can be for suburban areas.

The Eaton Fire

Each dot represents a structure and they are colored according to the level of destruction assessed by CalFire, the blue shape represents the wildland-urban interface.

Structures

Destroyed Damaged No damage Wildland urban interface (WUI)

Zoom in/out

MapLibre

Sources: Silvis Lab, University of Wisconsin-Madison; CalFire
Credit: Jeremia Kimelman, CalMatters

The other major fire in LA, the Palisades Fire, apparently raced down the Santa Monica Mountains towards Pacific Palisades, a coastal neighborhood in Los Angeles that is nearly entirely within the WUI. The hurricane-force winds stoked and spread the flames and destroyed at least 6,800 structures while nearly 4,100 were undamaged.

The Palisades Fire

Structures

Destroyed Damaged No damage Wildland urban interface (WUI)

Zoom in/out

MapLibre

Sources: Silvis Lab, University of Wisconsin-Madison; CalFire
Credit: Jeremia Kimelman, CalMatters

The deadliest and most destructive fire in California history, the Camp Fire, destroyed the town of Paradise in Butte County in 2018 as the massive blaze burned both the natural and built environment. The fire damaged or destroyed nearly 20,000 structures and killed 85 people.

The Camp Fire

Structures

Destroyed Damaged No damage Wildland urban interface (WUI)

Zoom in/out

MapLibre

Sources: Silvis Lab, University of Wisconsin-Madison; CalFire
Credit: Jeremia Kimelman, CalMatters

Having a home in the WUI doesn't guarantee that it's going to burn down if a wildfire engulfs the neighborhood. Many factors contribute to that possibility, such as the year when the home was built, nearby fuel management practices that aim to reduce nearby flammable objects — and what some folks call "weather" and the rest of us call "luck." That's why there's photos of undamaged homes next to their razed neighbors after so many destructive California fires.

Despite all this, some experts say the WUI isn't the only, or perhaps even the best, way to measure fire hazard or risk because it wasn't designed for that. It can collapse nuance to narrowly focus our attention.

"There's nothing about fire risk in the WUI map," said McCaffrey. "There are some papers that show that roughly a third of houses lost in fires are not in the WUI right? But we target all our attention to the WUI."

An example of how the boundary between the wild and urban landscape doesn't necessarily translate to high fire risk is the 2017 Tubbs Fire in Sonoma County. The Coffey Park neighborhood of Santa Rosa was nearly

leveled even though it's not technically in the WUI, just next to it. The fire destroyed more than 5,000 structures and killed 22 people.

The Tubbs Fire

Structures

Destroyed Damaged No damage Wildland urban interface (WUI)

Zoom in/out

MapLibre

Sources: Silvis Lab, University of Wisconsin-Madison; CalFire
Credit: Jeremia Kimelman, CalMatters

"There's actually a legal or technical forestry definition of the wildland urban interface and it has to do with the number of structures per acre and the amount of vegetation," said Judson Boomhower, an assistant professor in the economics department of UC San Diego. "I think sometimes it's more useful to talk about building in high wildfire hazard places."

The ways to reduce the risk of fire spreading from house to house depend on the nuances of each neighborhood, particularly how densely packed the buildings are.

"If houses are, you know, 80 or 100 feet apart, then all our focus on defensible space and zone zero and all that stuff probably makes a lot more sense," said McCaffrey. "Because then, you know, it's a good chance my house could survive if I've done all this, even if my neighbor's house catches on fire."

On the other hand, some of the homes in Pacific Palisades look so close together that even ensuring that there is nothing flammable within five feet might not have prevented the spread of the fire, said McCaffrey. A **law** signed by Gov. Gavin Newsom in September 2021 required the State Board of Forestry and Fire Protection and the State Fire Marshal to make suggestions for creating an ember-resistant zone within five feet of a structure in a high fire severity zone.

State intervention has helped to reduce destruction in these more wildfire-prone areas. **Research from 2021** concluded that California homes built after 2008 were nearly half as likely to be destroyed compared to those built in 1990 if a wildfire burned through the neighborhood, largely because of improved building code regulations.

California faces a chronic housing shortage and megafires boosted by climate change, but with millions of residents already living in the wildland urban interface, state policymakers will face questions of how to protect people and where to rebuild after disaster strikes.

Do you live in or near the wildland urban interface?

Enter your address to see if you live in or within 100 meters of the so-called "WUI", an area of increased wildfire damage risk.

Type street address

We do not store your address. Privacy Policy →

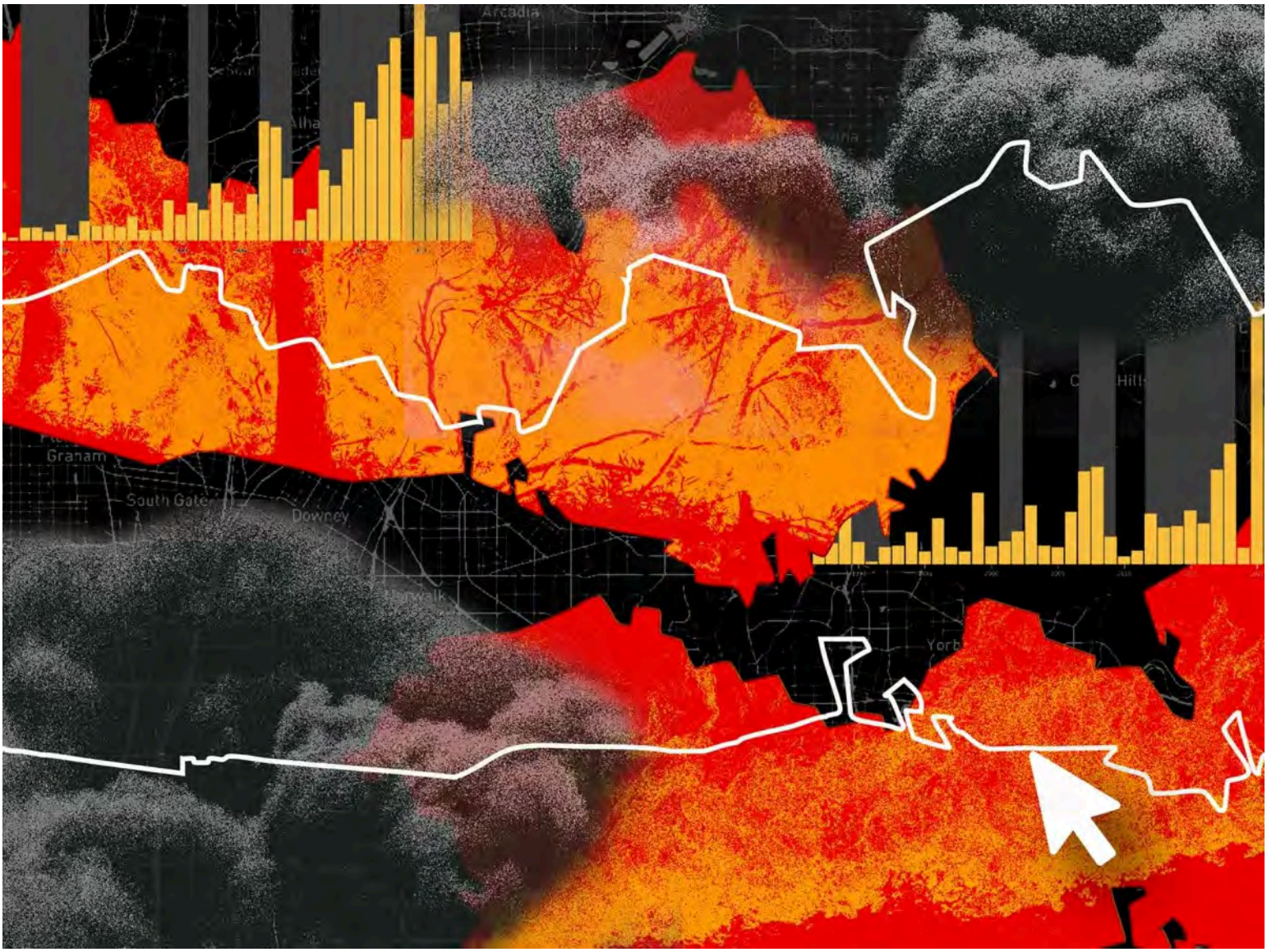
Wildland urban interface (WUI)

MapLibre

Sources: Silvis Lab, University of Wisconsin-Madison; CalFire
Credit: Jeremia Kimelman, CalMatters

Why California keeps putting homes where fires burn

Map: How big are the LA fires? Use this tool to overlay them atop where you live



Track California Fires 2025

Search incidents and safety information

SEARCH

2025 Incident Archive

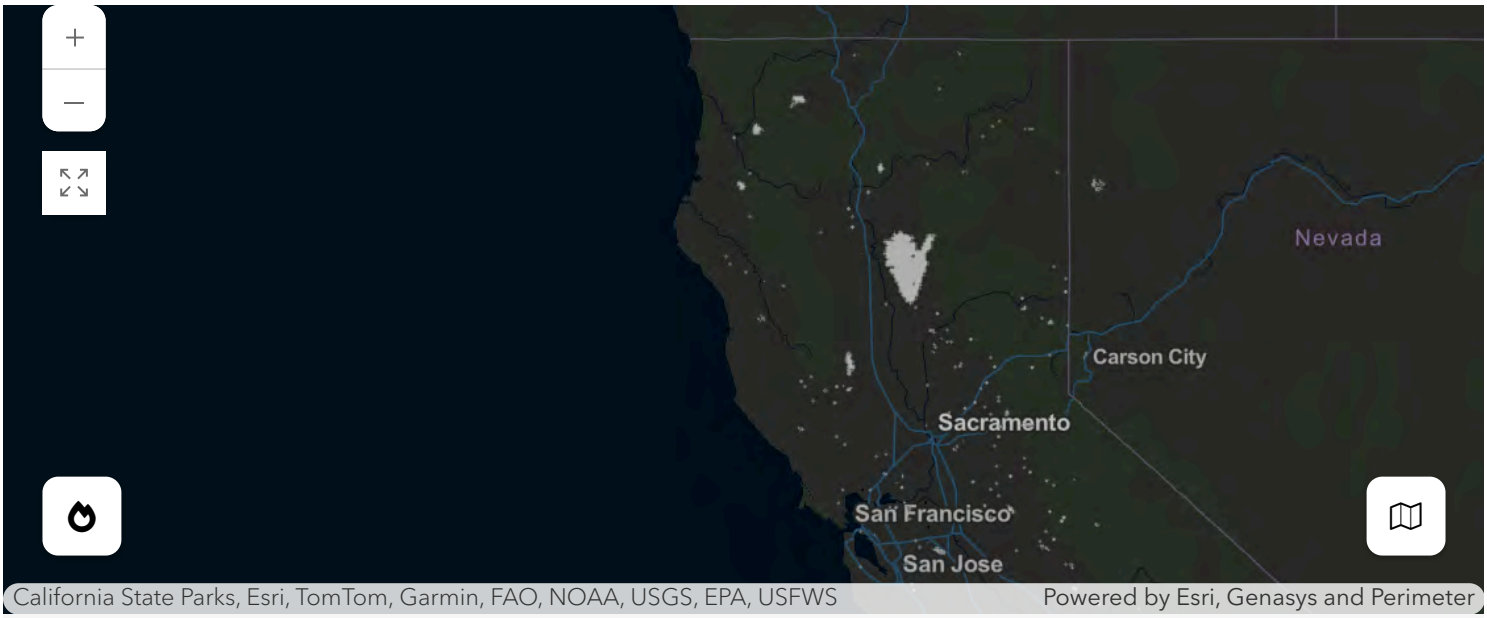
92,463
Total Emergency Responses

443
Wildfires

57,670
Acres Burned

29
Fatalities:
Preliminary pending coroner confirmation

16,251
Structures Destroyed



LAYERS

- [x] Recent Perimeters
- [ ] Counties

Search:

Search incidents

2025 INCIDENTS

Palisades Fire	Los Angeles	1/07/2025	23,707	100%
Eaton Fire	Los Angeles	1/07/2025	14,021	100%
Hughes Fire	Los Angeles	1/22/2025	10,425	100%
Border 2 Fire	San Diego	1/23/2025	6,625	100%
Kenneth Fire	Los Angeles, Ventura	1/09/2025	1,052	100%
Hurst Fire	Los Angeles	1/07/2025	799	100%
Lidia Fire	Los Angeles	1/08/2025	395	100%
Rosa Fire	San Luis Obispo	1/29/2025	105	100%
Lilac Fire	San Diego	1/21/2025	85	100%

Laguna Fire	Ventura	1/23/2025	83	100%
Ncfr3 4 Fire	San Diego	1/21/2025	80	0%
Auto Fire	Ventura	1/13/2025	61	100%
Sepulveda Fire	Los Angeles	1/23/2025	45	100%
Sunset Fire	Los Angeles	1/08/2025	43	100%
Oak Fire	Santa Barbara	1/01/2025	42	100%
Clay Fire	Riverside	1/21/2025	39	100%
Little Mountain Fire	San Bernardino	1/15/2025	34	100%
Woodley Fire	Los Angeles	1/08/2025	30	100%
Border Fire	San Diego	1/01/2025	25	100%
Archer Fire	Los Angeles	1/10/2025	19	100%

Previous Next

3D MAP (BETA)

The information presented here reflects what is known to CAL FIRE and is updated frequently. Learn more about data processing

2025 Fire Season Outlook

The fire outlook for California from February through May 2025 indicates varying conditions between the northern and southern regions. In Northern California, active jet stream patterns are expected to bring near to above-normal precipitation during February and March, followed by a trend towards warmer and drier conditions in April and May. The ongoing green-up and snow cover at mid to upper elevations are anticipated to act as barriers to fire spread during this period. Consequently, significant fire potential is projected to remain normal, aligning with the historical trend of minimal large fire activity during these months.

In contrast, Southern California has experienced a drier-than-normal wet season, with most areas receiving less than 25% of average precipitation since October 1, 2024. This prolonged dryness has led to widespread severe to extreme drought conditions. As a result, there is a slight to moderate increase in the likelihood of above-normal large fire potential along the South Coast over the next four months. While the limited growth of grasses and fine fuels reduces the likelihood of fires dominated by these fuels, the risk of fires involving timber and larger fuels has increased.

Overall, while Northern California is expected to maintain normal fire potential due to favorable precipitation and fuel conditions, Southern California, particularly the South Coast, faces an elevated risk of large fires driven by ongoing drought and dry fuel conditions.

FIRE INCIDENTS BY YEAR:

ACTIVE 2024 2023 2022 2021 2020 2019 2018 2017 2016

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California Forest Improvement Program

Forest Health

Forest Legacy

Urban and Community Forestry

Wildfire Prevention

Tribal Wildfire Resilience

Wildfire Resilience

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EXHIBIT 12

Managing Eucalyptus

National Park Service
U.S. Department of the Interior

Golden Gate National Recreation Area

A Complex Challenge

Several species of non-native eucalyptus are found throughout California. *Eucalyptus globulus*, also called Tasmanian blue gum, is by far the most common. It was first introduced to the San Francisco Bay region in 1853 as an ornamental tree, and later planted widely for both aesthetic and commercial purposes. There are hundreds of acres of eucalyptus within GGNRA lands today, presenting managers with a variety of challenges.

Some eucalyptus trees within the park were part of the original landscaping plans for Fort Baker, Fort Barry and Fort Cronkhite, which are now protected as historic sites. Eucalyptus trees were also planted along many ridges as windbreaks, and later spread to larger areas. In some cases, single rows of trees have become large groves. Human communities have also expanded, and there are now many subdivisions bordering eucalyptus groves along the park's boundaries.

The fragrant oils in eucalyptus leaves can be very pleasing, but also alter soil chemistry, and can become highly flammable when the leaves accumulate as surface fuel. Studies have shown that native species are displaced in eucalyptus groves and fuel loads are higher. Without active management, historic landscapes can become overgrown, biological diversity can decline, and the potential for catastrophic wildfire can increase. Eucalyptus management at Golden Gate National Recreation Area strives to achieve three main goals—fire safety, historic preservation, and ecosystem health.

Cultural Resources

The original design for Fort Baker in 1903 called for planting 10,000 eucalyptus trees. It is not known exactly how many were planted, but it was far fewer than planned.

Management of the landscape was an ongoing concern during the historic period. An example is the 1936 WPA work party trimming trees on the Fort Baker parade ground in the photo above. In a continuing effort to preserve cultural resource values, historic trees are pruned and surface debris is removed. This is also good fire-safe practice.

Natural Resources

Coast live oak and California bay communities are often overtaken as eucalyptus groves expand outward. Coastal dunes, grasslands, wetlands, riparian vegetation, and coastal scrub have also been affected by the spread of eucalyptus.

Alterations to wind, shade, and moisture conditions that occur when a eucalyptus grove becomes established often create a vastly different habitat than native species are adapted for. Natural resource objectives for eucalyptus management aim to improve conditions for native plants and animals.

Mike Forester

Wildland Fire

Constant shedding of bark contributes to the blue gum fire hazard. The 1991 Tunnel Fire in the Oakland Hills and the 2004 Tam Fire in Tamalpais Valley demonstrated how intensely eucalyptus debris can burn.

Fire management objectives focus on hazardous fuel reduction. Priority treatments are within 100 feet of structures, both privately owned structures near the park boundary, and structures within the park. Treatments along roads which are primary emergency response routes are also a high priority.

Many Ways to Manage Eucalyptus

Eucalyptus management takes many forms. It can entail simply removing lower limbs, thinning trees, or removing entire stands. Most projects have several phases involving trees, stumps and slash.

Eucalyptus removal near developed areas is a fire management priority. Ecosystem restoration is often the ultimate goal.

Trees

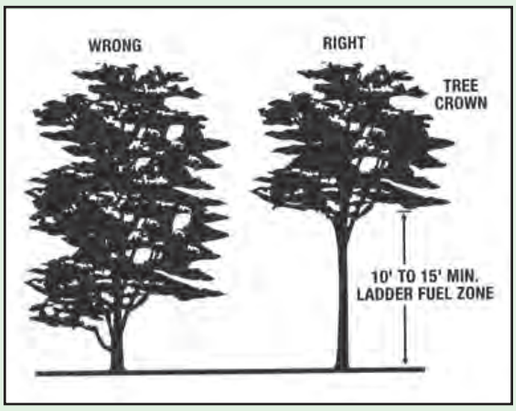
Working with different sized trees requires different skills and equipment. Removing larger trees is highly technical and can be dangerous if not done properly. Trees are often removed in stages. The smaller trees are cleared to make room for felling the larger ones. Harnesses may be needed to lower the largest trees in sections. Sometimes only surface fuel and lower branches are removed, leaving the majority of the trees intact. There are three management approaches:

- **Understory Fuel Reduction**
  Litter and duff is burned or removed by hand.
- **Stand Thinning**
  Select trees, often the smaller ones, are removed, leaving the remaining trees evenly spaced.
- **Stand Removal**
  All trees are removed.

Above: Eucalyptus branches are hauled to a chipper during a fuel reduction project.

Below: Removing lower branches, also called limbing, increases fire safety. Clear a minimum of 10 feet off ground or 1/3 height of tree.

Illustration courtesy: California Department of Forestry & Fire Protection



East Bay Regional Parks

Stumps

Left untreated, stumps will resprout, and will need to be cut again. Stumps can be treated with herbicide around the circumference where the actively growing cambium layer is. Grinding to destroy the stump is also done, but is labor intensive and is sometimes not feasible. Tarping with heavy plastic prevents resprouting with light deprivation and a physical barrier. Many factors are considered.

Slash

Debris left over from vegetation management activities includes branches, leaf litter, and tree trunks. Larger materials may be hauled away to a composting site or a landfill, cut into logs for firewood or left intact for use in landscaped areas. Material up to 24” in diameter can be chipped and used as mulch or to generate electricity. Burning debris piles is another option and is often the most cost-effective approach.

Habitat Restoration

Left to right: Oak seedlings growing in nursery in Tennessee Valley (photo courtesy: Golden Gate National Parks Conservancy); Removal of resprouting eucalyptus at the Tam Fire Site.

Once eucalyptus is cut, an area may be vulnerable to invasions by other non-native plants. Complete site restoration involves collecting local seed, growing native plants in a nursery, transplanting seedlings, and monitoring them until they get established. While the site is being transformed, vigilant weed removal must also be in progress.

These projects take many years and provide many opportunities for public involvement.

Comments or questions? (415) 464-5133

Want to volunteer? (415) 561-4755

(rev. 09/06)

EXHIBIT 13

Government Shutdown Alert

National parks remain as accessible as possible during the federal government shutdown. However, some services may be limited or unavailable. For more information, please visit: doi.gov/shutdown (https://www.doi.gov/shutdown)

Read More (https://www.doi.gov/shutdown)

An official website of the United States government Here's how you know

National Park Service

PLACE

Eucalyptus Windbreak

Channel Islands National Park (https://www.nps.gov/chis/)

Eucalyptus Windbreak

At an unknown date (but approximately 100 years ago), island owners planted a windbreak of eucalyptus trees west of the ranch complex with the intention of protecting the agricultural fields to its east from the heavy winds blowing down from the hills.

Planted in a dense row, the windbreak consists of about 225 to 250 mature blue gum (Eucalyptus globulus), red river gum (Eucalyptus camaldulensis), and forest red gum (Eucalyptus tereticornis) trees in a line almost half a mile long. All are bent to an extreme angle by the prevailing westerly wind, which makes them appear to be growing horizontally.

Eucalyptus windbreaks were a common element on 19th century coastal California ranches and farms; settlers imported the trees beginning in the 1850s.

For more detailed historical information and citations, please refer to the **Historic Resource Study: Island Legacies - A History of the Islands within Channel Islands National Park (https://www.nps.gov/chis/learn/historyculture/upload/CHIS-Historic-Resource-Study-FINAL.pdf)**

Quick Facts

AMENITIES 1 listed

Historical/Interpretive Information/Exhibits

TAGS

channel islands national park

Last updated: March 20, 2021

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EXHIBIT 14

CHECKING FOR FUEL OR OIL ISSUES IN YOUR GENERATOR

Commercial and residential generators are a valuable investment that can keep your family or business safe during a power outage. Occasionally, however, you may notice something unusual with your standby power source, such as leaking generator oil. Here, Corbin Electrical Services, Inc. offers insights into possible issues related to fuel or oil that may occur in your home's backup generator.

WHAT IS A STANDBY GENERATOR?

A standby generator, also known as a backup generator, is a type of emergency

equipment that can be placed at a residential home or a commercial property. These units are installed outside your home or business, and they automatically turn on when there is a power outage. Standby generators can use several different fuel sources to generate electrical power, such as propane, diesel, or natural gas.

When the power goes out in your home, an automatic transfer switch signals the standby generator to start up immediately. Generators can be a worthwhile investment for anyone, but they are especially valuable for people who need to refrigerate their medications or businesses that rely on electrical equipment. The benefits of having a standby generator include:

- Protection from voltage fluctuations after power is restored
- Continued power for crucial appliances and electronics
- Possibility for reduced home insurance premiums

Because backup generators connect directly to a home or commercial building's fuel source, they don't require portable fuel or need to be refilled. However, standby generators do require regular maintenance, and from time to time they may require replacement parts or repairs.

SIGNS THERE MAY BE AN ISSUE WITH YOUR GENERATOR

Just like any type of equipment, standby generators require occasional inspection and maintenance to run at peak performance. If your generator is slow to start up or stops working entirely, look for these telltale signs that it needs repairs:

- Grinding or humming noises
- Unusual odors
- Frayed or broken wires
- Corrosion or other external damage

- Leaking oil or other liquids

FUEL OIL GENERATOR ISSUES

If you smell fuel oil or notice your generator leaking oil, there could be a few different culprits. You may need maintenance or repairs on the following parts:

FUEL LINES

A fuel leak is often caused by damaged fuel lines. Over time, normal wear and tear and temperature fluctuations can cause your fuel lines to crack or tear. If a fuel line is intact, the source of the leak may simply be a loose coupler.

FUEL TANK

Corrosion, punctures, or minor cracks in your fuel tank can cause it to leak. If your tank is overfilled, it can also be a fire hazard. Thus, fuel tanks should be inspected regularly to catch small issues before they turn into costly repairs.

AIR FILTER

In general, you should replace your generator's air filter at least once a year. Some filters can be cleaned and reused, so be sure to check with your technician first. If you see your generator leaking fuel from the air filter, it's possible that the generator's oil tank is overfilled or you have a clogged or faulty valve. This may cause oil to leak out and coat the filter.

COOLANT

In some cases, the liquid leaking from your generator is coolant, not fuel oil. Coolant circulates throughout your standby generator to keep its engine from overheating. If the coolant is low because of a leak, it may trigger a sensor that prevents your generator from starting up.

MAINTENANCE RECOMMENDATIONS FOR

RESIDENTIAL GENERATORS

Some homeowners have the expertise to perform routine generator maintenance tasks themselves. But if you notice your generator leaking fuel, it's best to call on a professional. An experienced and licensed technician can inspect your standby generator, determine the root cause of the problem, and take the necessary precautions to prevent further damage to the unit. Once they have identified the source of the leak, they can repair any damaged parts and offer recommendations for preventive maintenance to minimize the risk of future damage to your unit.

CONTACT CORBIN ELECTRICAL SERVICES, INC.

If you need help troubleshooting issues with your standby generator or notice leaking generator oil, turn to the specialists at Corbin Electrical Services, Inc. Located in Marlboro, New Jersey, Corbin Electrical Services, Inc. serves residential and commercial customers throughout NJ. Our clients count on our experienced technicians for generator maintenance and repairs, including:

- Replacing filters
- Changing engine oil
- Checking coolant levels
- Testing ventilation systems
- Inspecting air filters and other essential components
- Cleaning and tightening connections and couplers

For more information about generator installation and maintenance services, schedule an appointment or contact us today.

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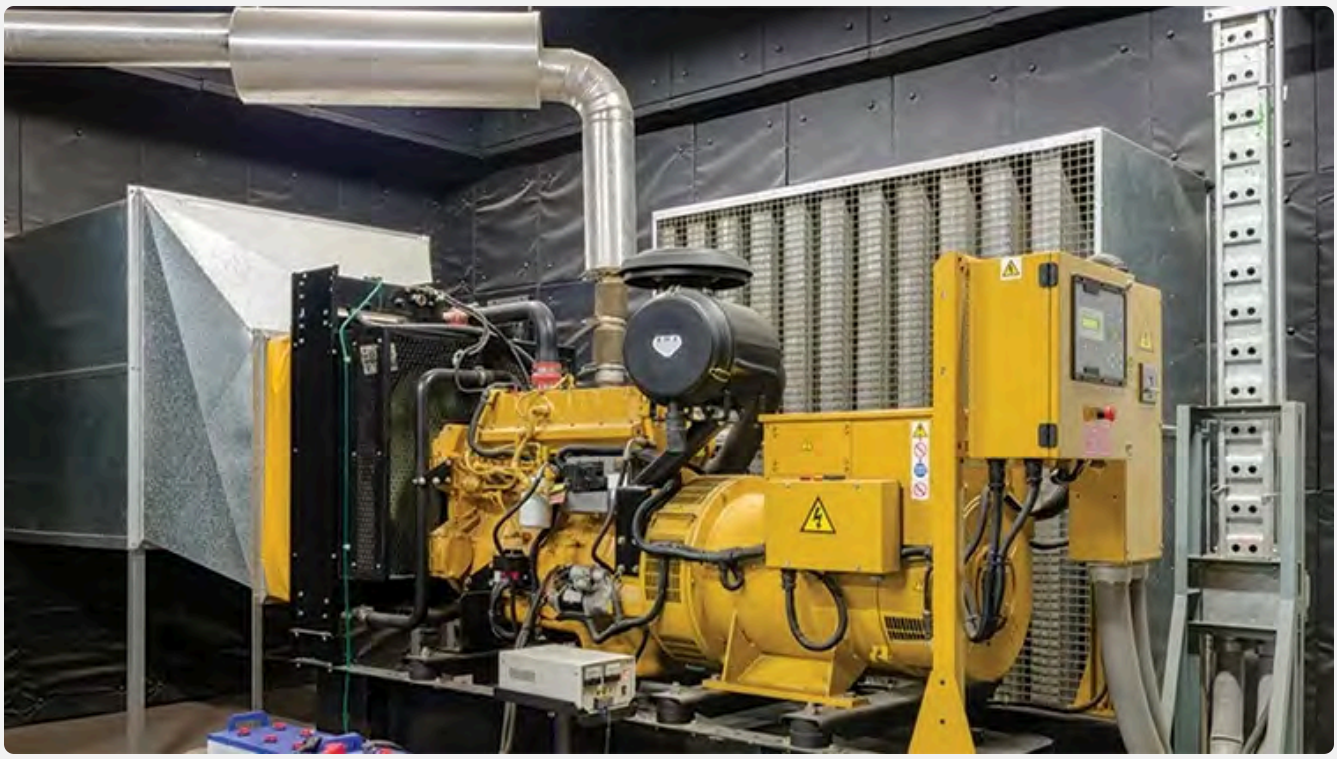
EXHIBIT 15

How to Avoid the Exhaust Associated with Diesel Generators



Electricity. Practically everyone uses it. We power everything from a children's toy to hearing aids using some form of electrical power. Electric power makes life productive and comfortable. Sometimes, it even saves lives.

However, what happens when the power is interrupted? For most, it's an irritation. Still, in some situations, it is the difference between life and death. The possibility of power interruption is why

some applications rely on backup power. Hospitals, laboratories, data centers, and other mission-critical facilities almost always use backup power sources. These sources often are diesel-powered generators.

Diesel generators are fuel-efficient and run longer—helpful in the event of a long-term power outage. These generators, while providing life-saving electricity, also have a darker side.

The complaint against diesel generators comes from the high temperatures it produces, along with the distinctive smokey odor. This combination of a noxious odor and high temperature causes problems when the generator is operating. Placement of the exhaust stack and changing wind direction can cause the smoke, heat, and odor to re-entrain into the facility or a neighboring building.

One Solution

Most diesel generators are very heavy, often requiring placement on the lowest floor of a building. Generators can range widely in power generation capabilities depending on the use. For example, a 1500kW generator can produce 12,000 cfm of exhaust fumes. The temperature of those fumes can exceed 775°F.

Exhausting those fumes requires ductwork running from the generator to the building roof deck. The ductwork connects to an exhaust stack. The variables of exhausting these fumes often cause air

- Added cost
- Additional back pressure on the diesel generator
- Aesthetics

The Best Solution

The previous solution addressed the high-temp, odorous exhaust coming from a diesel generator. However, the additional cost, stress on the generator, and aesthetics make this solution a poor choice. The best solution allows the high-temp exhaust to enter a bypass plenum where it mixes with ambient air.

This mixing cools and dilutes the hot and harmful exhaust. Then, an exhaust fan designed for high temperatures pulls the air through a high-plume dilution nozzle, where the exhaust cools and dilutes more. However, the most important aspect of the dilution nozzle is its ability to create stack height, propelling the exhaust effluent away from the facility roof deck and air intakes. The best part is that this dilution nozzle does so without the expense and impact on aesthetics.

Mission-critical operations such as those in hospitals and laboratories cannot be without power for extended periods. Diesel generators currently provide most backup options for these situations.

However, these generators create high-temperature exhaust and diesel odors that can add cost and increase the potential for effluent re-entrainment.

The best solution addresses all these concerns, reducing the effect of high-temperature exhaust, ensuring no exhaust reenters the building or nearby facilities, and does so without affecting building aesthetics.

Climate Systems provides fresh commercial HVAC innovations to the Sioux Falls area. Call 605.334.2164, email info@climatesystemsinc.com or visit climatesystemsinc.com to learn more.

Source: "How to Avoid the High-Temperature (and Odorous) Exhaust Associated with Diesel Generators," Matt Gaedtke, Greenheck

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EXHIBIT 16

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Global Pediatric Health

Glob Pediatr Health. 2018 Aug 17;5:2333794X18789275. doi: 10.1177/2333794X18789275

Health Risks Associated With Benzene Exposure in Children: A Systematic Review

Mark A D'Andrea [1], G Kesava Reddy [1,✉]

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PMCID: PMC6100118 PMID: 30148190

Abstract

Currently, there is a paucity of studies evaluating the adverse health effects of benzene exposure in children or clinical findings of those children who have been exposed. However, emerging studies show that benzene exposure can cause deleterious health effects in children. The objective of this study was to evaluate and summarize published studies on the adverse health effects of benzene exposure in children. More than 77 articles were examined and only the articles that dealt with adverse health effects on pediatric populations were included in the study. The evaluation of those studies provided current understanding of the health effects of benzene exposure in children. Findings from the currently available studies reveal that benzene exposure is associated with abnormalities in hematologic, hepatic, respiratory, and pulmonary functions in children. Published studies clearly support the need for further assessment of the potential adverse effects of benzene exposure in children, and clinical and laboratory findings of these children.

Keywords: benzene poisoning, blood disorders, chemical exposure, health impact, hematological toxicity, hepatotoxicity, Illness symptoms, pediatric populations, psychological effects, respiratory

function

Introduction

Benzene is a clear colorless flammable solvent with an almost sweet yet gasoline-like odor that easily volatilizes into vapors in air. It is a natural component of both crude and refined petroleum and is formed as a result of the incomplete combustion of fossil fuels such as petroleum products and coal.[1] Benzene ranks in the top 20 most abundantly produced chemicals in the United States.[2] It is a commercially important intermediate of many chemicals manufactured in the industry. In addition, benzene is the most widely used chemical in the synthesis of various polymers, resins, and synthetic fibers. More than 98% of the benzene produced is derived from the petrochemical and petroleum refining industries.[3] The major sources of most of the ambient benzene is from petroleum refineries, emissions from coal and oil combustion, motor vehicle exhaust, evaporation from gasoline service stations, industrial solvents, and hazardous waste sites. Benzene is also a major component of tobacco smoke.[4] As a volatile organic compound, it is one of the main contributors to air pollutants in the environment.[5,6] It is found in the environment as a contaminant from both human activities and natural processes.[7,8]

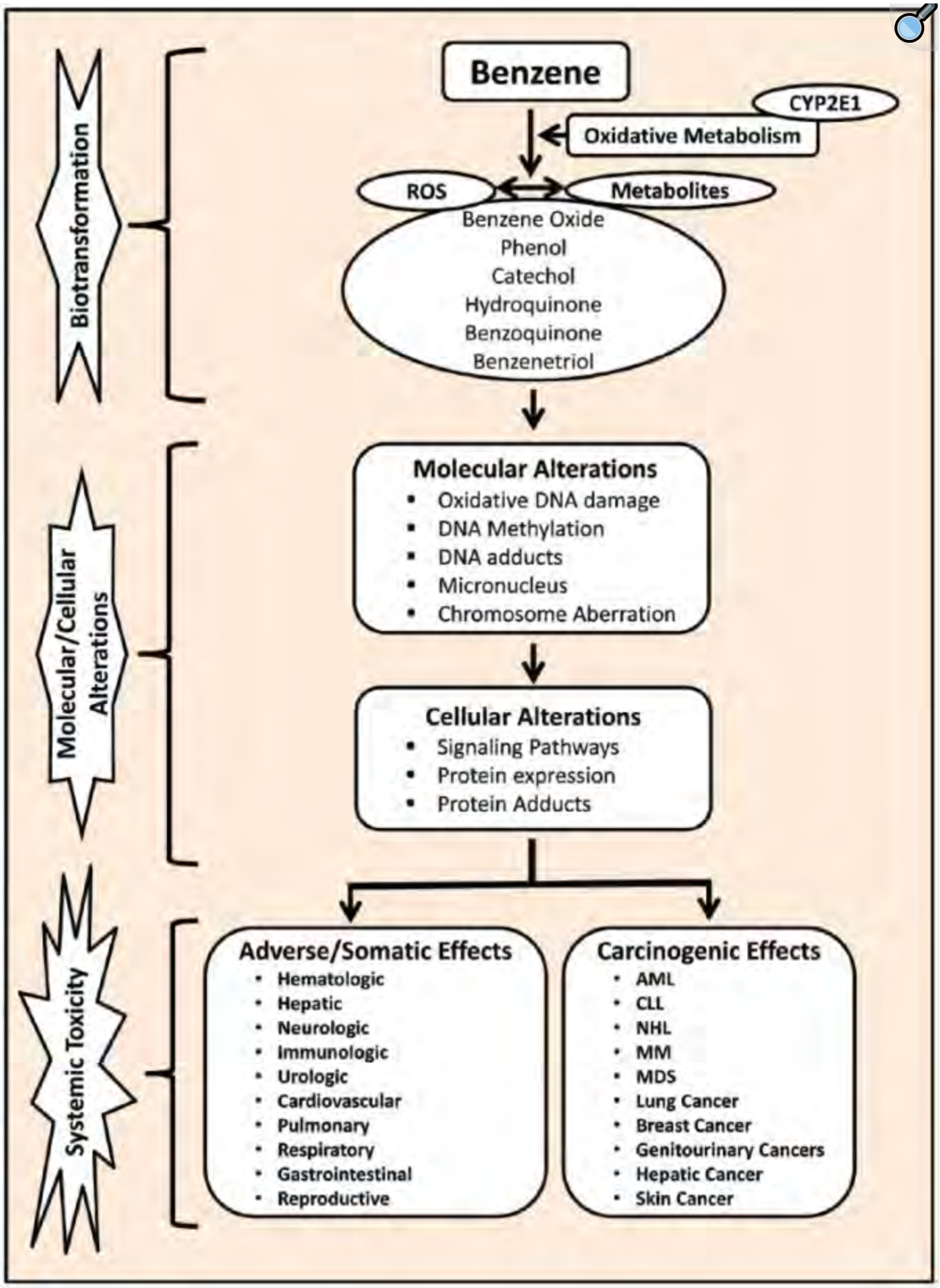
Environmental benzene exposure is an important health concern. It has been clearly established that human exposure to benzene leads not only to hematologic cancers[9,10] but also to a wide range of adverse noncancerous effects including functional aberration of respiratory, nervous, immune, hematological, hepatic, renal, cardiovascular, and reproductive systems.[5,11-15] Additionally, benzene exposure can affect both B-cell and T-cell proliferation, reduce the host resistance to infection, and produce chromosomal aberrations.[16] These deleterious health effects of benzene exposure have been very well established, especially in adults. However, there is a paucity of investigations evaluating the clinical findings and adverse health effects of benzene exposure in children. Although the literature on the health consequences of benzene in children is scant, emerging studies show that benzene exposure can cause deleterious health effects in children. Moreover, epidemiological evidence suggests that environmental benzene exposure is potentially a major cause of childhood leukemia and other hematologic cancers.[17-20]

Children at various developmental stages have unique physical risk factors when exposed to environmental toxins including benzene due to their levels of mobility, oxygen consumption, hormonal production, and overall growth. In addition, the toxicodynamic processes that determine exposure, absorption, metabolism, excretion, and tissue vulnerability are all age related.[21] Moreover, children have a higher unit body weight exposure to benzene or other toxins than adults because of their heightened activity patterns and different ventilation tidal volumes and

frequencies. Furthermore, children are more susceptible to leukemogenesis because their hematopoietic cell populations are differentiating and undergoing maturation. The incomplete metabolic systems, immature host defenses, high rates of infection by respiratory pathogens, and activity patterns make children more vulnerable to the toxic effects of benzene exposure.[22,23] The physiology, immature enzyme systems, and clearance mechanisms play a critical role in determining the susceptibility of children to toxins.[21-24] In particular, the pharmacokinetics of benzene differ widely between children and adults due to children's incomplete metabolic systems, rapid tissue regeneration, immature host defenses, activity patterns, and high rates of infection by respiratory pathogens.[22,23] Thus, children are more susceptible to the effects of environmental toxic pollutants. However, the susceptibility to benzene may vary due to its effect that arises, in part, from genetic variations in its metabolism, DNA repair, genomic stability, and immune function.

The precise mechanism of benzene-induced toxicity is not completely understood but it is believed that there are multiple mechanisms of action involved in benzene toxicity (Figure 1).[25-27] More specifically, the toxic effects of benzene are believed to arise from its metabolites such as benzene oxide, phenol, benzoquinone, muconaldehydes, hydroquinone, and catechol. Following absorption, benzene is metabolized by cytochrome P450 in the liver resulting in the production of its metabolites phenol, catechol, hydroquinone, and benzene oxide.[26] These metabolites undergo further metabolism in the bone marrow to form a benzoquinone. Numerous studies have shown that many of these benzene metabolites are directly responsible for both its cytotoxic and genotoxic effects.[28-30] In the bone marrow, formation of benzoquinone from the metabolism of benzene produces myelotoxicity due to its high reactivity to form adducts with proteins and DNA.[26,31] These protein and DNA adducts interfere with the cellular functions and cause damage in the hematopoietic cells in addition to chromosomal aberration, oxidative stress, gene expression alteration, error-prone DNA repair, epigenetic regulation, apoptosis, and disruption of tumor surveillance.[32] The generation of free radicals leading to oxidative stress, immune system dysfunction, and decreased immune surveillance has been described as the possible mechanisms underlying benzene-induced toxicity.[33]

Figure 1.


Biotransformation
Benzene
CYP2E1
Oxidative Metabolism
ROS
Metabolites
Benzene Oxide
Phenol
Catechol
Hydroquinone
Benzoquinone
Benzenetriol
Molecular/Cellular Alterations
Molecular Alterations
Oxidative DNA damage
DNA Methylation
DNA adducts
Micronucleus
Chromosome Aberration
Cellular Alterations
Signaling Pathways
Protein expression
Protein Adducts
Systemic Toxicity
Adverse/Somatic Effects
Hematologic
Hepatic
Neurologic
Immunologic
Urologic
Cardiovascular
Pulmonary
Respiratory
Gastrointestinal
Reproductive
Carcinogenic Effects
AML
CLL
NHL
MM
MDS
Lung Cancer
Breast Cancer
Genitourinary Cancers
Hepatic Cancer
Skin Cancer

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A schematic illustration of benzene metabolism, its mechanisms of toxicity, and its toxic effects in humans. Abbreviations: AML, acute myeloid leukemia; CLL, chronic lymphocytic leukemia; CYP2E1, cytochrome P450 2E1; MDS, myelodysplastic syndrome; MM, multiple myeloma; NHL, non-hodgkin lymphoma; ROS, reactive oxygen species.

Given the importance of the toxicity of benzene, this review article provides summaries of the current scientific knowledge and understanding of the clinical findings and health consequences of benzene exposure among children. Specifically, this article summarizes the quantitative changes in hematological and hepatic functions in addition to qualitative changes among somatic symptom in children exposed to benzene.

Methods

We sought all published studies, primarily in the peer-reviewed literature using electronic databases such as MEDLINE via PubMed and Google Scholar. The combinations of the keyword “benzene exposure” with any of the association to the following terms was used for the search in the database search: children, pediatrics, adverse health effects, blood disorders, chemical exposure, hematological toxicity, hepatotoxicity, illness symptoms, psychological effects, and respiratory function. We also searched reference lists in those publications that we obtained in an attempt to find additional relevant publications. Nonindexed journals were manually searched. The search was restricted to English-language articles. Abstracts that had been published in English were also included in this study.

Results

Figure 2 shows the steps involved in the selection process of the published articles for the study. On reviewing the articles’ titles, abstracts, and full text content of the study, most of the articles were excluded. The main reasons for exclusion were that they were either nonquantitative, nonanalytical, or lacked clinical data. Articles with clinical data were reviewed, and the information that related to the health effects of benzene exposure in children was assessed and summarized in this review article (Table 1).

Figure 2.

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A flow chart illustrating the selection of articles for the study.

Table 1.

Summary of Studies on the Effect of Benzene Exposure Among Children.

Location of Study	Study Design	Children's Age	Sample Size	Observed Clinical Health Effects	Reference
Ulsan, Korea	Cohort	8-11 years	192 (97 benzene exposed and 95 control) children	Reduced WBC, RBC, platelets, and lymphocytes counts, decreased hemoglobin in benzene-exposed children compared with unexposed children	Lee et al (2002)[34]
Texas City, TX	Cohort	8-11 years	312 (157 benzene exposed and 155 control) children	Reduced WBC counts, increased platelet counts, elevated creatinine levels, and increased liver enzymes such as ALP, AST, and ALT in benzene-exposed children compared with unexposed children	D'Andrea and Reddy (2013)[35]
Texas City, TX	Cohort	8-11 years	899 (641 benzene exposed and 258 control) children	Reduced WBC counts, increased platelet counts, decreased hemoglobin, hematocrit, and BUN levels, and increased liver enzymes such as ALP, AST, and ALT	D'Andrea and Reddy (2016)[36]

Location of Study	Study Design	Children's Age	Sample Size	Observed Clinical Health Effects	Reference
				in benzene-exposed children compared with unexposed children	
Kanawha County, WV	Cohort	7-8 years	7796 children	Increased incidence of chronic respiratory symptoms in children attending schools located in a close proximity to chemical industries. Significant trends were observed for asthma-related responses such as a physician's diagnosis of asthma, persistent wheezing, and attacks of shortness of breath with wheezing in school children enrolled within a close proximity to chemical plants regions than those in the nonindustrial region.	Ware et al (1993)[37]
La Plata, Argentina	Cohort	6-12 years	1 191 (282 living close to the petrochemical plants, 270 exposed to heavy traffic, and 639	Significantly elevated asthma and respiratory symptoms including wheezing, cough, dyspnea, and rhinitis,	Wichmann et al (2009)[38]

Location of Study	Study Design	Children's Age	Sample Size	Observed Clinical Health Effects	Reference
			living in nonpolluted areas)	and reduced lung function in children living near the petrochemical plant compared with those living in nonpolluted areas	
Rio Grande do Norte, Brazil	Cross-sectional	0-14 years	209 children	Higher incidence of respiratory symptoms in children exposed to petrochemicals	Moraes et al (2010)[39]
El Paso, TX	Panel study	6-12 years	36 children	Increased Asthma Control Questionnaire score in children exposed to traffic pollution with benzene, toluene, and other toxins	Zora et al (2013)[40]
Asturias, Gipuzkoa, Sabadell, and Valencia, Spain	Cohort	12-18 months	2199 infants	Increased respiratory tract infections	Aguilera et al (2013)[41]
Los Angeles, CA	Panel study	10-16 years	21 children	Increased asthma and lung function among the children exposed to benzene	Delfino et al (2003)[42]
Viseu, Portugal	Panel study	6-8 years	51 children	Deteriorated lung function in children exposed to benzene	Martins et al (2012)[43]

Location of Study	Study Design	Children's Age	Sample Size	Observed Clinical Health Effects	Reference
Texas City, TX	Cohort	8-11 years	312 (157 benzene exposed and 155 control) children	Upper respiratory (67%), neurological symptoms (57%), diarrhea (25%), cough (24%), dermatological (24%), nausea/vomiting (21%), gastrointestinal (12%), wheezing (9%), chest pain (6%), vision (6%), painful joints (6%), and urinary irritation (3%)	D'Andrea and Reddy (2016)[44]

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Abbreviations: WBC, white blood cells; RBC, red blood cells; ALP, alkaline phosphatase; AST, aspartate aminotransferase; ALT, alanine aminotransferase; BUN, blood urea nitrogen.

Hematological Effects of the Benzene Exposure in Children

A cohort study by Lee and coauthors[34] assessed the hematological changes in children living near the petrochemical estate region in Ulsan, Korea, who were environmentally exposed to volatile organic compounds containing low levels of benzene. This study included a total of 192 children between the ages of 8 and 11 years who were living in close proximity to a petrochemical estate region or suburban region of Ulsan, Korea. The exposed group was composed of 48 boys and 49 girls who lived near the petrochemical estate region and went to an elementary school located near the petrochemical estate. The unexposed group was composed of 46 boys and 49 girls who had lived in the suburban region 10 miles from the petrochemical estate region. Both unexposed and benzene-exposed groups had similar age and sex distributions. Hematological assessment

revealed that the total white blood cell (WBC) counts and absolute lymphocytes counts of 11-year-old children living near the petrochemical estate region were significantly lower than those of children living in the suburban region ($P = .009$, $P = .032$, respectively). Although the 8-year-old children living near the petrochemical estate region had decreased WBC counts and absolute lymphocytes counts compared with those living in the suburban region, they did not reach statistical significance. The red blood cell (RBC) counts and hemoglobin levels of the 8-year-old exposed children were significantly lower than those of the unexposed children ($P < .001$, $P < .001$, respectively). A similar, but not statistically significant, trend was seen in the parameters in the 11-year-old exposed and unexposed groups. Whereas the platelet counts were significantly decreased in both 8- and 11-year-old exposed children compared with unexposed children ($P = -.001$, $P = -.001$, respectively). A follow-up assessment at 3 and 6 months after the initial evaluation yielded similar differences but there were not consistent findings in the exposed and unexposed groups of the 8- and 11-year-old children.

The generalized linear model analysis of variance for the complete blood count values showed that the region where the exposure took place was a significant independent variable for the total WBC counts, RBC counts, and platelet counts ($P = .007$, $P = .004$, and $P = .036$, respectively), and the children's sex was a significant independent variable for the RBC counts ($P = .001$). Similarly, age was a significant independent variable for the total WBC counts, absolute lymphocyte counts, and platelet counts ($P < .001$, $P = .004$, and $P = .005$, respectively). Overall, the study findings showed that environmental exposure to volatile organic compounds containing low levels of benzene was associated clinically with a higher prevalence of hematological abnormalities in children living near the petrochemical estate region.

A pilot study by D'Andrea and Reddy[35] evaluated the hematological function in children who were less than 17 years old and exposed to benzene following British Petroleum's (BP) flaring incident in Texas City, Texas. A total of 312 children were included in the study. Of the 312 children, 157 were exposed to benzene and 155 were not exposed to benzene. Both unexposed and benzene-exposed groups had similar age and sex distributions. Clinically, hematologic analysis showed that WBC counts were significantly decreased in benzene-exposed children compared with the unexposed children ($P = .022$). Conversely, the platelet counts were increased significantly in the benzene-exposed group compared with the unexposed group ($P = .005$). Similarly, the serum creatinine levels were significantly increased in the benzene-exposed children compared with the unexposed children ($P = .000$). However, no significant alterations were observed in the mean hemoglobin or hematocrit or blood urea nitrogen levels between the benzene exposed and unexposed children. The results of this pilot study indicated that environmental exposure to

benzene is associated clinically with altered hematological profiles in those children who were exposed to the benzene from the flaring incident at the BP refinery facility in Texas City, Texas.

A later larger cohort study by the same authors assessed the hematological changes in children exposed to benzene following the flaring incident.[36] A total of 899 children aged <17 years were included in the study. Of the 899 children, 258 were unexposed and 641 were exposed to benzene. The mean age of the unexposed and exposed children was 10.5 and 9.5 years, respectively. Among the unexposed children, there were 57% male and 43% female children. In the benzene-exposed group, there were 52% males and 48% females.

Hematological analysis indicated that those children exposed to benzene had significantly decreased mean WBC counts compared with the unexposed children (P = .001). Conversely, the mean platelet counts in the benzene-exposed group were significantly higher when compared with the unexposed children group (P = .001). Whereas the mean hemoglobin levels decreased significantly in the benzene-exposed group compared with the unexposed group (P = .001). Similarly, the percentage of hematocrit decreased significantly among the benzene-exposed children compared with the unexposed children (P = .001). Blood urea nitrogen was also found to be reduced significantly in benzene-exposed group compared with the unexposed group (P = .001). However, no significant differences were noted in the serum creatinine levels between the benzene exposed and unexposed groups. Furthermore, subanalysis indicated that, regardless of age or gender, significant alterations in the hematological profiles were seen in those children exposed to benzene. Overall, the findings of the hematological profiles confirmed the pilot study findings indicating that children who have been exposed to benzene have significantly increased health risks compared with unexposed children.

Effect of Benzene Exposure on Hepatic Function in Children

Currently, there are no published studies in literature that evaluated the clinical effect of benzene exposure on the liver function in children except 2 recent reports published by the authors.[35,36] The initial pilot study included 157 benzene-exposed and 155 unexposed children and assessed their liver function enzymes such as alkaline phosphatase (ALP), aspartate aminotransferase (AST), and alanine aminotransferase (ALT). The study findings revealed that benzene-exposed children had clinically significantly higher levels of ALP (P = .04), AST (P = .015), and ALT (P = .005) compared with the unexposed children.

Subsequently, the larger cohort study[36] assessed the liver function enzymes in 641 benzene-exposed children and compared with the 258 unexposed children. Serum ALP, AST, and ALT levels

were reported to be increased significantly in children exposed to benzene compared with the unexposed children (P = .001). Furthermore, subgroup analysis indicated that, regardless of age or gender, significant alterations in hepatic enzymes were seen in children exposed to benzene. Overall, the findings of the hepatic profiles confirmed the pilot study findings indicating that children who have been exposed to benzene have significantly increased health risks compared with unexposed children.

Benzene Exposure and Illness Symptom Profiles in Children

Among all, respiratory illness symptoms are the most often studied health complaints in children exposed to benzene or petrochemicals/urban traffic pollutants. Upper respiratory symptoms were the most (67%) frequently reported, followed by neurological symptoms (57%), diarrhea (25%), and cough (24%). Logistic regression analysis indicated that neurological symptoms (R^2 = 0.75), chest pain (R^2 = 0.64), joint pain (R^2 = 0.57), and vision difficulty (R^2 = 0.54) were positively associated with increasing age. Other studies have shown that asthma symptoms such as those related to wheezing, cough, and shortness of breath or chest tightness were the most frequently reported respiratory illness symptoms in benzene-exposed children. A study by Ware and co-investigators[37] evaluated respiratory and irritant health effects of ambient volatile organic compounds in 7796 children attending 74 elementary schools located in chemical industry regions. The findings indicated that exposure to volatile organic compounds from chemical manufacturing plants were associated with an increased incidence of chronic respiratory symptoms in children attending schools located in a close proximity to chemical industries. Significant trends were observed for asthma-related responses such as a physician's diagnosis of asthma, persistent wheezing, and attacks of shortness of breath with wheezing in school children enrolled within a close proximity to regions containing chemical plants than those in the nonindustrial regions.

Similar findings were reported in a study by Wichmann et al[38] that assessed the effects of exposure to petrochemical pollution on the respiratory health of children aged 6 to 12 years living close to petrochemical plants (n = 282) and compared them with those living in a region with exposure to heavy traffic (n = 270) or in relatively nonpolluted areas (n = 639) in La Plata, Argentina. The findings showed that children living near the petrochemical plant had significantly elevated asthma and respiratory symptoms (wheezing, cough, dyspnea, and rhinitis) and significantly reduced lung functions than those living in nonpolluted regions (P < .001). Moraes and coworkers[39] investigated the health impacts of living near petrochemical plants by assessing respiratory illnesses in 209 Brazilian children. The results from this study revealed that

respiratory symptoms were found to be increased in children among communities in the vicinity of a petrochemical complex particularly those living downwind from the plant.

A panel study conducted by Zora et al[40] assessed the associations between urban air pollution of benzene and pediatric asthma control using an Asthma Control Questionnaire (ACQ) score in 2 elementary schools located in high- and low-traffic areas of El Paso, Texas. Eligibility criteria included age of the children between 6 and 12 years, a physician diagnosis of asthma, no other lung disease or major illness, a nonsmoking household, and residence proximal to their school. Data were reported for 36 of the 38 children who completed the protocol. The study found that benzene levels in the air of a school located in the high-traffic area ranged from 0.2 to 2.4 $\mu g/m^3$. Although no significant associations between benzene and other pollutants with an increase in ACQ score were found, an increase in ACQ score was related with an increase in benzene levels among children inhaling corticosteroids daily. Aguilera et al[41] investigated the association of air pollution exposure during pregnancy and respiratory illnesses, ear infections, and eczema during the first 12 to 18 months of life in a Spanish birth cohort of 2199 infants. These authors observed that during the second trimester of pregnancy, an increase in 1.0 $\mu g/m^3$ of benzene exposure was associated with an increased risk of lower respiratory tract infections in those infants.

In a panel study, Delfino et al[42] examined the longitudinal relationship of the daily asthma severity among asthmatic children exposed to volatile organic compounds such as benzene. The study included 21 asthmatic children between 10 and 16 years of age. The study revealed that increased mean concentrations of benzene (5.7 $\mu g/m^3$) levels were associated with increased asthma and poor lung function among the children. Martins and coauthors[43] evaluated the relationship between air polluted by benzene exposure and airway changes in a group of wheezing children. The investigators included a total of 51 wheezing children with a mean age of 7.3 years from Viseu, Portugal. Benzene levels were monitored for 4 weeks, and using a dispersion model, personal exposure was determined based on time-activity patterns according to the estimations. These authors reported that an increase in 10.0 $\mu g/m^3$ of benzene exposure was associated with deteriorated lung function-related outcomes in wheezing children.

In a pilot study, we investigated the clinical presentation of the illness symptoms experienced by children who were exposed to benzene following a flaring incident at the BP refinery in Texas City, Texas.[35] The study included a total of 157 children who were exposed to benzene. Among the illness symptoms, neurological symptoms such as unsteady gait, memory loss, and headaches were the most (80%) frequently reported symptoms in children exposed to benzene. Upper respiratory symptoms were reported by 48% of the benzene-exposed children followed by cough (48%), nausea/vomiting (43%), dermatological (36%), shortness of breath (32%), wheezing (27%),

dizziness (22%), chest pain (15%), painful joints (15%), and weight loss (13%). To complement these findings, recently we conducted a full-fledged study in 641 children who were exposed to benzene following a flaring incident at the BP refinery in Texas City, Texas.[44] A total of 1790 illness symptoms were observed in 641 children exposed to benzene.

Among all clinically presented illness symptoms, upper respiratory symptoms occurred as the most frequently (67%) followed by neurological symptoms (57%), diarrhea (25%), and cough (24%). Logistic regression analysis indicated that neurological symptoms (R^2 = 0.75), chest pain (R^2 = 0.64), joint pain (R^2 = 0.57), and vision difficulty (R^2 = 0.54) were positively associated with increasing age of the children. Overall, the findings revealed that children exposed to benzene experienced range of illness symptoms indicating their vulnerability to increased risks and health complications.

Discussion

The literature reviewed in this article indicates there is a growing interest in evaluating the clinical and health consequences of benzene exposure among children. The literature on both clinical and health effects of benzene exposure in children is scarce, and studies evaluating the hematological, hepatic, and respiratory effects of benzene exposure are starting to emerge based on established biological mechanisms of benzene toxicity. Overview of the findings of the studies included in this review indicates that benzene exposure among children was clinically associated with alterations in hematologic, hepatic, and respiratory functions. In addition, benzene exposure was associated with the clinical presentation of several illness symptoms in children.

Clinical evidence further suggests that hemotoxicity is the major effect and is unique to benzene. Exposure to benzene causes bone marrow injury resulting in hemotoxicity leading to changes in WBCs, platelets, hemoglobin, hematocrit, and other blood cells formation. Multiple mechanisms including alterations in the expression of numerous genes and proteins, DNA methylation patterns, and RNA profiles appear to play an important role in benzene-induced hemotoxicity in exposed children.[27]

Although several studies have investigated the effect of benzene exposure on the hematological changes in adults, only a handful of studies published so far have evaluated the clinical changes in the hematological functions among children following their exposure to benzene.[34-36] The findings of these studies demonstrate that children exposed to benzene experienced significantly reduced hematological indices compared with those unexposed children. However, conflicting findings in platelet counts were observed in benzene-exposed children. Our recently published studies

demonstrated significantly elevated platelet counts in children who were exposed to benzene compared with unexposed children.[35,36] However, in the study reported by Lee and associates,[34] significantly decreased platelet counts were observed in children exposed to benzene compared with unexposed children. Although the discrepancies in the platelet counts in benzene-exposed children currently cannot be explained, Ceresa and coworkers[45] previously found that thrombocytopenia was not a constant finding in most of the adult subjects who were exposed to benzene. Nevertheless, additional studies are warranted to clarify the effect of benzene exposure on the platelet counts in children.

The liver is the principal organ of xenobiotic metabolism, and hence, it is very important to monitor its function in people exposed to benzene or other toxins. It is well known that phosphatases, aminotransferases, and dehydrogenases are important enzymes in the biological processes. They are involved in the detoxification, metabolism, and biosynthesis of energetic macromolecules for different essential functions. Any interference in these enzymes leads to biochemical impairment and changes in the tissue and cellular function. Thus, the measurement of these liver enzyme such as ALP, AST, and ALT are routinely assessed as indicators for hepatic dysfunction and damage.[46,47] In normal conditions, these enzymes are confined to the cells but are released into circulating blood when there is necrosis or injury. Despite its importance, until recently, there were no published studies available in the literature evaluating the effect of benzene exposure on the hepatic function in children. The 2 recent studies reported by the authors[35,36] revealed that the serum levels of ALP, AST, and ALT were found to be elevated among those children who were exposed to benzene indicating hepatic abnormalities in these children. The increase in the levels of these liver enzymes in their serum suggests the impairment of the hepatic function in children exposed to benzene.

Studies assessing the somatic or clinically presenting illness symptoms such as respiratory, neurological, gastrointestinal, and other symptoms in children exposed to benzene were also limited in the published literature. However, evidence from available studies suggests that benzene exposure is associated clinically with sickness symptoms in children. The most common clinical presentations of the illness symptoms include neurological, respiratory, shortness of breath, wheezing, dizziness, chest pain, and painful joints.

Conclusions

Together, studies evaluating the clinical changes in the hematologic, cardiac, hepatic, renal, and other vital organ functions in children who were exposed to benzene are sparse. We have yet to learn and understand the full extent of all the adverse effects that benzene exposure has on

pediatric populations. Findings from the currently available studies reveal that benzene exposure is associated with clinical abnormalities in the hematologic, hepatic, respiratory, and pulmonary functions in children. The hematological abnormalities were characterized by changes in RBC, WBC, absolute lymphocytes, platelets, hemoglobin, hematocrit, and creatinine in benzene-exposed children. Similarly, the hepatic abnormalities were characterized by elevated levels of ALP, AST, and ALT enzymes in the serum of the children exposed to benzene. Few studies have evaluated the somatic or illness symptoms such as respiratory, neurological, gastrointestinal, and other symptoms in children exposed to benzene. These findings indicate that exposure to benzene may lead to clinically detectable detrimental health effects in children. However, to fully understand the importance and nature of these effects, further longitudinal and mechanistic studies on the health effects of benzene exposure in children are warranted.

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Footnotes

Author Contributions: MAD: Contributed to design; contributed to acquisition; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

GKR: Contributed to conception and design; contributed to acquisition; drafted manuscript; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

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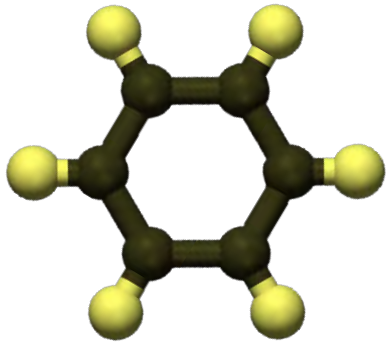
EXHIBIT 17

Groundwater Fact Sheet
Benzene



Constituent of Concern
Benzene

Synonym
Annulene, Benzol, Phene, Phenyl hydride, Pyrobenzole, Cyclohexatriene

Chemical Formula
C_6H_6

CAS Number
71-43-2

Storet Number
34030

Summary
Benzene is a regulated chemical with an established California State Maximum Contaminant Level (MCL) in drinking water of 1 µg/L. Benzene is a colorless highly flammable liquid that evaporates quickly into air and dissolves slightly in water. It is widely used and found in crude oils and as a by-product of oil-refining processes. In industry, benzene is used as a solvent, as a chemical intermediate, and is used in the synthesis of numerous chemicals. It also occurs naturally in volcanic gases and smoke resulting from forest fires. Benzene can get into drinking water from industrial discharge, gas storage tank leaching, and landfills. It can evaporate from soil and groundwater into a gas or vapor, which then can enter buildings by traveling through soil or cracks in bedrock or concrete. The Environmental Protection Agency (EPA) classified benzene as a known human carcinogen for all routes of exposure.

Based on State Water Resources Control Board (SWRCB) data from 2007 to 2017, 8 active and standby public water supply wells (of 8,997 tested, 17 detections) had at least one detection of benzene above the MCL.

REGULATORY WATER QUALITY LEVELS[1] BENZENE		
Type	Agency	Concentration
Federal MCL	EPA[2]	5 µg/L
State MCL	SWRCB[3]	1 µg/L
Detection Limit for Purposes of Reporting (DLR)	SWRCB[3]	0.5 µg/L
Public Health Goal (PHG)	OEHHA[4]	0.15 µg/L
Cancer Potency Factor ($1/10^6$ cancer risk)	OEHHA[4]	0.35 µg/L

[1]These levels are generally related to drinking water. Other water quality levels may exist. For further information, see "A Compilation of Water Quality Goals", 17th Edition (SWRCB 2016).
[2] EPA – United States Environmental Protection Agency
[3]SWRCB - State Water Resources Control Board
[4]OEHHA – Office of Environmental Health Hazard Assessment

Revised October 2017

BENZENE DETECTIONS IN PUBLIC WATER WELL SOURCES[5]	
Number of active and standby public water wells with benzene concentrations > 1 µg/L[6]	8 of 8,997 wells tested with 17 detections
Top counties with benzene detection in public wells above the MCL	King County (2), and 1 well from each of the following counties: Fresno, Kern, Los Angeles, San Joaquin, Sonoma, and Yuba

[5] Based on 2007-2017 public standby and active well (groundwater sources) data collected by the SWRCB.
[6] Water from public active and standby public groundwater sources is typically treated to prevent exposure to chemical concentrations above MCL. Data from private domestic wells and wells with less than 15 service connections are not available.

ANALYTICAL INFORMATION			
Approved EPA methods	502.2	8260/524.2	8020
Detection Limit (**µg/L**)	0.01	0.04	0.2
Notes	Gas chromatography with photoionization and electrolytic conductivity detectors	Gas chromatography/mass spectrometry - EPA Method 8260 is used at Leaking Underground Fuel Tank (LUFT) sites	Gas chromatography with photo-ionization detector
Known Limitations to Analytical Methods	Sample must be cooled to 4 °C upon collection, analyzed within 14 days and free of air bubbles. EPA Method 8020 can detect benzene but may yield false positives when other volatile organic compounds are present and co-elute in the same chromatographic range. The presence of benzene should be confirmed by EPA Method 524.2 or Method 8260 prior to use of Method 8020 for a long-term monitoring program.		
Public Drinking Water Testing Requirements	Benzene is a regulated chemical for drinking water sources, with monitoring and compliance requirements (Title 22, Section 64431, et seq.).		

Benzene Occurrence

Anthropogenic Sources

Benzene is a naturally occurring chemical found mostly in crude oil and gasoline. Benzene in unleaded gasoline is typically around 1 percent of the total volume. By 2007, the worldwide annual demand for benzene was approximately 40 million tons. Most of it is used to produce styrene and

cumene: chemicals used in the manufacturing of plastics, resins, adhesives, and nylon. It is estimated that approximately 6 million tons of benzene was used annually in the USA in the 1990s.

Benzene can be released into groundwater from leaking underground fuel storage tanks and piping, atmospheric deposition, fuel spills during transportation, and leaks at refineries. Underground storage tanks or piping releases make up most of the releases that have impacted groundwater. Studies have shown that atmospheric deposition of benzene results only in trace concentrations in surface waters. In contrast, point sources of benzene contamination such as underground storage tank sites may result in benzene concentrations in the milligrams per liter (mg/L) range.

Natural Sources

Benzene occurs naturally in the environment as a product of incomplete combustion of carbon-rich materials. Benzene is also present in petroleum oil deposits and in gases associated with volcanic eruptions and forest fires.

History of Occurrence

Benzene replaced lead as a gasoline additive for its anti-knock properties. Concerns about negative health effects related to air quality led to the limitation of benzene content in gasoline to about 1 percent. EPA regulations had further lowered the benzene content to 0.62 percent in 2011. Based on a SWRCB data query in March 2017 using the Groundwater Ambient Monitoring and Assessment Program's Groundwater Information System (GAMA GIS), 20 active and standby public water wells out of approximately 100,000 sampled had benzene detections above the State MCL at least once since 1984. The maximum measured concentration was 180 µg/L.

Contaminant Transport Characteristics

Benzene can volatilize into air from soil and water. Once in the atmosphere, benzene breaks down (biodegrades) within a few days. In soil and groundwater, the biodegradation process is slower. Benzene is slightly soluble in water and can migrate through the soil column into groundwater. Because benzene is a light non-aqueous phase liquid (LNAPL) it can collect on top of the water table. Benzene biodegradation in groundwater can take days to years, depending on oxygen concentration, temperature, and the presence of favorable bacteria.

Remediation and Treatment Technologies

Soil and Groundwater Remediation

Several effective remediation technologies remove benzene and other gasoline compounds from soil and groundwater.

These include:

Soil Vapor Extraction (SVE)

Effective in reducing benzene in the unsaturated zone due to the high vapor pressure.

Air Sparging

Used in conjunction with soil vapor extraction. This can also oxygenate the groundwater and stimulate biodegradation of dissolved contaminants.

In-situ Oxidation

Relies on the capacity of certain chemicals (e.g., hydrogen peroxide combined with iron) to rapidly oxidize organic molecules in water.

Bioremediation

Most effective under aerobic conditions.

Flushing (Pump and Treat)

Extracts contaminated groundwater and treats at the surface using air stripping, activated carbon, or advanced oxidation systems.

Drinking Water and Wastewater Treatment

For drinking water, the most common treatment options are air stripping, activated carbon filters, and advanced oxidation (combinations of ultraviolet light, chemical oxidants, and catalysts). There are other emerging technologies for the remediation and treatment of benzene and gasoline compounds including permeable reactive barriers and thermal treatment.

Health Effect Information

Exposure to benzene can occur through the lungs (inhalation), gastrointestinal tract (ingestion), and through skin (dermal contact). Health effects depend on two main factors: length of exposure and concentration (amount of benzene a person is exposed to).

Brief exposure to very high levels of benzene in air can result in death, while breathing lower levels can cause drowsiness, confusion, dizziness, headaches, tremors, and unconsciousness. The major effect of benzene exposure is to the blood. Long term exposure to benzene can affect the body's ability to produce red blood cells. When the bone marrow is affected, the result is usually a form of leukemia. It can also cause blood (hematologic) diseases, anemia, and cancers of blood-forming organs. The most common long-term health effects associated with benzene exposure are:

- Acute Myelogenous Leukemia (AML) in which cancer cells are present in the blood and bone marrow.
- Acute Lymphocytic Leukemia (ALL) in which cancer affects the cells that make the lymphocytes for the bone marrow.
- Chronic Myelogenous Leukemia (CML) in which leukemia develops from the white blood cells reducing the body's ability to fight disease and infection.

Key Resources

1. California State Water Resources Control Board, *A Compilation of Water Quality Goals, 17th Edition (SWRCB, 2016).* http://www.waterboards.ca.gov/water_issues/programs/water_quality_goals/index.shtml
2. Office of Environmental Health Hazard Assessment-California Environmental Protection Agency Public Health Goal for BENZENE In Drinking Water https://oehha.ca.gov/media/downloads/water/chemicals/phg/benzenefinphg.pdf
3. State Water Resources Control Board, California Drinking Water-Related Laws http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Lawbook.shtml
4. State Water Resources Control Board, GAMA GIS Online Database http://www.waterboards.ca.gov/water_issues/programs/gama/geotracker_gama.shtml
5. US Environmental Protection Agency, Technologies-Remediation, http://www.clu-in.org/remediation/
6. US Environmental Protection Agency. 2012. Water, Benzene Health Advisory, https://nepis.epa.gov/Exe/ZyPDF.cgi/P100N01H.PDF?Dockey=P100N01H.PDF

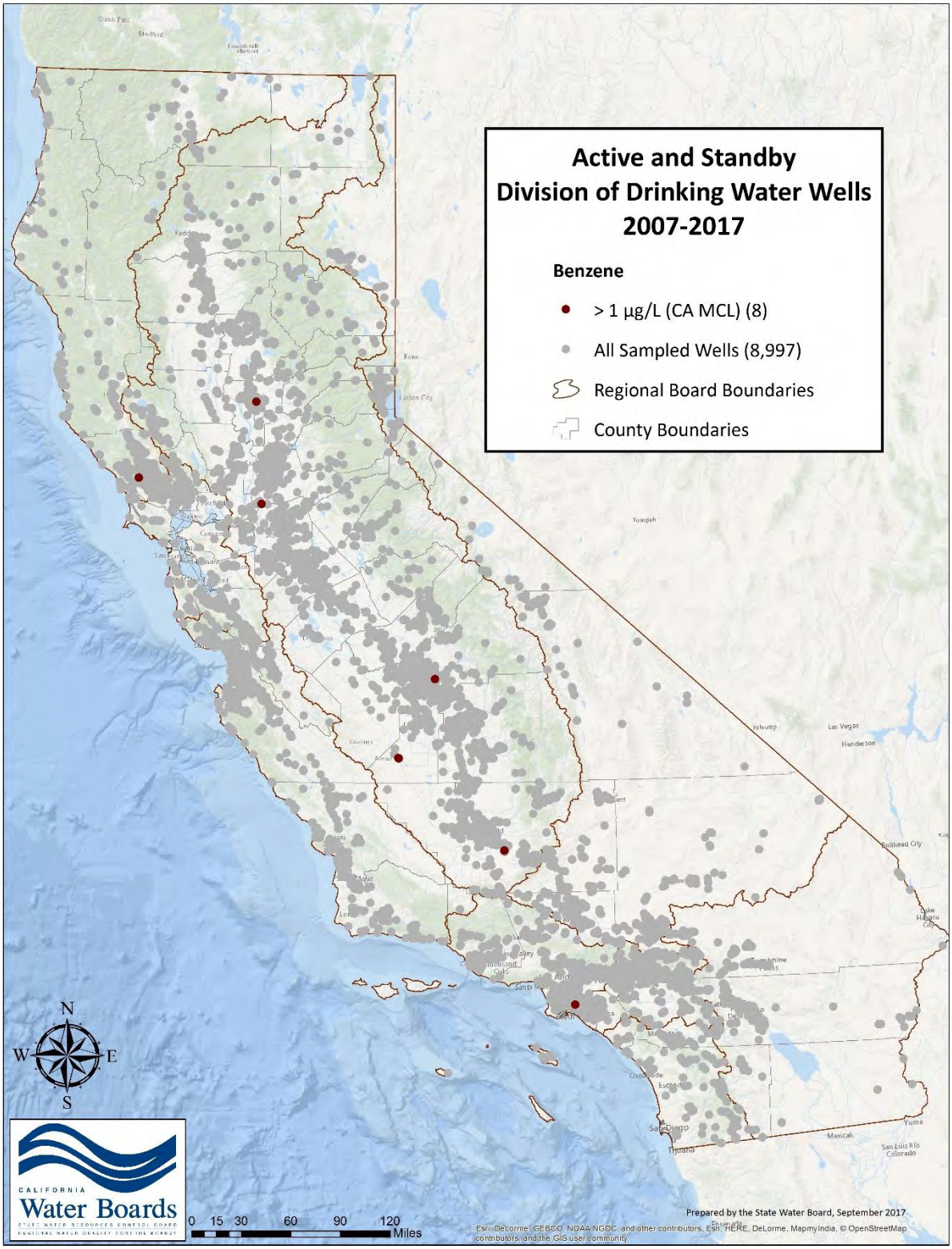


Figure 1. Active and standby public drinking water wells that had at least one detection of benzene above the MCL, 2007-2017, 8 wells. (*Source: Public supply well data in GAMA GIS*).

EXHIBIT 18

Benzene

71-43-2

Hazard Summary

Benzene is found in the air from emissions from burning coal and oil, gasoline service stations, and motor vehicle exhaust. Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. EPA has classified benzene as known human carcinogen for all routes of exposure.

Please Note: The main sources of information for this fact sheet are the Agency for Toxic Substances and Disease Registry's (ATSDR's) Toxicological Profile for Benzene (1) and EPA's Integrated Risk Information System (IRIS) (4), which contains information on the health effects of benzene including the unit cancer risk for inhalation exposure.

Uses

- Benzene is used as a constituent in motor fuels; as a solvent for fats, waxes, resins, oils, inks, paints, plastics, and rubber; in the extraction of oils from seeds and nuts; and in photogravure printing. It is also used as a chemical intermediate. Benzene is also used in the manufacture of detergents, explosives, pharmaceuticals, and dyestuffs. (1,2,6)

Sources and Potential Exposure

- Individuals employed in industries that manufacture or use benzene may be exposed to the highest levels of benzene. (1)
- Benzene is found in emissions from burning coal and oil, motor vehicle exhaust, and evaporation from gasoline service stations and in industrial solvents. These sources contribute to elevated levels of benzene in the ambient air, which may subsequently be breathed by the public. (1)
- Tobacco smoke contains benzene and accounts for nearly half the national exposure to benzene. (1)
- Individuals may also be exposed to benzene by consuming contaminated water. (1)

Assessing Personal Exposure

- Measurement of benzene in an individual's breath or blood or the measurement of breakdown products in the urine (phenol) can estimate personal exposure. However, the tests must be done shortly after exposure and are not helpful for measuring low levels of benzene. (1)

Health Hazard Information

Acute Effects:

- Coexposure to benzene with ethanol (e.g., alcoholic beverages) can increase benzene toxicity in humans. (1)

- Neurological symptoms of inhalation exposure to benzene include drowsiness, dizziness, headaches, and unconsciousness in humans. Ingestion of large amounts of benzene may result in vomiting, dizziness, and convulsions in humans. (1)
- Exposure to liquid and vapor may irritate the skin, eyes, and upper respiratory tract in humans. Redness and blisters may result from dermal exposure to benzene. (1,2)
- Animal studies show neurologic, immunologic, and hematologic effects from inhalation and oral exposure to benzene. (1)
- Tests involving acute exposure of rats, mice, rabbits, and guinea pigs have demonstrated benzene to have low acute toxicity from inhalation, moderate acute toxicity from ingestion, and low or moderate acute toxicity from dermal exposure. (3)
- The reference concentration for benzene is 0.03 mg/m3 based on hematological effects in humans. The RfC is an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive groups) that is likely to be without appreciable risk deleterious noncancer effects over a lifetime. (4)

Chronic Effects (Noncancer):

- Chronic inhalation of certain levels of benzene causes disorders in the blood in humans. Benzene specifically affects bone marrow (the tissues that produce blood cells). Aplastic anemia (a risk factor for acute nonlymphocytic leukemia), excessive bleeding, and damage to the immune system (by changes in blood levels of antibodies and loss of white blood cells) may develop. (1)
- In animals, chronic inhalation and oral exposure to benzene produces the same effects as seen in humans. (1)
- Benzene causes both structural and numerical chromosomal aberrations in humans. (1)
- EPA has established an oral Reference Dose (RfD) for benzene of 0.004 milligrams per kilogram per day (mg/kg/d) based on hematological effects in humans. The RfD is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious noncancer effects during a lifetime. It is not a direct estimator of risk, but rather a reference point to gauge the potential for effects. At exposures increasingly greater than the RfD, the potential for adverse health effects increases. Lifetime exposure above the RfD does not imply that an adverse health effect would necessarily occur. (4)
- EPA has established a Reference Concentration (RfC) of 0.03 milligrams per cubic meter (0.03 mg/m3) for benzene based on hematological effects in humans. The RfC is an inhalation exposure concentration at or below which adverse health effects are not likely to occur. It is not a direct estimator of risk, but rather a reference point to gauge the potential for effects. At lifetime exposures increasingly greater than the reference exposure level, the potential for adverse health effects increases. (4)

Reproductive/Developmental Effects:

- There is some evidence from human epidemiological studies of reproductive and developmental toxicity of benzene, however the data do not provide conclusive evidence of a link between exposure and effect. (4) Animal studies have provided limited evidence that exposure to benzene may affect reproductive organs, however these effects were only observed at exposure levels over the maximum tolerated dose. (4)
- Adverse effects on the fetus, including low birth weight, delayed bone formation, and bone marrow damage, have been observed where pregnant animals were exposed to benzene by inhalation.(4)

Cancer Risk:

- Increased incidence of leukemia (cancer of the tissues that form white blood cells) has been observed in humans occupationally exposed to benzene. (1,4)
- EPA has classified benzene as a Group A, known human carcinogen. (4)
- EPA uses mathematical models, based on human and animal studies,to estimate the probability of a person developing cancer from breathing air containing a specified concentration of a chemical. EPA calculated a range of 2.2×10^{-6} to 7.8×10^{-6} as the increase in the lifetime risk of an individual who is continuously exposed to 1 µg/m3 of benzene in the air over their lifetime.

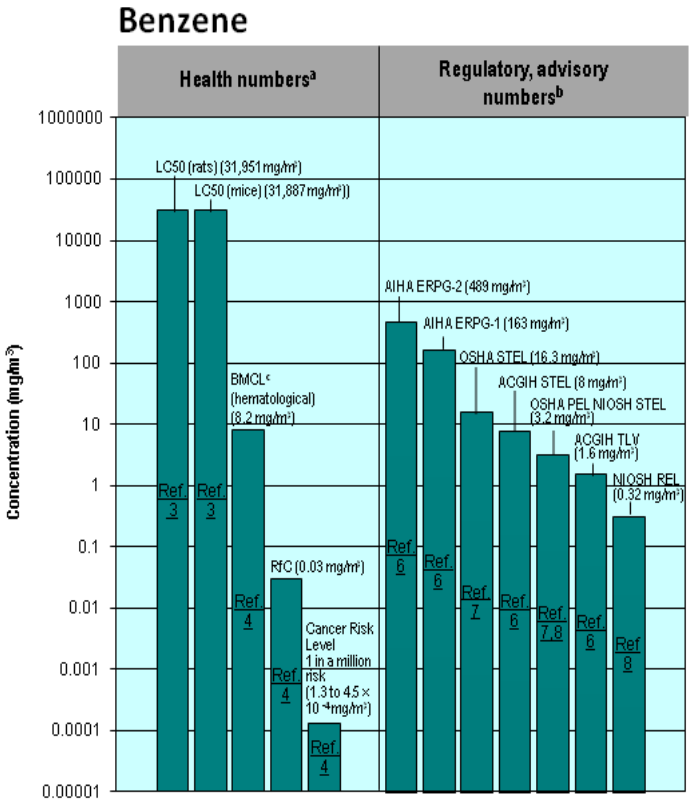
- EPA estimates that, if an individual were to continuously breathe the air containing benzene at an average of 0.13 to 0.45 μg/m^3 ($1.3x10^{-4}$ to $4.5x^{-4}$ mg/m^3) over his or her entire lifetime, that person would theoretically have no more than a one-in-a-million increased chance of developing cancer as a direct result of continuously breathing air containing this chemical. Similarly, EPA estimates that continuously breathing air containing 1.3 to 4.5 μg/m^3 ($1.3x10^{-3}$ to $4.5x10^{-3}$ mg/m^3) would result in not greater than a one-in-a-hundred thousand increased chance of developing cancer, and air containing 13 to 45 μg/m^3 (1.3×10^{-2} to 4.5×10^{-2} mg/m^3) would result in not greater than a one-in-ten thousand increased chance of developing cancer. For a detailed discussion of confidence in the potency estimates, please see IRIS.(4)
- EPA has calculated an oral cancer slope factor ranging from 1.5×10^{-2} to 5.5×10^{-2} $(mg/kg/d)^{-1}$ that is an extrapolation from inhalation dose-response data. (4)

Physical Properties

- The chemical formula for benzene is C^6H^6, and it has a molecular weight of 78.11 g/mol. 4) Benzene occurs as a volatile, colorless, highly flammable liquid that dissolves easily in water. (1,7)
- Benzene has a sweet odor with an ASTDR reported odor threshold of 1.5 ppm (5 mg/m^3).
- The vapor pressure for benzene is 95.2 mm Hg at 25 °C, and it has a log octanol/water partition coefficient (log Kow) of 2.13. (1)

Conversion Factors (only for the gaseous form):
To convert concentrations in air (at 25°C) from ppm to mg/m^3: mg/m^3 = (ppm) × (molecular weight of the compound)/(24.45). For benzene: 1 ppm = 3.19 mg/m^3. To convert concentrations in air from μg/m^3 to mg/m^3: mg/m^3 = (μg/m^3) × (1 mg/1,000 μg).

Health Data from Inhalation Exposure



ACGIH STEL--American Conference of Governmental and Industrial Hygienists' short-term exposure limit.
ACGIH TLV--American Conference of Governmental and Industrial Hygienists' threshold limit value expressed as a time-weighted average; the concentration of a substance to which most workers can be exposed without adverse effects.
AIHA ERPG--American Industrial Hygiene Association's emergency response planning guidelines. ERPG 1 is the maximum airborne concentration below which it is believed nearly all individuals could be exposed up to one hour without experiencing other than mild transient adverse health effects or perceiving a clearly defined objectionable odor; ERPG 2 is the maximum airborne concentration below which it is believed nearly all individuals could be exposed up to one hour without experiencing or developing irreversible or other serious health effects that could impair their abilities to take protective action. The American Industrial Hygiene Association's detection and recognition odor thresholds for benzene are 61 ppm and 97 ppm, respectively.
LC_{50} (Lethal Concentration$_{50}$)--A calculated concentration of a chemical in air to which exposure for a specific length of time is expected to cause death in 50% of a defined experimental animal population.
NIOSH REL--National Institute of Occupational Safety and Health's recommended exposure limit; NIOSH-recommended exposure limit for an 8- or 10-h time-weighted-average exposure and/or ceiling.
NIOSH STEL--NIOSH's short term exposure limit; NIOSH recommended exposure limit for a 15-minute period.
OSHA PEL--Occupational Safety and Health Administration's permissible exposure limit expressed as a time-weighted average; the concentration of a substance to which most workers can be exposed without adverse effect averaged over a normal 8-h workday or a 40-h workweek.
OSHA STEL--Occupational Safety and Health Administration's short-term exposure limit.
The health and regulatory values cited in this graph were obtained in April 2009.
[a]Health numbers are toxicological numbers from animal testing or risk assessment values developed by EPA.
[b]Regulatory numbers are values that have been incorporated in Government regulations, while advisory numbers

are nonregulatory values provided by the Government or other groups as advice. OSHA numbers are regulatory, whereas NIOSH, ACGIH, and AIHA numbers are advisory.

[c] The BMCL (statistical lower confidence limit on the concentration at the benchmark concentration, which is the concentration producing a specified change in a response rate that is considered a critical effect) was used as the point of departure for the RfC derivation. The BMCL for benzene is for hematological effects (reduction in absolute lymphocyte count) in humans (4).

Summary created in April 1992, updated in January 2000 and January 2012.

References

1. Agency for Toxic Substances and Disease Registry (ATSDR). Toxicological Profile for Benzene. U.S. Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA. 2007.
2. M. Sittig. Handbook of Toxic and Hazardous Chemicals and Carcinogens. 2nd ed. Noyes Publications, Park Ridge, NJ. 1985.
3. U.S. Department of Health and Human Services. Registry of Toxic Effects of Chemical Substances (RTECS, online database). National Toxicology Information Program, National Library of Medicine, Bethesda, MD. 1993.
4. U.S. Environmental Protection Agency. Integrated Risk Information System (IRIS) on Benzene. National Center for Environmental Assessment, Office of Research and Development, Washington, DC. 2009.
5. California Environmental Protection Agency(CalEPA). Air Toxics Hot Spots Program Risk Assessment Guidelines: Part III. Technical Support Document for the Determination of Noncancer Chronic Reference Exposure Levels. SRP Draft. Office of Environmental Health Hazard Assessment, Berkeley, CA. 1999.
6. The Merck Index.An Encyclopedia of Chemicals, Drugs, and Biologicals. 11th ed. Ed. S. Budavari. Merck and Co. Inc., Rahway, NJ. 1989.
7. American Conference of Governmental Industrial Hygienists (ACGIH). 1999 TLVs and BEIs. Threshold Limit Values for Chemical Substances and Physical Agents. Biological Exposure Indices. Cincinnati, OH. 1999.
8. 8. Occupational Safety and Health Administration (OSHA). Occupational Safety and Health Standards, Toxic and Hazardous Substances. Code of Federal Regulations. 29 CFR 1910.1000. 1998.
9. National Institute for Occupational Safety and Health (NIOSH). Pocket Guide to Chemical Hazards. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention. Cincinnati, OH. 1997.

EXHIBIT 19

SEC. 303. CONDITIONAL USES.

(See Interpretations related to this Section.)

(a) **General.** The Planning Commission shall hear and make determinations regarding applications for the authorization of Conditional Uses in the specific situations in which such authorization is provided for elsewhere in this Code. The procedures for Conditional Uses shall be as specified in this Section 303 and in Sections 306 through 306.6, except that Planned Unit Developments shall in addition be subject to Section 304, and Hospitals and Post-Secondary Educational Institutions shall in addition be subject to the Institutional Master Plan requirements of Section 304.5.

(b) **Initiation.** A Conditional Use action may be initiated by application of the owner, or authorized agent for the owner, of the property for which the Conditional Use is sought. For a Conditional Use application to relocate a General Advertising Sign under subsection (I) below, application shall be made by a General Advertising Sign company that has filed a Relocation Agreement application and all required information with the Planning Department pursuant to Section 2.21 of the San Francisco Administrative Code.

(c) **Determination.** After its hearing on the application, or upon the recommendation of the Director of Planning that no hearing is required, the Planning Commission shall approve the application and authorize a Conditional Use if the facts presented are such to establish that:

(1) The proposed use or feature, at the size and intensity contemplated and at the proposed location, will provide a development that is necessary or desirable for, and compatible with, the neighborhood or the community. If the proposed use exceeds the Non-Residential Use Size limitations for the district in which the use is located, the following shall be considered:

(A) The intensity of activity in the district is not such that allowing the larger use will be likely to foreclose the location of other needed neighborhood-servicing uses in the area; and

(B) The proposed use will serve the neighborhood, in whole or in significant part, and the nature of the use requires a larger size in order to function; and

(C) The building in which the use is to be located is designed in discrete elements which respect the scale of development in the district; and

(2) Such use or feature as proposed will not be detrimental to the health, safety, convenience or general welfare of persons residing or working in the vicinity, or injurious to property, improvements or potential development in the vicinity, with respect to aspects including but not limited to the following:

(A) The nature of the proposed site, including its size and shape, and the proposed size, shape and arrangement of structures;

(B) The accessibility and traffic patterns for persons and vehicles, the type and volume of such traffic, and the adequacy of proposed off-street parking and loading and of proposed alternatives to off-street parking, including provisions of car-share parking spaces, as defined in Section 166 of this Code.

(C) The safeguards afforded to prevent noxious or offensive emissions such as noise, glare, dust and odor;

(D) Treatment given, as appropriate, to such aspects as landscaping, screening, open spaces, parking and loading areas, service areas, lighting and signs; and

(3) Such use or feature as proposed will comply with the applicable provisions of this Code and will not adversely affect the General Plan; and

(4) Such use or feature as proposed will provide development that is in conformity with the stated purpose of the applicable Use District; and

(5) The use or feature satisfies any criteria specific to the use or feature in Subsections (g), *et seq.* of this Section.

(d) **Conditions.** When considering an application for a Conditional Use as provided herein with respect to applications for development of "dwellings" as defined in Chapter 87 of the Administrative Code, the Commission shall comply with that Chapter which requires, among other things, that the Commission not base any decision regarding the development of “dwellings” in which “protected class” members are likely to reside on information which may be discriminatory to any member of a “protected class” (as all such terms are defined in Chapter 87 of the Administrative Code). In addition, when authorizing a Conditional Use as provided herein, the Planning Commission, or the Board of Supervisors on appeal, shall prescribe such additional conditions, beyond those specified in this Code, as are in its opinion necessary to secure the objectives of the Code. Once any portion of the Conditional Use authorization is utilized, all such conditions pertaining to such authorization shall become immediately operative. The violation of any condition so imposed shall constitute a violation of this Code and may constitute grounds for revocation of the Conditional Use authorization. Such conditions may include time limits for exercise of the Conditional Use authorization; otherwise, any exercise of such authorization must commence within a reasonable time.

(e) **Modification of Conditions.** Authorization of a change in any condition previously imposed in the authorization of a Conditional Use shall be subject to the same procedures as a new Conditional Use. Such procedures shall also apply to applications for modification or waiver of conditions set forth in prior stipulations and covenants relative thereto continued in effect by the provisions of Section 174 of this Code.

(f) **Conditional Use Abatement.** The Planning Commission may consider the possible revocation of a Conditional Use or the possible modification of or placement of additional conditions on a Conditional Use when the Planning Commission determines, based upon substantial evidence, that the applicant for the Conditional Use had submitted false or misleading information in the application process that could have reasonably had a substantial effect upon the decision of the Commission or the Conditional Use is not in compliance with a Condition of Approval, is in violation of law if the violation is within the subject matter jurisdiction of the Planning Commission, or operates in such a manner as to create hazardous, noxious, or offensive conditions enumerated in Section 202(c) if the violation is within the subject matter jurisdiction of the Planning Commission and these circumstances have not been abated through administrative action of the Director, the Zoning Administrator or other City authority. Such consideration shall be the subject of a public hearing before the Planning Commission but no fee shall be required of the applicant or the subject Conditional Use operator.

(1) **Public Hearing.** The Director of Planning or the Planning Commission may schedule a public hearing on Conditional Use abatement when the Director or Commission has obtained or received (A) substantial evidence submitted within one year of the effective date of the Conditional Use authorization that the applicant for the Conditional Use had submitted false or misleading information in the application process that could have reasonably had a substantial effect upon the decision of the Commission or (B) substantial evidence, submitted or received at any time while the Conditional Use authorization is effective, of a violation of conditions of approval, a violation of law, or operation which creates hazardous, noxious or offensive conditions enumerated in Section 202(c).

(2) **Notification.** The notice for the public hearing on a Conditional Use abatement shall be subject to the notification procedure described in Section 333 of this Code.

(3) **Consideration.** In considering a Conditional Use revocation, the Commission shall consider whether and how the false or misleading information submitted by the applicant could have reasonably had a substantial effect upon the decision of the Commission, or the Board of Supervisors on appeal, to authorize the Conditional Use, substantial evidence of how any required condition has been violated or not implemented or how the Conditional Use is in violation of the law if the violation is within the subject matter jurisdiction of the Planning Commission or operates in such a manner as to create hazardous, noxious or offensive conditions enumerated in Section 202(c) if the violation is within the subject matter jurisdiction of the Planning Commission. As an alternative to revocation, the Commission may consider how the use can be required to meet the law or the conditions of approval, how the hazardous, noxious or offensive conditions can be abated, or how the criteria of Section 303(c) can be met by modifying existing conditions or by adding new conditions which could remedy a violation.

(4) **Appeals.** A decision by the Planning Commission to revoke a Conditional Use, to modify conditions or to place additional conditions on a Conditional Use or a decision by the Planning Commission refusing to revoke or amend a Conditional Use, may be appealed to the Board of Supervisors within 30 days after the date of action by the Planning Commission pursuant to the provisions of Section 308.1(b). The Board of Supervisors may disapprove the action of the Planning Commission in an abatement matter by the same vote necessary to overturn the Commission's approval or denial of a Conditional Use. The Planning Commission's action on a Conditional Use abatement issue shall take effect when the appeal period is over or, upon appeal, when there is final action on the appeal.

(5) **Reconsideration.** The decision by the Planning Commission with respect to a Conditional Use abatement issue or by the Board of Supervisors on appeal shall be final and not subject to reconsideration within a period of one year from the effective date of final action upon the earlier abatement proceeding, unless the Director of Planning determines that:

(A) There is substantial new evidence of a new Conditional Use abatement issue that is significantly different than the issue previously considered by the Planning Commission; or

(B) There is substantial new evidence about the same Conditional Use abatement issue considered in the earlier abatement proceeding, this new evidence was not or could not be reasonably available at the time of the earlier abatement proceeding, and that new evidence indicates that the Commission's decision in the earlier proceeding has not been implemented within a reasonable time or raises significant new issues not previously considered by the Planning Commission. The decision of the Director of Planning regarding the sufficiency and adequacy of evidence to allow the reconsideration of a Conditional Use abatement issue within a period of one year from the effective date of final action on the earlier abatement proceeding shall be final.

(g) **Hotels and Motels.** With respect to applications for development of tourist hotels and motels, the Planning Commission shall consider, in addition to the criteria set forth in subsections (c) and (d) above:

(1) The impact of the employees of the hotel or motel on the demand in the City for housing, public transit, child-care, and other social services. To the extent relevant, the Commission shall also consider the seasonal and part-time nature of employment in the hotel or motel;

(2) The measures that will be taken by the project sponsor to employ residents of San Francisco in order to minimize increased demand for regional transportation; and

(3) The market demand for a hotel or motel of the type proposed.

(h) **Internet Services Exchange.**

(1) With respect to application for development of Internet Services Exchange as defined in Section 102, the Planning Commission shall, in addition to the criteria set forth in Subsection (c) above, find that:

(A) The intensity of the use at this location and in the surrounding neighborhood is not such that allowing the use will likely foreclose the location of other needed neighborhood-serving uses in the area;

(B) The building in which the use is located is designed in discrete elements, which respect the scale of development in adjacent blocks, particularly any existing residential uses;

(C) Rooftop equipment on the building in which the use is located is screened appropriately.

(D) The back-up power system for the proposed use will comply with all applicable Federal, State, regional and local air pollution controls.

(E) Fixed-source equipment noise does not exceed the decibel levels specified in the San Francisco Noise Control Ordinance.

(F) The building is designed to minimize energy consumption, such as through the use of energy-efficient technology, including without limitation, heating, ventilating and air conditioning systems, lighting controls, natural ventilation and recapturing waste heat, and as such commercially available technology evolves;

(G) The project sponsor has examined the feasibility of supplying and, to the extent feasible, will supply all or a portion of the building's power needs through on-site power generation, such as through the use of fuel cells or co-generation;

(H) The project sponsor shall have submitted design capacity and projected power use of the building as part of the conditional use application; and

(2) As a condition of approval, and so long as the use remains an Internet Services Exchange, the project sponsor shall submit to the Planning Department on an annual basis power use statements for the previous twelve-month period as provided by all suppliers of utilities and shall submit a written annual report to the Department of Environment and the Planning Department which shall state: (a) the annual energy consumption and fuel consumption of all tenants and occupants of the Internet Services Exchange; (b) the number of all diesel generators located at the site and the hours of usage, including usage for testing purposes; (c) evidence that diesel generators at the site are in compliance with all applicable local, regional, State, and Federal permits, regulations and laws; and (d) such other information as the Planning Commission may require.

(3) The Planning Department shall have the following responsibilities regarding Internet Services Exchanges:

(A) Upon the effective date of the requirement of a Conditional Use authorization for an Internet Services Exchange, the Planning Department shall notify property owners of all existing Internet Services Exchanges that the use has been reclassified as a conditional use;

(B) Upon the effective date of the requirement of a Conditional Use authorization for an Internet Services Exchange, the Planning Department shall submit to the Board of Supervisors and to the Director of the Department of Building Inspection a written report covering all existing Internet Services Exchanges and those Internet Services Exchanges seeking to obtain a Conditional Use authorization, which report shall state the address, assessor's block and lot, zoning classification, square footage of the Internet Services Exchange constructed or to be constructed, a list of permits previously issued by the Planning and/or Building Inspection Departments concerning the Internet Services Exchange, the date of issuance of such permits, and the status of any outstanding requests for permits from the Planning and/or Building Inspection Departments concerning Internet Services Exchange; and

(C) Within three years from the effective date of the requirement of a Conditional Use authorization for an Internet Services Exchange, the Planning Department, in consultation with the Department of Environment, shall submit to the Board of Supervisors a written report, which report shall contain the Planning Commission's evaluation of the effectiveness of the conditions imposed on Internet Services Exchanges, and whether it recommends additional or modified conditions to reduce energy and fuel consumption, limit air pollutant emissions, and enhance the compatibility of industrial uses, such as Internet Services Exchanges, located near or in residential or commercial districts.

(i)* **Large-Scale Retail Uses.** With respect to applications for the establishment of large-scale retail uses under Section 121.6, in addition to the criteria set forth in subsections (c) and (d) above, the Commission shall consider the following:

(1) The extent to which the retail use's parking is planned in a manner that creates or maintains active street frontage patterns;

(2) The extent to which the retail use is a component of a mixed-use project or is designed in a manner that encourages mixed-use building opportunities;

(3) The shift in traffic patterns that may result from drawing traffic to the location of the proposed use;

(4) The impact that the employees at the proposed use will have on the demand in the City for housing, public transit, childcare, and other social services; and

(5) An economic impact study. The Planning Department shall prepare an economic impact study using qualified City staff or shall select a consultant from a pool of pre-qualified consultants to prepare the economic impact study required by this subsection (i)(5). The analysis, in the form of a study, shall be considered by the Planning Commission in its review of the application. The applicant shall bear the cost of paying the consultant for the consultant’s work preparing the economic impact study, and any necessary documents prepared as part of that study. The study shall evaluate the potential economic impact of the applicant’s proposed project, including:

(A) **Employment Analysis.** The report shall include the following employment information: a projection of both construction-related and permanent employment generated by the proposed project, and a discussion of whether the employer of the proposed project will pay a living wage, inclusive of non-salary benefits expected to be provided, relative to San Francisco's cost of living.

(B) **Fiscal Impact.** The report shall itemize public revenue created by the proposed project and public services needed because of the proposed project, relative to net fiscal impacts to the General Fund. The impacts to the City's public facilities and infrastructure shall be estimated using the City's current assumptions in existing nexus studies (including area plan, transit, open space in-lieu fee and other impact fees), and should account for any contributions the proposed project would make through such impact fee payments.

(C) **Leakage Analysis Study.** This portion of the report shall be twofold: both quantitative and qualitative. The quantitative

portion shall provide an analysis of whether the proposed project will result in a net increase or decrease in the capture of spending by area residents on items that would otherwise be purchased outside the area. The area to be studied for potential economic impacts of the proposed project shall be determined by the City in consultation with the expert conducting the study as different sizes of study areas would be pertinent depending on a multitude of factors, including but not limited to, size and type of the proposed store. This quantitative leakage analysis should be paired with a qualitative assessment of whether the proposed use would complement existing merchandise selection in the area by adding greater variety of merchandise, bolstering the strength of an existing retail cluster, or matching evolving consumer preferences.

(j) **Change in Use or Demolition of Movie Theater Uses.** With respect to a change in use or demolition of a Movie Theater use pursuant to Section 202.4, in addition to the criteria set forth in subsections (c) and (d) above, the Commission shall make the following findings:

(1) Preservation of a Movie Theater use is no longer economically viable and cannot effect a reasonable economic return to the property owner. For purposes of defining "reasonable economic return," the Planning Commission shall be guided by the criteria for Fair Return on Investment set forth in Section 102;

(2) The change in use or demolition of the Movie Theater use will not undermine the economic diversity and vitality of the surrounding District; and

(3) The resulting project will preserve the architectural integrity of important historic features of the movie theater use affected.

(k) **Relocation of Existing General Advertising Signs pursuant to a General Advertising Sign Company Relocation Agreement.**

(1) Before the Planning Commission may consider an application for a Conditional Use to relocate an existing lawfully permitted General Advertising Sign as authorized by Section 611 of this Code, the applicant sign company must have:

(A) Obtained a current Relocation Agreement approved by the Board of Supervisors under Section 2.21 of the San Francisco Administrative Code that covers the sign or signs proposed to be relocated; and

(B) Submitted to the Department a current sign inventory, site map, and the other information required under Section 604.2 of this Code; and

(C) Obtained the written consent to the relocation of the sign from the owner of the property upon which the existing sign structure is erected.

(D) Obtained a permit to demolish the sign structure at the existing location.

(2) The Department, in its discretion, may review in a single Conditional Use application all signs proposed for relocation by a General Advertising Sign company or may require that one or more of the signs proposed for relocation be considered in a separate application or applications. Prior to the Commission's public hearing on the application, the Department shall have verified the completeness and accuracy of the General Advertising Sign company's sign inventory.

(3) Only one sign may be erected in a new location, which shall be the same square footage or less than the existing sign proposed to be relocated. In no event may the square footage of several existing signs be aggregated in order to erect a new sign with greater square footage; provided however the square footage of one or more existing signs may be disaggregated in order to erect multiple smaller signs with lesser total square footage.

(4) In addition to applicable criteria set forth in subsection (c) above, the Planning Commission shall consider the size and visibility of the signs proposed to be located as well as the following factors in determining whether to approve or disapprove a proposed relocation:

(A) The factors set forth in this subsection (A) shall weigh in favor of the Commission's approval of the proposed relocation site:

(i) The sign or signs proposed for relocation are lawfully existing but are not in conformity with the sign regulations that existed prior to the adoption of Proposition G on March 5, 2002.

(ii) The sign or signs proposed for relocation are on a City list, if any, of priorities for sign removal or signs preferred for relocation.

(iii) The sign or signs proposed for relocation are within, adjacent to, or visible from property under the jurisdiction of the San Francisco Port Commission, the San Francisco Unified School District, or the San Francisco Recreation and Park Commission.

(iv) The sign or signs proposed for relocation are within, adjacent to, or visible from an Historic District or conservation district designated in Article 10 or Article 11 of the Planning Code.

(v) The sign or signs proposed for relocation are within, adjacent to, or visible from a zoning district where general advertising signs are prohibited.

(vi) The sign or signs proposed for relocation are within, adjacent to, or visible from a designated view corridor.

(B) The factors set forth in this subsection (k)(4)(B) shall weigh against the Commission's approval of the proposed relocation:

(i) The sign or signs proposed for relocation are or will be obstructed, partially obstructed, or removed from public view by another structure or by landscaping.

(ii) The proposed relocation site is adjacent to or visible from property under the jurisdiction of the San Francisco Port Commission, the San Francisco Unified School District, or the San Francisco Recreation and Park Commission.

(iii) The proposed relocation site is adjacent to or visible from an Historic District or conservation district designated in Article 10 or Article 11 of the Planning Code.

(iv) The proposed relocation site is within, adjacent to, or visible from a zoning district where General Advertising Signs are prohibited.

(v) The proposed relocation site is within, adjacent to, or visible from a designated view corridor.

(vi) There is significant neighborhood opposition to the proposed relocation site.

(5) In no event may the Commission approve a relocation where:

(A) The sign or signs proposed for relocation have been erected, placed, replaced, reconstructed, or relocated on the property, or intensified in illumination or other aspect, or expanded in area or in any dimension in violation of Article 6 of this Code or without a permit having been duly issued; or

(B) The proposed relocation site is not a lawful location under Planning Code Section 611(c)(2); or

(C) The sign in its new location would exceed the size, height or dimensions, or increase the illumination or other intensity of the sign at its former location; or

(D) The sign in its new location would not comply with the Code requirements for that location as set forth in Article 6 of this Code; or

(E) The sign has been removed from its former location; or

(F) The owner of the property upon which the existing sign structure is erected has not consented in writing to the relocation of the sign.

(6) The Planning Commission may adopt additional criteria for relocation of General Advertising Signs that do not conflict with this Section 303(k) or Section 611 of this Code.

(l) **Change in Use or Demolition of General Grocery Uses.** With respect to a change in use or demolition of General Grocery use which use exceeds 5,000 gross square feet pursuant to Section 202.3 of this Code, in addition to the criteria set forth in subsections (c) and (d) above, the Commission shall make the following findings:

(1) Preservation of a General Grocery use is no longer economically viable and cannot effect a reasonable economic return to the property owner. The Commission may disregard the above finding if it finds that the change in use or replacement structure in the case of demolition will contain a General Grocery that is of a sufficient size to serve the shopping needs of nearby residents and offers comparable services to the former General Grocery store. For purposes of defining “reasonable economic return,” the Planning Commission shall be guided by the criteria for Fair Return on Investment set forth in Section 102; and

(2) The change in use or demolition of the General Grocery use will not undermine the economic diversity and vitality of the surrounding neighborhood.

(m) **Tobacco Paraphernalia Establishments.**

(1) With respect to a Tobacco Paraphernalia Establishment, as defined in Section 102 of this Code, in addition to the criteria set forth in Subsections (c) and (d) above, the Commission shall make the following findings:

(A) The concentration of such establishments in the particular zoning district for which they are proposed does not appear to contribute directly to peace, health, safety, and general welfare problems, including drug use, drug sales, drug trafficking, other crimes associated with drug use, loitering, and littering, as well as traffic circulation, parking, and noise problems on the district's public streets and lots;

(B) The concentration of such establishments in the particular zoning district for which they are proposed does not appear to adversely impact the health, safety, and welfare of residents of nearby areas, including fear for the safety of children, elderly and disabled residents, and visitors to San Francisco; and

(C) The proposed establishment is compatible with the existing character of the particular district for which it is proposed.

(n) **Massage Establishments.** With respect to Massage Establishments that are subject to Conditional Use authorization, in addition to the criteria set forth in subsection (c) above, the Commission shall make the following findings:

(1) Whether the use’s façade is transparent and open to the public. Permanent transparency and openness are preferable. Elements that lend openness and transparency to a façade include:

(A) active street frontage of at least 25 feet in length where 75% of that length is devoted to entrances to commercially used space or windows at the pedestrian eye-level;

(B) windows that use clear, untinted glass, except for decorative or architectural accent;

(C) any decorative railings or decorative grille work, other than wire mesh, which is placed in front of or behind such windows, should be at least 75% open to perpendicular view and no more than six feet in height above grade;

(2) Whether the use includes pedestrian-oriented lighting. Well lit establishments where lighting is installed and maintained along all public rights-of-way adjacent to the building with the massage use during the post-sunset hours of the massage use are encouraged:

(3) Whether the use is reasonably oriented to facilitate public access. Barriers that make entrance to the use more difficult than to an average service-provider in the area are to be strongly discouraged. These include (but are not limited to) foyers equipped with double doors that can be opened only from the inside and security cameras.

Exceptions. A Massage Establishment shall not require a Conditional Use authorization if the Massage Establishment satisfies one or more of the following conditions:

(1) The massage use is accessory to a Principal Use, if the massage use is accessed by the Principal Use and the Principal Use is a Hotel, not including a Residential Hotel; a Personal Service; a Health Service; or an Institutional Use as defined in this Code.

(2) The only massage service provided is Chair/Foot Massage, such service is visible to the public, and customers are fully clothed at all times.

(o) **Eating and Drinking Uses.** With regard to a Conditional Use authorization application for a Restaurant, Limited-Restaurant and Bar uses the Planning Commission shall consider, in addition to the criteria set forth in subsection (c) above, the existing concentration of eating and drinking uses in the area. Such concentration should not exceed 25% of the total commercial frontage as measured in linear feet within the immediate area of the subject site except as otherwise provided in this subsection (o). The concentration of eating and drinking uses in the Polk Street Neighborhood Commercial District shall not exceed 35% of the total commercial frontage as measured in linear feet within the immediate area of the subject site. For the purposes of this Section 303 of the Code, the immediate area shall be defined as all properties located within 300' of the subject property and also located within the same zoning district.

(p) **Adult Business, Adult Sex Venue, Nighttime Entertainment, and General Entertainment Uses.** With respect to Conditional Use authorization applications for Adult Business, Adult Sex Venue, Nighttime Entertainment, and General Entertainment uses, such use or feature shall meet the following conditions:

(1) All Nighttime Entertainment uses shall comply with the Entertainment Commission's Good Neighbor Policy.

(2) The Planning Commission may authorize Hours of Operation that exceed those principally permitted for the zoning district in which the use is located, provided that:

(A) facts presented are such to establish that the use will be operated in such a way as to minimize disruption to residences in and around the district with respect to noise and crowd control; and

(B) the proposed use shall not operate outside the Conditionally Permitted Hours of Operation for the zoning district.

(3) If the proposed use is located in a Cultural District established under Administrative Code Section 107, the Planning Commission shall consider the purpose and goals established in Section 107.2 as well as any recommendations set forth in the Cultural, History, Housing, and Economic Stability Strategy report for the district if one has been adopted pursuant to Section 107.4.

(4) The action of the Planning Commission approving a Conditional Use does not take effect until the appeal period is over or while the approval is under appeal.

(5) If the use is an Adult Business, it shall not be located within 1,000 feet of another such use.

(q) **Power Plants.** The controls of this Subsection shall apply to all Power Plants in M-1, M-2, and PDR-1-G, and PDR-2 Districts, including any intensification of a Power Plants as described in Section 178(c)(2).

(1) **Criteria.** In acting on any application for Conditional Use authorization for a Power Plant, the Commission shall consider the conditional use authorization requirements set forth in Subsection (c) above and, in addition, shall only approve an application for a Conditional Use authorization if facts are presented to establish that, on the basis of the record before the Commission:

(A) The benefits to the City's energy system resulting from the energy generated by the proposed power plant cannot be obtained in a reasonable time from a technically and economically feasible power plant and/or energy conservation project that would have materially fewer potential environmental impacts considering, but not limited to, the following: (i) Emissions of criteria air pollutants and greenhouse gas emissions; (ii) Stormwater and wastewater discharges; and (iii) noise and vibration impacts.

(B) A newly proposed Power Plant use would not directly and adversely impact existing or reasonably foreseeable adjoining land uses, or, as applied to a prior nonconforming use, the extension of the power plant use or the increase in intensity of the use would not result in increased direct and adverse impacts on existing or reasonably foreseeable adjoining land uses; and

(C) Granting Conditional Use authorization would not reasonably be expected to leave known contamination in place in such a way that would prolong or increase public health risks associated with such contamination at levels inconsistent with a risk-based remediation consistent with the proposed power plant use; and

(D) Granting Conditional Use authorization would not reasonably be expected to preclude future redevelopment and reuse of the property for non-power plant uses.

(2) **Written Findings.** The Planning Commission shall make detailed written findings explaining the basis for its decision under this Section.

(3) **Severability**. In the event that a court or agency of competent jurisdiction holds that Federal or State law, rule, or regulation invalidates any clause, sentence, paragraph of this Section or the application thereof to any person or circumstances, it is intended that the court or agency sever such clause, sentence, paragraph or section so that the remainder of this Section shall remain in effect.

(r) **Development of Large Lots in RTO and RTO-M Districts.** In order to promote, protect, and maintain a scale of development that is appropriate to each district and compatible with adjacent buildings, new construction or significant enlargement of existing

buildings on lots of the same size or larger than the square footage stated in Table 209.4 under Large Project Review shall be permitted only as Conditional Uses subject to the provisions set forth in this Section of this Code.

In addition to the criteria of Section 303(c)(1) of this Code, the Planning Commission shall consider the extent to which the following criteria are met:

(1) The mass and articulation of the proposed structures are compatible with the intended scale of the district.

(2) For development sites greater than ½-acre, the extension of adjacent alleys or streets onto or through the site, and/or the creation of new publicly-accessible streets or alleys through the site as appropriate, in order to break down the scale of the site, continue the surrounding existing pattern of streets and alleys, and foster beneficial pedestrian and vehicular circulation.

(3) The site plan, including the introduction of new streets and alleys, the provision of open space and landscaping, and the articulation and massing of buildings, is compatible with the goals and policies of the applicable Area Plan in the General Plan.

(s) **Wireless Telecommunications Services (WTS) Facilities.**

(1) Due to the potential modification of WTS Facilities over time and the resulting impacts on a neighborhood's aesthetics and character, as well as other changes in neighborhood character over time, a Conditional Use Authorization for a WTS Facility shall have a duration of ten years from the date of approval. If any administrative appeal is taken from the Conditional Use Authorization, the ten-year period shall run from the date the Authorization is upheld on administrative appeal.

(2) The Authorization may be renewed, without limitation, for subsequent time periods of ten years, subject to the following:

(A) The renewal application is filed with the Planning Department prior to expiration, but no earlier than 24 months prior to expiration.

(B) For any Conditional Use Authorization for a WTS Facility, the Planning Commission may, in granting the Conditional Use Authorization, determine that the Director shall review and determine whether to grant any application for renewal of the Conditional Use Authorization for an additional ten-year period.

(C) This provision shall not apply to Conditional Use Authorizations granted prior to the effective date of this Subsection (s). However, applications for Conditional Use Authorizations to modify existing WTS Facilities that are granted on or after the effective date of this Subsection (s) are subject to this Subsection (s).

(t) **Non-accessory Parking.** When considering a Conditional Use application for non-accessory parking for a specific use or uses, the Planning Commission shall find affirmatively that the project satisfies the following criteria, in addition to those of subsection 303(c), as applicable.

(1) In all zoning districts, the Planning Commission shall apply the following criteria:

(A) Demonstration that trips to the use or uses to be served, and the apparent demand for additional parking, cannot be satisfied by the amount of parking classified by this Code as accessory, by transit service which exists or is likely to be provided in the foreseeable future, by car pool arrangements, by more efficient use of existing on-street and off-street parking available in the area, and by other means;

(B) Demonstration that the apparent demand for additional parking cannot be satisfied by the provision by the applicant of one or more car-share parking spaces in addition to those that may already be required by Section 166 of this Code;

(C) The absence of potential detrimental effects of the proposed parking upon the surrounding area, especially through unnecessary demolition of sound structures, contribution to traffic congestion, or disruption of or conflict with transit services, walking, and cycling;

(D) In the case of uses other than housing, limitation of the proposed parking to short-term occupancy by visitors rather than long-term occupancy by employees; and

(E) Availability of the proposed parking to the general public at times when such parking is not needed to serve the use or uses for which it is primarily intended.

(2) **For Non-Accessory Parking in Mixed Use Districts:**

(A) A non-accessory garage permitted with Conditional Use may not be permitted under any condition to provide additional accessory parking for specific residential or non-residential uses if the number of spaces in the garage, in addition to the accessory parking permitted in the subject project or building, would exceed those amounts permitted as-of-right or as a Conditional Use by Section 151.1.

(B) **Criteria.**

(i) Such facility shall meet all the design requirements for setbacks from facades and wrapping with active uses at all levels per the requirements of Section 145.1; and

(ii) Such parking shall not be accessed from any protected Transit or Pedestrian Street described in Section 155(r); and

(iii) Such parking garage shall be located in a building where the ratio of gross square footage of parking uses to other uses that are permitted or Conditionally permitted in that district is not more than 1 to 1; and

(iv) Such parking shall be available for use by the general public on equal terms and shall not be deeded or made available

exclusively to tenants, residents, owners, or users of any particular use or building except in cases that such parking meets the criteria of subsection (C) or (D) below; and

(v) Such facility shall provide spaces for car sharing vehicles per the requirements of Section 166 and bicycle parking per the requirements of Sections 155.1 and 155.2; and

(vi) Such facility, to the extent open to the public per subsection (iv) above, shall meet the pricing requirements of Section 155(g) and shall generally limit the proposed parking to short-term occupancy rather than long-term occupancy; and

(vii) Vehicle movement on or around the facility does not unduly impact pedestrian spaces or movement, transit service, bicycle movement, or the overall traffic movement in the district; and

(viii) Such facility and its access does not diminish the quality and viability of existing or planned streetscape enhancements.

(C) **Parking of Fleet Vehicles.** Parking of fleet of commercial or governmental vehicles intended for work-related use by employees and not used for parking of employees' personal vehicles may be permitted with Conditional Use provided that the Commission affirmatively finds all of the above criteria except criteria (iv) and (vi).

(D) **Pooled Residential Parking.** Non-accessory parking facilities limited to use by residents, tenants, or visitors of specific off-site development(s) may be permitted with Conditional Use, provided that the Commission affirmatively finds all of the above criteria under (B) except criteria (iv) and (vi), and provided further that the proposed parking on the subject lot would not exceed the maximum amounts permitted by Section 151.1 with Conditional Use or Exceptions under Sections 309.1 and 329 as accessory for the uses in the off-site residential development. For the purpose of this subsection, an "off-site development" is a development which is existing or has been approved by the Planning Commission or Planning Department in the previous 12 months, is located on a lot other than the subject lot, and does not include any off-street parking. A Notice of Special Restrictions shall be recorded on both the off-site and subject development lot indicating the allocation of the pooled parking.

(3) **For Non-Accessory Parking in C-3, RC, NCT, and RTO Districts:**

(A) The rate structure of Section 155(g) shall apply;

(B) The project sponsor has produced a survey of the supply and utilization of all existing publicly-accessible parking facilities, both publicly and privately owned, within one-half mile of the subject site, and has demonstrated that such facilities do not contain excess capacity, including via more efficient space management or extended operations;

(C) In the case of expansion of existing facilities, the facility to be expanded has already maximized capacity through use of all feasible space efficient techniques, including valet operation or mechanical stackers;

(D) The proposed facility meets or exceeds all relevant urban design requirements and policies of this Code and the General Plan regarding wrapping with active uses and architectural screening, and such parking is not accessed from any frontages protected in Section 155(r);

(E) Non-accessory parking facilities shall be permitted in new construction only if the ratio between the amount of Occupied Floor Area of principally or conditionally-permitted non- parking uses to the amount of Occupied Floor Area of parking is at least two to one;

(F) The proposed facility shall dedicate no less than 5% of its spaces for short-term, transient use by car share vehicles as defined in Section 166, vanpool, rideshare, or other co-operative auto programs, and shall locate these vehicles in a convenient and priority location. These spaces shall not be used for long-term storage or to satisfy the requirement of Section 166, but rather are intended for use by short-term visitors and customers. Parking facilities intended for sole and dedicated use as long-term storage for company or government fleet vehicles, and not to be available to the public nor to any employees for commute purposes, are not subject to this requirement;

(G) For new or expanding publicly owned non-accessory parking facilities in the C-3, RC, NCT, and RTO Districts, the following shall also apply:

(i) Expansion or implementation of techniques to increase utilization of existing public parking facilities in the vicinity has been explored in preference to creation of new facilities, and has been demonstrated to be infeasible;

(ii) The City has demonstrated that all major institutions (cultural, educational, government) and employers in the area intended to be served by the proposed facility have Transportation Demand Management programs in place to encourage and facilitate use of public transit, carpooling, car sharing, bicycling, walking, and taxis;

(iii) The City has demonstrated that conflicts with pedestrian, cycling, and transit movement resulting from the placement of driveways and ramps, the breaking of continuity of shopping facilities along sidewalks, and the drawing of traffic through areas of heavy pedestrian concentration, have been minimized, and such impacts have been mitigated to the fullest extent possible; and

(iv) The proposed parking conforms to the objectives and policies of the General Plan and any applicable area plans, and is consistent with the City's transportation management, sustainability, and climate protection goals.

(u) **Accessory Parking Above That Principally Permitted.**

(1) **Residential Uses.**

(A) In granting approval for parking accessory to Residential Uses above that principally permitted in Table 151.1, the Planning Commission shall make the following affirmative findings in addition to those stated in Section 303(c):

(i) For projects with 50 units or more, all residential accessory parking in excess of 0.5 parking spaces for each Dwelling Unit shall be stored and accessed by mechanical stackers or lifts, valet, or other space-efficient means that allow more space above-ground for housing, maximizes space efficiency, and discourages use of vehicles for commuting or daily errands. The Planning Commission may authorize the request for additional parking notwithstanding that the project sponsor cannot fully satisfy this requirement provided that the project sponsor demonstrates hardship or practical infeasibility (such as for retrofit of existing buildings) in the use of space-efficient parking given the configuration of the parking floors within the building and the number of independently accessible spaces above 0.5 spaces per unit is de minimus and subsequent valet operation or other form of parking space management could not significantly increase the capacity of the parking space above the maximums in Table 151.1;

(ii) All parking meets the active use and architectural screening requirements in Section 145.1 and the project sponsor is not requesting any exceptions or variances requiring such treatments elsewhere in this Code;

(iii) Demonstration that trips to the use or uses to be served, and the apparent demand for additional parking, cannot be satisfied by the amount of parking classified by this Code as accessory, by transit service which exists or is likely to be provided in the foreseeable future, by carpool arrangements, by more efficient use of existing on-street and off-street parking available in the area, and by other means;

(iv) Demonstration that the apparent demand for additional parking cannot be satisfied by the provision by the applicant of one or more car-share parking spaces in addition to those that may already be required by Section 166 of this Code;

(v) The absence of potential detrimental effects of the proposed parking upon the surrounding area, especially through unnecessary demolition of sound structures, contribution to traffic congestion, or disruption of or conflict with transit services, walking, and cycling; and

(vi) Accommodating excess accessory parking does not degrade the overall urban design quality of the project proposal nor diminish the quality and viability of existing or planned streetscape enhancements.

(B) **Required Additional Conditions.** Additionally, in granting approval for such accessory parking above that principally permitted, the Commission may require the property owner to pay the annual membership fee to a certified car-share organization, as defined in Section 166(b)(2), for any resident of the project who so requests and who otherwise qualifies for such membership, provided that such requirement shall be limited to one membership per Dwelling Unit, when the following findings are made:

(i) that the project encourages additional private-automobile use, thereby creating localized transportation impacts for the neighborhood; and

(ii) that these localized transportation impacts may be lessened for the neighborhood by the provision of car-share memberships to residents.

(2) **Non-Residential Uses.**

(A) **Criteria.** In granting such Conditional Use, the Planning Commission shall make the following affirmative findings according to the uses to which the proposed parking is accessory:

(i) Vehicle movement on or around the project does not unduly impact pedestrian spaces or movement, transit service, bicycle movement, or the overall traffic movement in the district;

(ii) Accommodating excess accessory parking does not degrade the overall urban design quality of the project proposal;

(iii) All above-grade parking is architecturally screened and lined with active uses according to the standards of Section 145.1, and the project sponsor is not requesting any exceptions or variances requiring such treatments elsewhere in this Code; and

(iv) Excess accessory parking does not diminish the quality and viability of existing or planned streetscape enhancements.

(B) **Conditions.** All Non-Residential Uses exceeding 20,000 square feet shall be subject to the following conditions:

(i) Projects that provide more than 10 spaces for non-residential uses must dedicate 5% of these spaces, rounded down to the nearest whole number, to short-term, transient use by vehicles from certified car sharing organizations per Section 166, vanpool, rideshare, taxis, or other co-operative auto programs. These spaces shall not be used for long-term storage nor satisfy the requirement of Section 166, but rather to park the vehicles during trips to commercial uses. These spaces may be used by shuttle or delivery vehicles used to satisfy Subsection (ii);

(ii) Retail uses larger than 20,000 square feet including but not limited to grocery, hardware, furniture, consumer electronics, greenhouse or nursery, and appliance stores, which sell merchandise that is impractical to carry on public transit, shall offer, at minimal or no charge to its customers, door-to-door delivery service and/or shuttle service. This is encouraged, but not required, for retail uses less than 20,000 square feet;

(iii) Parking shall be limited to short-term use only; and

(iv) Parking shall be available to the general public at times when such parking is not needed to serve the use or uses to which it is accessory.

(v) **Affordable Housing Bonus Projects.** The purpose of this Section 303(v) is to ensure that all Analyzed State Density Bonus Program Projects under Section 206.5 are reviewed in coordination with priority processing available for certain projects with greater levels of affordable housing. While most projects in the Program will likely be somewhat larger than their surroundings in order to facilitate higher levels of affordable housing, the Planning Commission and Department shall ensure that each project is consistent with the Affordable Housing Bonus Design Guidelines and any other applicable design guidelines, as adopted and periodically amended by

the Planning Commission, so that projects respond to their surrounding context, while still meeting the City's affordable housing goals.

(1) **Planning Commission Design Review:** The Planning Commission shall review and evaluate all physical aspects of a State Analyzed Project at a public hearing. The Planning Commission recognizes that most qualifying projects will need to be larger in height and mass than surrounding buildings to achieve the Affordable Housing Bonus Program's affordable housing goals. However, the Planning Commission may, consistent with the Affordable Housing Bonus Program Design Guidelines, and any other applicable design guidelines, and upon recommendation from the Planning Director, make minor modifications to a project to reduce the impacts of such differences in scale.

(2) **Additional Criteria.** In addition to the criteria set forth in subsection (c)(2), the Planning Commission shall consider the extent to which the following criteria are met:

(A) whether the project would require the demolition of an existing building;

(B) whether the project would remove existing commercial or retail uses;

(C) If the project would remove existing commercial or retail uses, how recently the commercial or retail uses were occupied by a tenant or tenants;

(D) whether the project includes commercial or retail uses;

(E) whether there is an adverse impact on the public health, safety, and general welfare due to the loss of commercial or retail uses in the district where the project is located; and

(F) whether any existing commercial or retail use has been designated, or is eligible to be designated, as a Legacy Business under Administrative Code Section 2A.242; or is a formula retail business.

(3) In no case may a project receive a site permit or any demolition permit prior to 18 months from the date of written notification required by 206.5(d)(7).

(w) **Cannabis Retail.** With respect to any application for the establishment of a new Cannabis Retail Use, in addition to the criteria set forth in subsections (c) and (d) above, the Commission shall consider the geographic distribution of Cannabis Retail Uses throughout the City, the concentration of Cannabis Retail and Medical Cannabis Dispensary Uses within the general proximity of the proposed Cannabis Retail Use, the balance of other goods and services available within the general proximity of the proposed Cannabis Retail Use, any increase in youth access and exposure to cannabis at nearby facilities that primarily serve youth, and any proposed measures to counterbalance any such increase.

(x) **Medical Cannabis Dispensaries.** With respect to any application for the establishment of a new Medical Cannabis Dispensary Use, in addition to the criteria set forth in subsections (c) and (d) above, the Commission shall consider the concentration of Cannabis Retail and Medical Cannabis Dispensary Uses within the general proximity the proposed Medical Cannabis Dispensary Use.

(y) **Curb Cuts on Restricted Streets.** With respect to an application for a new or expanded curb cut on street frontages subject to Section 155(r), the Planning Commission shall affirmatively find, in addition to those findings in subsections 303(c) and (d) above, that the project meets one or more of the following criteria:

(1) That the restriction on curb cuts at this location would substantially affect access to or operations of emergency services;

(2) That the proposed land use(s) requires off-street parking or loading for disability access under a local, State, or federal law or has an extraordinary need to provide off-street parking or loading for a General Grocery Use, Institutional Use, or PDR Use; and/or

(3) The proposed use necessitates on-site loading spaces in order to prevent a significant negative impact on Muni operations, the safety of pedestrian, cyclists, or traffic hazards.

(z) **Liquor Stores.** With regard to the Conditional Use application for a Liquor Store use, the Planning Commission shall consider, in addition to the criteria set forth in subsection (c) above:

(1) the existing concentration of Liquor Store uses within 300 feet of the proposed location; and

(2) the availability of General Grocery or Specialty Grocery stores in the area selling alcoholic beverages as well as a range of foods.

(aa) **Change in Use or Demolition of Residential Care Facility.** With respect to a change of use from or demolition of a Residential Care Facility, as defined in Sections 102 and 890.50(e) of the Planning Code, including a Residential Care Facility established with or without the benefit of any permits required under the Municipal Code, in addition to the criteria set forth in subsections (c) and (d) of this Section 303, the Commission shall take into account the following factors when considering a Conditional Use Authorization for the change of use or demolition of a Residential Care Facility:

(1) Information provided by the Department of Public Health, the Human Services Agency, the Department of Disability and Aging Services, the Golden Gate Regional Center, and/or the San Francisco Long-Term Care Coordinating Council with regard to the population served, nature and quality of services provided, and capacity of the existing Residential Care Facility;

(2) Data on available beds at licensed Residential Care Facilities within a one-mile radius of the site, and assessment from any of the above agencies regarding whether these available beds are sufficient to serve the need for residential care beds in the neighborhoods served by the Residential Care Facility proposed for a change of use or demolition, and in San Francisco;

(3) Whether the Residential Care Facility proposed for a change of use or demolition will be relocated or its capacity will be

replaced at another Residential Care Facility Use, and whether such relocation or replacement is practically feasible; and

(4) Whether the continued operation of the existing Residential Care Facility by the current operator is practically feasible and whether any other licensed operator or any of the above agencies has been contacted by the applicant seeking the change of use or demolition, or has expressed interest in continuing to operate the facility.

(bb) **Social Service and Philanthropic Facilities in Chinatown Visitor Retail, Chinatown Residential Neighborhood Commercial, and Chinatown Community Business Districts.** With regard to a Conditional Use application for a Social Service or Philanthropic Facility use pursuant to Section 121.4 of this Code, in addition to consideration of the criteria set forth in subsection (c) above, the Planning Commission shall, in order to grant a Conditional Use Authorization, find that the proposed use will primarily serve the Chinatown neighborhood.

(cc) **Parcel Delivery Services.**

(1) **Criteria.** With respect to a Conditional Use application for Parcel Delivery Service use as defined in Section 102 of the Planning Code that is less than 5,000 square feet in size, the Planning Commission shall consider the criteria in subsections (c) and (d) above. With respect to a Conditional Use application for Parcel Delivery Service use that is 5,000 square feet or larger, in addition to the criteria in subsections (c) and (d) above, the Planning Commission shall consider the following:

(A) The extent to which the use will adversely impact traffic patterns and queuing times and add total vehicle miles traveled, including by delivery drivers and couriers operating to and from the site;

(B) The greenhouse gas emissions resulting from operating of the site, including from indirect sources such as courier and delivery vehicles;

(C) The impact that the use will have on public transit, public safety, and emergency response, with particular attention paid to the rate of workplace injury associated with the use and moving violations and traffic accidents requiring public safety or emergency service response; and

(D) The impact on educational institutions located near the site; and

(E) An economic impact study. The Planning Department shall prepare an economic impact study using City staff or shall, consistent with the Charter, select a consultant from a pool of pre-qualified consultants to prepare the economic impact study required by this subsection (cc). The economic impact study shall be considered by the Planning Commission in its review of the application. In the event a consultant is used, the applicant shall bear the cost of paying the consultant for their work preparing the economic impact study, and any necessary documents prepared as part of that study. The study shall evaluate the potential economic impact of the applicant's proposed project, including:

(i) **Employment Analysis.** The report shall include the following employment information: a projection of both construction-related and permanent employment generated by the proposed project, and a discussion of whether the employer of the proposed project will pay a living wage, inclusive of non-salary benefits expected to be provided, relative to San Francisco's cost of living. The employment analysis shall also include a discussion of the past and current employment practices of the proposed operator, if any, including but not limited to artificial intelligence utilization and autonomous vehicles driven in ratio of human-operated activities.

(ii) **Fiscal Impact.** The report shall itemize public revenue created by the proposed project and public services needed because of the proposed project, relative to net fiscal impacts to the General Fund. The impacts to the City's public facilities and infrastructure shall be estimated using the City's current assumptions in existing nexus studies (including area plan, transit, open space in-lieu fee and other impact fees), and should account for any contributions the proposed project would make through such impact fee payments.

(2) **Required Additional Conditions.** All Parcel Delivery Service facilities shall be subject to at least the following conditions of project approval:

(A) **Electrification.** Facilities shall include necessary infrastructure and electrical capacity to accommodate and charge electric vehicles—including electric heavy-duty delivery trucks, employee vehicles, and all other zero-emission vehicles accessing the facility; power refrigeration for refrigerated spaces; and serve any other processes that would otherwise rely upon fossil fuel combustion. Facilities shall install battery storage to address power disruption. Diesel back-up generators shall only be permitted if the facility demonstrates battery storage is infeasible and shall meet CARB's Tier 4 emission standards or meet the most stringent in-use standard, whichever has the least emissions.

(B) **Idling of Vehicles.** To reduce idling emissions from transport trucks, the facility shall have signage placed at truck access points, loading docks, and truck parking areas that clearly notes idling for more than three minutes is strictly prohibited on the subject property. The facility shall fund placement of similar signs installed by the City in the adjacent streets used for access. Each sign placed outside the property should note the California Air Resources Board idling prohibitions on the adjacent streets and include telephone numbers of the building facilities manager and the California Air Resources Board to report violations. All signage should be made of weather-proof materials. All site and architectural plans submitted to the City shall note the locations of these signs.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 69-87, App. 3/13/87; Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90; Ord. 47-92, App. 2/14/92; Ord. 304-99, File No. 990495, App. 12/3/99; Ord. 311-99, File No. 991585, App. 12/3/99; Ord. 169-00, File No. 991953, App. 7/7/2000; Ord. 259-00, File No. 001422, App. 11/17/2000; Ord. 77-02, File No. 011448, App. 5/24/2002; Ord. 43-03, File No. 021772, App. 4/3/2003; Ord. 62-04, File No. 031501, App. 4/9/2004; Ord. 89-04, File No. 031463, App. 5/27/2004; Ord. 270-04, File No. 041070, App. 11/9/2004; Ord. 140-06, File No. 052921, App. 6/22/2006; Ord. 298-06, File No. 061261, App. 12/12/2006; Ord. 72-08, File No. 071157, App. 4/3/2008; Ord. 112-08, File No. 080095, App. 6/30/2008; Ord. 244-08, File No. 080567, App. 10/30/2008; Ord. 245-08, File No. 080696; Ord. 139-09, File No. 090402, App. 7/2/2009; Ord. 140-11, File No. 110482, App. 7/5/2011, Eff. 8/4/2011; Ord. 75-12 , File No. 120084, App. 4/23/2012, Eff. 5/23/2012; Ord. 106-12 , File No. 120047, App. 6/22/2012, Eff. 7/22/2012; Ord. 182-12 , File No. 120665, App. 8/8/2012, Eff. 9/7/2012; Ord. 56-13 , File No. 130062, App. 3/28/2013, Eff. 4/27/2013; Ord. 248-13 , File No. 130372, App. 11/8/2013, Eff. 12/8/2013; Ord. 235-14 , File No. 140844, App. 11/26/2014, Eff. 12/26/2014; Ord. 235-14 , File No. 140844, App. 11/26/2014, Eff. 12/26/2014; Ord. 22-15, File No. 141253, App. 2/20/2015, Eff. 3/22/2015; Ord. 188-15 , File No. 150871, App. 11/4/2015, Eff. 12/4/2015; Ord. 166-16 , File No. 160477, App. 8/11/2016, Eff. 9/10/2016; Ord. 99-17, File No. 170206, App. 5/19/2017, Eff. 6/18/2017; Ord. 116-17, File No. 150969, App. 6/13/2017, Eff. 7/13/2017; Ord. 129-17, File No. 170203, App. 6/30/2017, Eff. 7/30/2017; Ord. 205-17, File No. 170418, App. 11/3/2017, Eff. 12/3/2017; Ord. 229-17, File No. 171041, App. 12/6/2017, Eff. 1/5/2018; Ord. 198-18, File

No. 180456, App. 8/10/2018, Eff. 9/10/2018; Ord. 277-18, File No. 180914, App. 11/20/2018, Eff. 12/21/2018; Ord. 179-18, File No. 180423, App. 7/27/2018, Eff. 8/27/2018, Oper. 1/1/2019; Ord. 182-19, File No. 190248, App. 8/9/2019, Eff. 9/9/2019; Ord. 63-20, File No. 200077, App. 4/24/2020, Eff. 5/25/2020; Ord. 149-21, File No. 210535, App. 9/29/2021, Eff. 10/30/2021; Ord. 197-21, File No. 210600, App. 11/5/2021, Eff. 12/6/2021; Ord. 233-21, File No. 210381, App. 12/22/2021, Eff. 1/22/2022; Ord. 37-22, File No. 211263, App. 3/14/2022, Eff. 4/14/2022; Ord. 75-22, File No. 220264, App. 5/13/2022, Eff. 6/13/2022; Ord. 70-23, File No. 220340, App. 5/3/2023, Eff. 6/3/2023; Ord. 47-24, File No. 231223, App. 3/15/2024, Eff. 4/15/2024; Ord. 54-24, File No. 240169, App. 3/22/2024, Eff. 4/22/2024, Retro. 3/30/2024; Ord. 113-24, File No. 240193, App. 6/13/2024, Eff. 7/14/2024, Retro. 3/30/2024; Ord. 297-24, File No. 241055, App. 12/19/2024, Eff. 1/19/2025; Ord. 37-25, File No. 240787, App. 4/3/2025, Eff. 5/4/2025)

AMENDMENT HISTORY

[Former] division (i) and division (l)(5)(A) amended; Ord. 140-11, Eff. 8/4/2011. [Former] division (i) amended; [former] division (p) added; Ord. 75-12 , Eff. 5/23/2012. [Former] division (i) amended; Ord. 106-12 , Eff. 7/22/2012. [Former] division (g)(1)(D) added; [former] divisions (g)(2) and (g)(3) amended; Ord. 182-12 , Eff. 9/7/2012. Divisions (c)(3), (c)(4), (c)(5)(A), (c)(5)(A)(i), and [former] (i) amended; former divisions (j)(A)-(D) redesignated as [former] (j)(1)-(4); [former] divisions (k)(1), (l)(3), (l)(5), (n)(1), and (o)(1) amended; Ord. 56-13 , Eff. 4/27/2013. [Former] division (i) amended; Ord. 248-13 , Eff. 12/8/2013. Former division (i) deleted; former division (j) redesignated as current division (i) and new division (i)(5) added; former divisions (k)-(o) redesignated as current divisions (j)-(n) and internal references adjusted accordingly; former divisions (p) and (p)(1)(A) redesignated as current divisions (o) and [former] (o)(1); Ord. 235-14 , Eff. 12/26/2014. Former division (c)(1)(A) merged into division (c)(1) and amended; former divisions (c)(1)(A)(i)-(iii) redesignated as (c)(1)(A)-(C); divisions (c)(4) and (c)(5) amended; former division (c)(6) deleted; divisions (f)(1)-(3) amended; former division (g)(1) merged into division (g) and former divisions (g)(1)(A)-(D) redesignated as (g)(1)-(4); former divisions (g)(2) and (g)(3) deleted; divisions (h)(1), (h)(3)(A)-(C), (j), and (j)(1) amended; former division (j)(1)(A)(i) merged into division (j)(1)(A) and amended; divisions (j)(1)(B), (l), and (l)(1) amended; former division (l)(1)(A)(i) merged into division (l)(1)(A) and amended; divisions (m)(1), (n)(1), and (n)(1)(A) amended; former division (o)(1) merged into division (o) and amended; divisions (p) and (q) added; Ord. 22-15, Eff. 3/22/2015. Divisions (n)(1)(A), (p), (p)(1), and (p)(2) amended; division (r) added; Ord. 188-15 , Eff. 12/4/2015. Division (s) added; Ord. 166-16 , Eff. 9/10/2016. Divisions (t) and (u) added; Ord. 99-17 , Eff. 6/18/2017. [Former] division (t) added; Ord. 116-17 , Eff. 7/13/2017. Divisions (a), (b), (c), (d), (e), (f)-(f)(5)(B), amended; former division (j)(1) merged into division (j) and amended; former divisions (j)(1)(A)-(C) redesignated as (j)(1)-(3); divisions (k)(1), (k)(2), (k)(4)(B), (k)(4)(B)(iv), and (k)(6) amended; former division (l)(1) merged into division (l), former divisions (l)(1)(A)-(B) redesignated as (l)(1)-(2), and current divisions (l)-(l)(2) amended; former division (n)(1) merged into division (n), former divisions (n)(1)(A)-(D) redesignated as (n)(1)-(4), and former divisions (n)(1)(B)(i)-(iii) redesignated as (n)(2)(A)-(C); current divisions (n), (n)(1), (n)(2)(A), and (n)(2)(C) amended; divisions (p), (p)(1), (p)(2), (p)(3), and (r) amended; Ord. 129-17 , Eff. 7/30/2017. Divisions (a), (f), and (o) amended; Ord. 205-17 , Eff. 12/3/2017. Second division (t) redesignated as (v) and related references amended; divisions (w) and (x) added; Ord. 229-17, Eff. 1/5/2018. Divisions (v) and (v)(1) amended; former divisions (v)(1)(A)- (v)(2)(G) deleted; former divisions (v)(3)-(v)(3)(F) and (v)(4) redesignated as (v)(2)-(v)(2)(F) and (v)(3); current division (v)(3) amended; Ord. 198-18, Eff. 9/10/2018. Divisions (y)-(y)(3) added; Ord. 277-18, Eff. 12/21/2018. Division (f)(2) amended; Ord. 179-18, Oper. 1/1/2019. Divisions (z)-(z)(B)[1] added; Ord. 182-19 , Eff. 9/9/2019. Exceptions (1)-(3) appended to division (n); divisions (z)(A) and (z)(B) redesignated as (z)(1) and (z)(2); Ord. 63-20, Eff. 5/25/2020. Division (aa) added; Ord. 149-21, Eff. 10/30/2021. Division (bb) added; Eff. 12/6/2021. Division (n)(1) deleted; divisions (n)(2)-(4) redesignated as (n)(1)-(3); division (n) Exceptions (1)(A) and (3) deleted; division (n) Exception (1)(B) merged into Exception (1); current division (n) Exceptions (1) and (2) amended; Ord. 233-21, Eff. 1/22/2022. Division (n) amendments reapplied; Exception (1) further amended; Ord. 37-22, Eff. 4/14/2022. Divisions (p), (p)(1), (p)(1)(D), (p)(2) amended; new division (p)(3) added; former division (p)(3) redesignated as (p)(4); Ord. 75-22, Eff. 6/13/2022. Divisions (p)(1)(A)-(D) deleted; divisions (p)-(p)(1) amended as (p); division (p)(2) amended as (p)(2)-(p)(2)(A); divisions (p)(1), (p)(2)(B), and (p)(5) added; Ord. 70-23, Eff. 6/3/2023. Divisions (cc)- (cc)(2)(B) added; Ord. 47-24, Eff. 4/15/2024; and Ord. 54-24, Retro. 3/30/2024. Division (cc)(1)(D) redesignated as (cc)(1)(E); new division (cc)(1)(D) added; division (cc)(1)(E)(i) amended; Ord. 113-24, Eff. 7/14/2024, Retro. 3/30/2024. Divisions (i) and (i)(5) amended; Ord. 297-24, Eff. 1/19/2025. Divisions (a), (g), (g)(2)-(3) amended; division (g)(4) deleted; Ord. 37-25, Eff. 5/4/2025.

* **Editor's Note:**

Prior to the effectiveness of Ord. *235-14* , this Sec. 303(i) pertained to formula retail uses. That ordinance deleted those provisions from this section and enacted new Sec. 303.1 ("Formula Retail Uses").

EXHIBIT 20

SEC. 101. PURPOSES.

This Planning Code is adopted to promote and protect the public health, safety, peace, morals, comfort, convenience and general welfare, and for the following more particularly specified purposes:

(a) To guide, control and regulate future growth and development in accordance with the General Plan of the City and County of San Francisco;

(b) To protect the character and stability of residential, commercial and industrial areas within the City, and to promote the orderly and beneficial development of such areas;

(c) To provide adequate light, air, privacy and convenience of access to property, and to secure safety from fire and other dangers;

(d) To prevent overcrowding the land and undue congestion of population;

(e) To regulate the location of buildings and the use of buildings and land adjacent to streets and thoroughfares, in such manner as to obviate the danger to public safety caused by undue interference with existing or prospective traffic movements on such streets and thoroughfares.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 188-15 , File No. 150871, App. 11/4/2015, Eff. 12/4/2015)

AMENDMENT HISTORY

- Introductory paragraph and division (a) amended; Ord. 188-15 , Eff. 12/4/2015.

SEC. 101.1. GENERAL PLAN CONSISTENCY AND IMPLEMENTATION.

(See Interpretations related to this Section.)

(a) The General Plan shall be an integrated, internally consistent and compatible statement of policies for San Francisco. To fulfill this requirement, after extensive public participation and hearings, the Planning Commission shall in one action amend the General Plan by January 1, 1988.

(b) The following Priority Policies are hereby established. They shall be included in the preamble to the General Plan and shall be the basis upon which inconsistencies in the General Plan are resolved:

(1) That existing neighborhood-serving retail uses be preserved and enhanced and future opportunities for resident employment in and ownership of such businesses enhanced;

(2) That existing housing and neighborhood character be conserved and protected in order to preserve the cultural and economic diversity of our neighborhoods;

(3) That the City's supply of affordable housing be preserved and enhanced;

(4) That commuter traffic not impede Muni transit service or overburden our streets or neighborhood parking;

(5) That a diverse economic base be maintained by protecting our industrial and service sectors from displacement due to commercial office development, and that future opportunities for resident employment and ownership in these sectors be enhanced;

(6) That the City achieve the greatest possible preparedness to protect against injury and loss of life in an earthquake;

(7) That landmarks and historic buildings be preserved; and,

(8) That our parks and open space and their access to sunlight and vistas be protected from development.

(c) The City may not adopt any zoning ordinance or development agreement authorized pursuant to Government Code Section 65865 after November 4, 1986, unless prior to that adoption it has specifically found that the ordinance or development agreement is consistent with the Priority Policies established above.

(d) The City may not adopt any zoning ordinance or development agreement authorized pursuant to Government Code Section 65865 after January 1, 1988, unless prior to that adoption it has specifically found that the ordinance or development agreement is consistent with the General Plan.

(e) Prior to issuing a permit for any project or adopting any legislation which requires an initial study under the California Environmental Quality Act, and prior to issuing a permit for any demolition, conversion or change of use, and prior to taking any action which requires a finding of consistency with the General Plan, the City shall find that the proposed project or legislation is consistent with the Priority Policies established above. For any such permit issued or legislation adopted after January 1, 1988 the City shall also find that the project is consistent with the General Plan.

(Added by Proposition M, 11/4/86; amended by Ord. 188-15 , File No. 150871, App. 11/4/2015, Eff. 12/4/2015)

AMENDMENT HISTORY

- Divisions (a), (b), (d), and (e) amended; Ord. 188-15 , Eff. 12/4/2015.

SEC. 102. DEFINITIONS.

(See Interpretations related to this Section.)

For the purposes of this Code, certain words and terms used herein are defined as set forth in this and the following sections. Additional definitions applicable to Signs are set forth in Section 602. Additional definitions applicable to development impact fees and requirements that authorize the payment of in-lieu fees are set forth in Section 401. Additional definitions applicable only to Downtown Residential Districts are set forth in Section 890. Additional definitions applicable only to the North Beach Neighborhood Commercial District and the North Beach Special Use District are set forth in Section 780.3. Additional definitions applicable only to the Bernal Heights Special Use District are set forth in Section 242. Additional definitions applicable only to Article 9, Mission Bay Districts, are set forth in Section 996. All words used in the present tense shall include the future. All words in the plural number shall include the singular number, and all words in the singular number shall include the plural number, unless the natural construction of the wording indicates otherwise. The word "shall" is mandatory and not directory. Whenever any of the following terms is used it shall mean the corresponding officer, department, board or commission or its successor of the City and County of San Francisco, State of California, herein referred to as the City: Assessor, Board of Supervisors, Planning Department, Department of Public Works, Director of Planning, Planning Commission, or Zoning Administrator. In each case, the term shall be deemed to include an employee of any such officer or department of the City who is lawfully authorized to perform any duty or exercise any power as a representative or agent of that officer or department.

(Amended by Ord. 217-16; Ord. 129-17; Ord. 70-23; see Sec. 102 history note.)

A

Accessory Use. A related minor Use that is either necessary to the operation or enjoyment of a lawful Principal Use or Conditional Use, or appropriate, incidental, and subordinate to any such use, and is located on the same lot. Accessory Uses are regulated by Sections 204 through 204.5 and Sections 703(d), 803.2(d), 803.3(b)(1)(C), 825(c)(1)(C), and 986 of this Code.

(Added by Ord. 129-17; amended by Ord. 202-18; 208-19; Ord. 63-20; see Sec. 102 history note.)

Adjacent Building. Generally, a building on a lot adjoining the subject lot along a side lot line.

Adult Business. A Retail Sales and Service Use that includes the following: adult bookstore or adult video store, as defined by Section 791 of the Police Code; adult theater, as defined by Section 791 of the Police Code; and encounter studio, as defined by Section 1072.1 of the Police Code. Such use shall be located no less than 1,000 feet from another Adult Business use.

Adult Sex Venue [2] A Retail Sales and Service Use that operates pursuant to Health Code Article 47 [2] An Adult Sex Venue may include bathhouse facilities such as pools, tubs, or steam rooms, and is eligible for a Limited Live Performance permit.

(Added by Ord. 75-22; see Sec. 102 history note.)

Agricultural and Beverage Processing 1. An Industrial use that involves the processing of agricultural products and beverages with a low potential for noxious fumes, noise, and nuisance to the surrounding area, including but not limited to bottling plants, breweries, dairy products plant, malt manufacturing or processing plant, fish curing, smoking, or drying, cereal manufacturing, liquor distillery, manufacturing of felt or shoddy, processing of hair or products derived from hair, pickles, sauerkraut, vinegar, yeast, soda or soda compounds, meat products, and fish oil. This use does not include the processing of wood pulp, and is subject to the operating conditions outlined in Section 202.2(d).

(Amended by Ord. 229-17; see Sec. 102 history note.)

Agricultural and Beverage Processing 2. An Industrial Use that involves the processing of agricultural products and beverages with a high potential for noxious fumes, noise, and nuisance to the surrounding area, including but not limited to a flour mill; sugar refinery; manufacturer of cannabis products or extracts that are derived by using volatile organic compounds (any use requiring License Type 7—Manufacturer 2, as defined in California Business and Professions Code, Division 10); and facility for wool pulling or scouring. This use does not include the processing of wood pulp, and is subject to the operating conditions outlined in Section 202.2(d).

(Amended by Ord. 229-17; see Sec. 102 history note.)

Agriculture. A Use Category that includes Industrial Agriculture, Neighborhood Agriculture, and Large-Scale Urban Agriculture.

(Amended by Ord. 229-17; see Sec. 102 history note.)

Agriculture, Industrial. An Agricultural use that involves the cultivation of plants for wholesale sales or industrial uses. This use includes, but is not limited to, plant nurseries and cannabis cultivation operations, and is subject to the location and operating conditions listed in Section 202.2(c). For the cultivation of cannabis, this definition includes all cultivation pursuant to state license types that allow for indoor and/or mixed-light cultivation with up to 22,000 sq. ft. of canopy.

(Amended by Ord. 229-17; see Sec. 102 history note.)

Agriculture, Large-Scale Urban. An Agricultural Use that is characterized by the use of land for the production of food or horticultural crops to be harvested, sold, donated, or otherwise not used or consumed by the operator of the premises that occur: (a) on a plot of land one acre or larger or (b) on smaller parcels that cannot meet the physical and operational standards for Neighborhood Agriculture. This use is subject to location and operational conditions outlined in Section 202.2(c) and does not include any cannabis-related use or any other agricultural activities, including the cultivation of cannabis for personal use.

(Amended by Ord. 229-17; see Sec. 102 history note.)

Agriculture, Neighborhood. An Agricultural Use that occupies less than one acre for the production of food or horticultural crops to be harvested, sold, or donated and complies with the con trols and standards herein. The use includes, but is not limited to, home, kitchen,

and roof gardens. Farms that qualify as Neighborhood Agricultural Use may include, but are not limited to, community gardens, community-supported agriculture, market gardens, and private farms. Neighborhood Agricultural Use may be principal or accessory use. This use is subject to location and operational conditions outlined in Section 202.2(c) and does not include any cannabis-related use or any other agricultural activities, including the cultivation of cannabis for personal use.

(Amended by Ord. 229-17; see Sec. 102 history note.)

Agriculture, Urban. Any subgrouping of Agricultural Uses that includes either Neighborhood Agriculture or Large-Scale Urban Agriculture.

Alley. A right-of-way, less than 30 feet in width, permanently dedicated to common and general use by the public.

Ambulance Service. See Service, Ambulance.

Animal Hospital. A Retail Sales and Service Use that provides medical care and accessory boarding services for animals, not including a Kennel.

Arts Activities. A retail Entertainment, Arts and Recreation Use that includes performance, exhibition (except exhibition of films), rehearsal, production, post-production and some schools of any of the following: dance; music; dramatic art; film; video; graphic art; painting; drawing; sculpture; small-scale glassworks; ceramics; textiles; woodworking; photography; custom-made jewelry or apparel; and other visual, performance, and sound arts and craft. It shall exclude accredited Schools and Post-Secondary Educational Institutions. It shall include commercial arts and art-related business service uses including, but not limited to: recording and editing services; small-scale film and video developing and printing; titling; video and film libraries; special effects production; fashion and photo stylists; production, sale, and rental of theatrical wardrobes; and studio property production and rental companies. Arts spaces shall include studios, workshops, archives, and theaters, and other similar spaces customarily used principally for arts activities, exclusive of a Movie Theater, General Entertainment, arcades that provide eleven or more amusement game devices, Adult Business, and any other establishment where liquor is customarily served during performances.

(Amended by Ord. 129-17; Ord. 202-18; Ord. 285-18; Ord. 205-19; see Sec. 102 history note.)

Automobile Assembly. An Industrial Use that involves the assembly of parts for the purpose of manufacturing automobiles, trucks, buses, or motorcycles. This use is subject to operational and location restrictions outlined in Section 202.2(d) of this Code.

Automobile Wrecking. An Industrial Use that includes the storage of vehicles in not in operational condition and/or sale of used automobile parts, or for the storage, dismantling, or abandonment of junk, automobiles, trailers, machinery or parts thereof. This use is subject to operational and location restrictions outlined in Section 202.2(d) of this Code.

Automobile Sale or Rental. A Retail Automotive Use that provides vehicle sales or rentals within a building or on an open lot.

Automotive Repair. A Retail Automotive Use that provides any of the following automotive repair services, when conducted within an enclosed building having no openings, other than fixed windows or exits required by law, located within 50 feet of any R District: minor auto repair, engine repair, rebuilding, or installation of power train components, reconditioning of badly worn or damaged motor vehicles, collision service, or full body paint spraying. It may include other services for automobiles including, but not limited to, accessory towing, if all towed vehicles stored on the premises are limited to those vehicles that are to be repaired on the premises.

Automotive Service. A subgrouping of Retail Automotive Uses providing services for motor vehicles that includes Gas Station, Automotive Service Station, Automotive Repair, and Automotive Wash.

(Amended by Ord. 188-15; see Sec. 102 history note.)

Automotive Service Station. A Retail Automotive Use that provides motor fuels and lubricating oils directly into motor vehicles and minor auto repairs (excluding engine repair, rebuilding, or installation of power train components, reconditioning of badly worn or damaged motor vehicles, collision service, or full body paint spraying) and services that remain incidental to the principal sale of motor fuel. Repairs shall be conducted within no more than three enclosed service bays in buildings having no openings, other than fixed windows or exits required by law, located within 40 feet of any R District. It may include other incidental services for automobiles including, but not limited to, accessory towing, if the number of towing vehicles does not exceed one, and all towed vehicles stored on the premises are limited to those vehicles that are to be repaired on the premises. This use is subject to the controls in Sections 187.1 and 202.2(b).

(Amended by Ord. 188-15; Ord. 129-17; Ord. 264-22; see Sec. 102 history note.)

Automotive Use. A Commercial Use category that includes Automotive Repair, Ambulance Services, Automobile Sale or Rental, Automotive Service Station, Automotive Wash, Electric Vehicle Charging Location, Fleet Charging, Gas Station, Parcel Delivery Service, Private Parking Garage, Private Parking Lot, Public Parking Garage, Public Parking Lot, Vehicle Storage Garage, Vehicle Storage Lot, and Motor Vehicle Tow Service. All Automotive Uses that have Vehicular Use Areas defined in this Section of the Code shall meet the screening requirements for vehicular use areas in Section 142.

(Amended by Ord. 202-18; Ord. 190-22; see Sec. 102 history note.)

Automotive Use, Non-Retail. A subcategory of Automotive Use that includes Ambulance Services, Fleet Charging, Parcel Delivery Service, Private Parking Garage, Private Parking Lot, and Motor Vehicle Tow Service.

(Amended by Ord. 202-18; Ord. 190-22; see Sec. 102 history note.)

Automotive Use, Retail. A subcategory of Automotive Use that includes Automotive Repair, Automotive Sale or Rental, Automobile Service Station, Automotive Wash, Electric Vehicle Charging Location, Gas Station, Public Parking Garage, Public Parking Lot, Vehicle Storage Garage, and Vehicle Storage Lot.

(Amended by Ord. 190-22; see Sec. 102 history note.)

Automotive Wash. A Retail Automotive Use that provides cleaning and polishing of motor vehicles, including self-service operations. This use is subject to the location and operational restrictions in Section 202.2(e).

Awning. A light roof-like structure, supported entirely by the exterior wall of a building; consisting of a fixed or movable frame covered with cloth, plastic, or metal; extending over doors, windows, and/or show windows; with the purpose of providing protection from sun and rain and/or embellishment of the façade; as further regulated in Section 3105 of the Building Code.

B

Bar. A Retail Sales and Service Use that provides on-site alcoholic beverage sales for drinking on the premises, including bars serving beer, wine, and/or liquor to the customer where no person under 21 years of age is admitted (with Alcoholic Beverage Control [ABC] license types 23, 42, 48, or 61), drinking establishments serving beer where minors are present (with ABC license types 40 or 60) in conjunction with other uses such as Movie Theaters and General Entertainment, and bars serving wine operated by licensed winegrowers (with ABC license type 02). Such businesses shall operate with the specified conditions in Section 202.2(a). A non-profit theater that provides on-site alcoholic beverage sales only for consumption by ticket-holding patrons on the premises, with ABC license type 64, shall not be considered a Bar use. A music entertainment facility that is authorized to sell beer, wine, and distilled spirits at retail for consumption on the premises, with ABC license type 90, shall not be considered a Bar use.

(Amended by Ord. 188-15; Ord. 205-19; Ord. 249-23; see Sec. 102 history note.)

Basement. See Story.

Bedroom. A room primarily used for sleeping that meets the minimum requirements as defined in the Building Code for sleeping rooms.

Board of Supervisors (Board). The Board of Supervisors of the City and County of San Francisco.

Bona Fide Eating Place. A place that is regularly and in a bona fide manner used and kept open for the service of meals to guests for compensation and that has suitable kitchen facilities connected therewith, containing conveniences for cooking of an assortment of foods that may be required for ordinary meals.

(a) "Meals" shall mean an assortment of foods commonly ordered at various hours of the day for breakfast, lunch, or dinner. Incidental food service, comprised only of appetizers to accompany drinks, is not considered a meal. Incidental, sporadic, or infrequent sales of meals or a mere offering of meals without actual sales is not compliance.

(b) "Guests" shall mean persons who, during the hours when meals are regularly served therein, come to a bona fide public eating place for the purpose of obtaining, and actually order and obtain at such time, in good faith, a meal therein. Nothing in this section, however, shall be construed to require that any food be sold or purchased with any beverage.

(c) Actual and substantial sales of meals are required, during the normal days and meal hours that a bona fide public eating place is open, provided that "normal days of operation" shall mean a minimum of five days a week and "normal hours" of operation for meal service shall mean approximately 7:00 a.m. to 11:00 a.m. if open for breakfast; 11:00 a.m. to 2:00 p.m. if open for lunch; or 5:00 p.m. to 10:00 p.m. if open for dinner.

(d) The premises must be equipped and maintained in good faith. This means the premises must possess working refrigeration and cooking devices, pots, pans, utensils, table service, condiment dispensers, menus, signs, and enough goods to make substantial meals. The premises must comply with all regulations of the Department of Public Health.

(e) The establishment must secure significant revenue from food and non-alcoholic beverage sales. Significant revenue from food and non-alcoholic beverage sales shall mean either:

(1) A minimum of 51% of the establishment's gross receipts shall be from food sales prepared and sold to guests on the premises. Records of the establishment's gross receipts shall be provided to the Department upon request; or

(2) Annual gross food and non-alcoholic beverage sales prepared and sold to guests on the premises of at least $4,200 per occupant based on the premises' maximum occupant load as determined and approved by the Fire Department and Department of Building Inspection. Records of the establishment's gross sales shall be provided to the Department upon request. The Zoning Administrator may adjust the amount of $4,200 per occupant each year, provided that such adjustments are supported by specific financial and economic criteria, including but not limited to a review of the restaurant market, costs, prices, profits, and loses,[1] and recognizing the differences in sizes and types of establishments.

(f) A "bona fide eating place" does not include an Adult Business as defined in this Section of the Code.

(g) For a place that has also established a Nighttime Entertainment Use and that only provides on-site alcoholic beverage sales for consumption by ticket-holding patrons on the premises during the normal hours of operation of entertainment activities, paragraphs (c) and (e) do not apply, but actual and substantial sales of meals are required during the normal hours of operation. For purposes of this paragraph, the "normal hours of operation" shall include two hours prior to, and one hour after, entertainment activities, but may not exceed eight total hours in a calendar day. This paragraph (g) does not apply to a place located in the Broadway Neighborhood Commercial District, North Beach Neighborhood Commercial District, Pacific Avenue Neighborhood Commercial District, or Polk Street Neighborhood Commercial District.

(Amended by Ord. 205-19; Proposition H, 11/3/2020; see Sec. 102 history note.)

Building. Any structure having a roof supported by columns or walls.

C

Cannabis Retail. A Retail Sales and Service Use that sells or otherwise provides cannabis and cannabis-related products for adult use, and that may also include the sale or provision of cannabis for medicinal use. A Cannabis Retail establishment may only be operated by the holder of (a) a valid license from the State of California (License Type 10—Retailer, as defined in California Business and Professions Code, Division 10) and (b) a valid permit from the City's Office of Cannabis. This use is subject to operating and location restrictions set forth in Section 202.2(a).

(Added by Ord. 229-17; see Sec. 102 history note.)

Canopy. A light roof-like structure, supported by the exterior wall of a building and on columns or wholly on columns, consisting of a fixed or movable frame covered with approved cloth, plastic or metal, extending over entrance doorways only, with the purpose of providing protection from sun and rain and/or embellishment of the façade, as further regulated in Section 3105 of the Building Code.

Catering. A Non-Retail Sales and Service Use that involves the preparation and delivery of goods including the following items: food, beverages; balloons, flowers, plants, party decorations and favors; or cigarettes/candy.

Chair/Foot Massage. See Massage, Chair/Foot.

Child Care Facility. An Institutional Community Use defined in California Health and Safety Code Section 1596.750 that provides less than 24-hour care for children by licensed personnel and meets the open-space and other requirements of the State of California and other authorities.

City. The City and County of San Francisco.

Commercial to Residential Adaptive Reuse. Commercial to Residential Adaptive Reuse shall mean to change the use of an existing Gross Floor Area from a non-residential use, other than a hotel use, to a residential use pursuant to Section 210.5.

(Added by Ord. 122-23; Ord. 159-23; see Sec. 102 history note.)

Commercial Use. A land use with the sole or chief emphasis on making financial gain, including but not limited to Agricultural Uses, Industrial Uses, Sales and Service Uses, Retail Entertainment Uses, and Auto Uses.

Commission. The San Francisco Planning Commission.

Community Facility. An Institutional Community Use that includes community clubhouses, neighborhood centers, community cultural centers, or other community facilities not publicly owned but open for public use in which the chief activity is not carried on as a gainful business and whose chief function is the gathering of persons from the immediate neighborhood in a structure for the purposes of recreation, culture, social interaction, health care, or education other than Institutional Uses as defined in this Section.

Community Facility, Private. An Institutional Community Use that includes a private lodge, private clubhouse, and private recreational facility other than a Community Facility as defined in this section, and which is not operated as a gainful business.

Community Recycling Collection Center. A Utility and Infrastructure Use that collects, stores, or handles recyclable materials, including glass and glass bottles, newspaper, aluminum, paper and paper products, plastic and other materials which may be processed and recovered, if within a completely enclosed container or building, having no openings other than fixed windows or exits required by law, provided that: (1) Flammable materials are collected and stored in metal containers; and (2) Collection hours are limited to 9:00 a.m. to 7:00 p.m. daily. It does not include the storage, exchange, packing, disassembling or handling of junk, waste, used furniture and household equipment, used cars in operable condition, used or salvaged machinery, or salvaged house-wrecking and structural steel materials and equipment.

Condition(s) of Approval. A condition or set of written conditions imposed by the Planning Commission or another permit-approving or issuing City agency or appellate body to which a project applicant agrees to adhere and fulfill when it receives approval for the construction of a development project subject to this Article.

Conditional (or Conditionally Permitted) Use. Conditional Use allows the Planning Commission to consider uses or projects that may be necessary or desirable in a particular neighborhood, but which are not allowed as a matter of right within a particular zoning district. Whether a use is conditional in a given district is indicated in this Code. Sections of this Code that govern Conditional Uses include, but are not limited to Sections 178, 179, 303, and 303.1.

(Added by Ord. 129-17; amended by Ord. 208-19; see Sec. 102 history note.)

Corner Lot. See Lot, Corner.

Cottage Food Operation. An Accessory Use to a Dwelling Unit as defined in Section 113758 of the California State Health and Safety Code.

Court. Any space on a lot other than a yard that, from a point not more than two feet above the floor line of the lowest story in the building on the lot in which there are windows from rooms abutting and served by the court, is open and unobstructed to the sky, except for obstructions permitted by this Code. An "outer court" is a court, one entire side or end of which is bounded by a front setback, a rear yard, a side yard, a front lot line, a street, or an alley. An "inner court" is any court that is not an outer court.

D

DBI. The San Francisco Department of Building Inspection or its successor.

Department. See Planning Department.

"Development Application" shall mean any application for a building permit, site permit, Conditional Use, Variance, Large Project Authorization, HOME-SF Project Authorization, authorization pursuant to Planning Code Sections 305.1, 309, 309.1, or 322, or for any

other authorization of a development project required to be approved by the Zoning Administrator or Planning Commission.

(Added by Ord. 15-19; see Sec. 102 history note.)

Development Impact Fee. A fee imposed on a development project as a condition of approval to mitigate the impacts of increased demand for public services, facilities, or housing caused by the development project that may or may not be an impact fee governed by the California Mitigation Fee Act (California Government Code Section 66000, *et seq.*).

Design Professional. A Non-Retail Sales and Service Use that provides professional design services to the general public or to other businesses and includes architectural, landscape architectural, engineering, interior design, and industrial design services. It does not include (1) the design services of graphic artists or other visual artists which are included in the definition of Arts Activities; or (2) the services of advertising agencies or other services which are included in the definition of Retail Professional Service or Non-Retail Professional Service, Financial Service, or Health Service. Design Professional Uses in Neighborhood Commercial Districts are subject to the operating restrictions outlined in Section 202.2(i).

(Amended by Ord. 202-18; Ord. 233-21; Ord. 37-22; Ord. 249-23; see Sec. 102 history note.)

Designated Child Care Unit. A Dwelling Unit that is designated for use as a State-licensed Small Family Child Care Home and meets the applicable standards established in Section 414A.6.

(Added by Ord. 7-19; see Sec. 102 history note.)

Diagonal Dimension. See Plan Dimensions.

(Added by Ord. 206-19; see Sec. 102 history note.)

Director. The Director of the Planning Department or his or her designee.

District. A portion of the territory of the City, as shown on the Zoning Map, within which certain regulations and requirements or various combinations thereof apply under the provisions of this Code. The term "district" shall include any use, special use, height and bulk, or special sign district. The classes of use districts are described in Section 201 of this Code.

Drive-Up Facility. A Use Characteristic that includes a structure designed for drive-to or drive-through trade which provides service to patrons while in private motor vehicles, excluding Automotive Gas Station, Automotive Service Station, Automotive Repair, and Automotive Wash.

DPW. The Department of Public Works or its successor.

Dwelling. A building, or portion thereof, containing one or more Dwelling Units. A "one-family dwelling" is a building containing exclusively a single Dwelling Unit. A "two-family dwelling" is a building containing exclusively two Dwelling Units. A "three-family dwelling" is a building containing exclusively three Dwelling Units.

Dwelling Unit. A Residential Use defined as a room or suite of two or more rooms that is designed for, or is occupied by, one family doing its own cooking therein and having only one kitchen. A Dwelling Unit shall also include “employee housing” when providing accommodations for six or fewer employees, as provided in State Health and Safety Code §17021.5. A housekeeping room as defined in the Housing Code shall be a Dwelling Unit for purposes of this Code. For the purposes of this Code, a Live/Work Unit, as defined in this Section, shall not be considered a Dwelling Unit.

(Amended by Ord. 248-23; see Sec. 102 history note.)

Dwelling Unit, Accessory, or ADU. Also known as a Secondary Unit or In-Law Unit, is a Dwelling Unit that meets all the requirements of Section 207.1 or Section 207.2 and that is accessory to at least one other Dwelling Unit on the same lot. A detached ADU shall not share structural walls with the primary structure on the lot. Height for detached ADUs located outside the buildable area shall be measured from existing grade at any given point to either a) the highest point of a finished roof in the case of a flat roof or b) the average height of a pitched roof or stepped roof, or similarly sculptured roof form. Height for detached ADUs located outside the buildable area shall not be eligible for any exemptions described in Planning Code subsection 260(b).

(Added by Ords. 161-15 and 162-15; amended by Ord. 162-16; Ord. 95-17; Ord. 195-18; Ord. 116-19; Ord. 53-23; Ord. 62-24; see Sec. 102 history note.)

Dwelling Unit, Junior Accessory, or JADU. A Dwelling Unit that meets all the requirements of Section 207.2, and that:

(a) is accessory to at least one other Dwelling Unit on the same lot;

(b) is no more than 500 square feet of Gross Floor Area;

(c) is contained entirely within an existing or proposed single-family structure;

(d) may include separate sanitation facilities, or may share sanitation facilities with the existing structure;

(e) is owner-occupied, unless the owner resides in the remaining portion of the structure; provided, however, that owner-occupancy shall not be required if the owner is a governmental agency, land trust, or housing organization;

(f) includes an entrance to the Junior Accessory Dwelling Unit that is separate from the main entrance to the proposed or existing single-family structure; and

(g) includes an efficiency kitchen that meets the requirements of California Government Code Section 66333(f), including a cooking facility with appliances, and a food preparation counter and storage cabinets that are of reasonable size in relation to the size of the Junior Accessory Dwelling Unit.

(Added by Ord. 53-23; amended by Ord. 62-24; Ord. 297-24; see Sec. 102 history note.)

E

Eating and Drinking Use. A grouping of Retail Sales and Service Uses that provide food and/or beverages for either on- or off-site food consumption including Bars, Restaurants, and Limited-Restaurants. Eating and Drinking Uses are subject to the conditions in Section 202.2(a).

(Amended by Ord. 129-17; see Sec. 102 history note.)

Electric Vehicle Charging Location. Automotive Use, Retail that provides electricity to electric motor vehicles through more than one Electric Vehicle Charging Stations on a retail basis to the general public as a primary use. Electric Vehicle Charging Locations may include ancillary services, including but not limited to restrooms, self-service vending, and limited retail amenities primarily for the benefit of customers charging their vehicles.

(Added by Ord. 190-22; see Sec. 102 history note.)

Electric Vehicle Charging Station. An electric vehicle charging space served by an electric vehicle charger or other charging equipment.

(Added by Ord. 190-22; see Sec. 102 history note.)

Entertainment. See also Entertainment, Arts and Recreation Use, General Entertainment, Limited Live Performance, Nighttime Entertainment, and Outdoor Entertainment.

Entertainment, General. A Retail Entertainment, Arts and Recreation Use that provides entertainment or leisure pursuits to the general public including dramatic and musical performances where alcohol is not served during performances, arcades that provide eleven or more amusement game devices (such as video games, pinball machines, or other such similar mechanical and electronic amusement devices), billiard halls, bowling alleys, skating rinks, and mini-golf, when conducted within a completely enclosed building, and which is adequately soundproofed or insulated so as to confine incidental noise to the premises. Mechanical amusement devices are further regulated in Sections 1036 through 1036.24 of the Police Code. The use may include a non-profit theater with ABC license Type 64 and a music entertainment facility with ABC license Type 90, provided that alcohol is not served during performances.

(Amended by Ord. 129-17; Ord. 205-19; Ord. 249-23; see Sec. 102 history note.)

Entertainment, Nighttime. A Retail Entertainment, Arts and Recreation Use that includes dance halls, discotheques, nightclubs, private clubs, and other similar evening-oriented entertainment activities which require dance hall keeper police permits or Place of Entertainment police permits, as defined in Section 1060 of the Police Code, which are not limited to non-amplified live entertainment, including Restaurants and Bars which present such activities. Nighttime Entertainment uses do not include any Arts Activity, any theater performance space which does not serve alcoholic beverages during performances, or any temporary uses permitted pursuant to Sections 205 through 205.5 of this Code. This use is also subject to the controls in Section 202.11. Nighttime Entertainment uses are subject to the Entertainment Commission's Good Neighbor Policy. The use may include a non-profit theater with ABC license Type 64 and a music entertainment facility with ABC license Type 90.

(Amended by Ord. 111-21; Ord. 70-23; Ord. 249-23; see Sec. 102 history note.)

Entertainment, Outdoor. A Retail Entertainment, Arts and Recreation Use that includes circuses, carnivals, or other amusement enterprises not conducted within a building, and conducted on premises not less than 200 feet from any R District.

Entertainment, Arts and Recreation Use. A Use Category that includes Arts Activities, General Entertainment, Livery Stables, Movie Theater, Nighttime Entertainment, Open Recreation Area, Outdoor Entertainment, Passive Outdoor Recreation and Sports Stadiums. Adult Business is not included in this definition, except for the purposes of Development Impact Fee Calculation as described in Article 4.

(Amended by Ord. 129-17; Ord. 205-19; see Sec. 102 history note.)

F

Façade. An entire exterior wall assembly including, but not limited to, all finishes and siding, fenestration, doors, recesses, openings, bays, parapets, sheathing, and framing.

Façade, Front. The portion of the Façade fronting a right-of-way, or the portion of the Façade most closely complying with that definition, as in the case of a flag lot. Where a lot has more than one frontage on rights-of-way. all such frontages shall be considered Front Façades except where a façade meets the definition of "Rear Façade."

Façades, Principal. Exterior walls of a Building that are adjacent to or front on a public street, park, or plaza.

Façade, Rear. That portion of the Façade facing the part of a lot that most closely complies with the applicable Planning Code rear yard requirements.

Fair Return on Investment. Where the property owner does not own the business, the before income tax total annual rent and other compensation received from the business for the lease of the land and buildings, less the expenses of the lessor, on a cash basis. Where the property owner also owns the business, the before income tax profit on the sale of all goods and services at the business on a cash basis; for an Automotive Service Station business, it shall include the sale of gasoline, less the cost of goods sold and operating costs.

Family. A single and separate living unit, consisting of either one person, or two or more persons related by blood, marriage or adoption or by legal guardianship pursuant to court order, plus necessary domestic servants and not more than three roomers or boarders; a group of not more than five persons unrelated by blood, marriage or adoption, or such legal guardianship unless the group has the attributes of a family in that it (a) has control over its membership and composition; (b) purchases its food and prepares and consumes its meals collectively; and (c) determines its own rules or organization and utilization of the residential space it occupies. A group occupying group housing or a hotel, motel, or any other building or portion thereof other than a Dwelling, shall not be deemed to be a family.

(Amended by Ord. 63-20; see Sec. 102 history note.)

Fleet Charging. Automotive Use, Non-Retail that provides electricity to electric motor vehicles through one or more Electric Vehicle Charging Stations that are dedicated or reserved for private parties pursuant to contract or other agreement and are not available to the general public. Fleet Charging is not allowed as an accessory use to any other principal use. Parcel Delivery Service activity, including unloading, sorting, and/or reloading merchandise for deliveries, is prohibited as part of a Fleet Charging use.

(Added by Ord. 190-22; amended by Ord. 2-24; see Sec. 102 history note.)

Flexible Retail. A Retail Sales and Service Use subject to the requirements of Section 202.9, that combines a minimum of two of the following distinct Uses within a space that may be operated by one or more business operators:

(1) Arts Activities;

(2) Restaurant, Limited;

(3) Retail Sales and Services, General;

(4) Service, Personal;

(5) Service, Retail Professional; and

(6) Trade Shop.

(Added by Ord. 285-18; amended by Ord. 111-21; Ord. 249-23; see Sec. 102 history note.)

Flexible Workspace. A Retail Sales and Service use that is a combination of any uses within the Retail Sales and Service use category or a General Entertainment use that operates in conjunction with a principally or conditionally permitted Non-Retail Sales and Service use other than a Commercial Storage, Wholesale Sales, or Wholesale Storage use. The Retail Sales and Service or General Entertainment portion of the use shall be at least one-third of the overall Gross Floor Area and must face the street.

(Added by Ord. 122-23; Ord. 159-23; see Sec. 102 history note.)

Floor Area, Gross. In Districts other than C-3, the Central SoMa Special Use District and the Van Ness Special Use District, the sum of the gross areas of the several floors of a building or buildings, measured from the exterior faces of exterior walls or from the centerlines of walls separating two buildings. Where columns are outside and separated from an exterior wall (curtain wall) that encloses the building space or are otherwise so arranged that the curtain wall is clearly separate from the structural members, the exterior face of the curtain wall shall be the line of measurement, and the area of the columns themselves at each floor shall also be counted.

In the C-3 and Central SoMa and Van Ness Special Use Districts, the sum of the gross areas of the several floors of a building or buildings, measured along the glass line at windows at a height of four feet above the finished floor and along a projected straight line parallel to the overall building wall plane connecting the ends of individual windows, provided, however, that such line shall not be inward of the interior face of the wall.

(a) Except as specifically excluded in this definition, "Gross Floor Area" shall include, but not be limited to, the following:

(1) Basement and cellar space, including tenants' storage areas and all other spaces except that used only for storage or services necessary to the operation or maintenance of the building itself;

(2) Elevator shafts, stairwells, exit enclosures, and smoke-proof enclosures at each floor;

(3) Floor space in penthouses except as specifically excluded in this definition;

(4) Attic space (whether or not a floor has been laid) capable of being made into habitable space;

(5) Floor space in balconies or mezzanines in the interior of the building;

(6) Floor space in open or roofed porches, arcades, or exterior balconies, if such porch, arcade, or balcony is located above the ground floor or first floor of occupancy above basement or garage and is used as the primary access to the interior space it serves;

(7) In districts other than the C-3 and Central SoMa Special Use District, floor space in accessory buildings; and

(8) In the C-3 and Central SoMa Special Use Districts, any floor area dedicated to accessory or non-accessory parking, except for bicycle parking, required off-street loading, and accessory parking as specified in subsection (b)(7); and

(9) Any other floor space not specifically excluded in this definition.

(b) "Gross Floor Area" shall not include the following:

(1) Basement and cellar space used only for storage or services necessary to the operation or maintenance of the building itself;

(2) Attic space not capable of being made into habitable space;

(3) Elevator or stair penthouses, accessory water tanks or cooling towers, and other mechanical equipment, appurtenances, and areas necessary to the operation or maintenance of the building itself, if located at the top of the building or separated therefrom only by other space not included in the gross floor area;

(4) Mechanical equipment, appurtenances, and areas necessary to the operation or maintenance of the building itself (A) if located at an intermediate story of the building and forming a complete floor level; or (B) in the C-3 and Central SoMa Special Use Districts, if located on a number of intermediate stories occupying less than a full floor level, provided that the mechanical equipment,

appurtenances, and areas are permanently separated from occupied floor areas and in aggregate area do not exceed the area of an average floor as determined by the Zoning Administrator;

(5) Outside stairs to the first floor of occupancy at the face of the building which the stairs serve, or fire escapes;

(6) Floor space dedicated to accessory parking that does not exceed the amount principally permitted as accessory, and is located on any Basement Story;

(7) In C-3 and CMUO Districts, floor space dedicated to parking which does not exceed the amount principally permitted as accessory, and is located underground;

(8) Bicycle parking that meets the standards of Sections 155.1 through 155.4 of this Code;

(9) Arcades, plazas, walkways, porches, breezeways, porticos and similar features (whether roofed or not), at or near street level, accessible to the general public and not substantially enclosed by exterior walls; and accessways to public transit lines, if open for use by the general public; all exclusive of areas devoted to sales, service, display, and other activities other than movement of persons;

(10) Balconies, porches, roof decks, terraces, courts and similar features, except those used for primary access as described in Paragraph (a)(6) above, provided that:

(A) If more than 70 percent of the perimeter of such an area is enclosed, either by building walls (exclusive of a railing or parapet not more than three feet eight inches high) or by such walls and interior lot lines, and the clear space is less than 15 feet in either dimension, the area shall not be excluded from Gross Floor Area unless it is fully open to the sky (except for roof eaves, cornices, or belt courses that project not more than two feet from the face of the building wall).

(B) If more than 70 percent of the perimeter of such an area is enclosed, either by building walls (exclusive of a railing or parapet not more than three feet eight inches high), or by such walls and interior lot lines, and the clear space is 15 feet or more in both dimensions: (i) The area shall be excluded from Gross Floor Area if it is fully open to the sky (except for roof eaves, cornices, or belt courses that project no more than two feet from the face of the building wall); and (ii) The area may have roofed areas along its perimeter which are also excluded from Gross Floor Area if the minimum clear open space between any such roof and the opposite wall or roof (whichever is closer) is maintained at 15 feet (with the above exceptions) and the roofed area does not exceed 10 feet in depth; (iii) In addition, when the clear open area exceeds 625 square feet, a canopy, gazebo, or similar roofed structure without walls may cover up to 10 percent of such open space without being counted as gross floor area.

(C) If, however, 70 percent or less of the perimeter of such an area is enclosed by building walls (exclusive of a railing or parapet not more than three feet eight inches high) or by such walls and interior lot lines, and the open side or sides face on a yard, street or court whose dimensions satisfy the requirements of this Code and all other applicable codes for instances in which required windows face upon such yard, street, or court, the area may be roofed to the extent permitted by such codes in instances in which required windows are involved;

(11) On lower, nonresidential floors, elevator shafts and other life-support systems serving exclusively the residential uses on the upper floors of a building;

(12) One-third of that portion of a window bay conforming to the requirements of Section 136(d)(2) that extends beyond the plane formed by the face of the façade on either side of the bay, but not to exceed seven square feet per bay window as measured at each floor;

(13) Ground floor area in the C-3-O, C-3-O(SD), C-3-S, C-3-S(SU), and C-3-G Districts, and in the Central SoMa Special Use District devoted to building or pedestrian circulation and building service;

(14) In the C-3-O, C-3-O(SD), C-3-S, C-3-S(SU), and C-3-G Districts, space devoted to personal services, restaurants, and retail sales of goods intended to meet the convenience shopping and service needs of downtown workers and residents, not to exceed 5,000 occupied square feet per use and, in total, not to exceed 75 percent of the area of the ground floor of the building plus the ground level, on-site open space. Said uses shall be located on the ground floor except that, in order to facilitate the creation of more spacious ground floor interior spaces, a portion of the said uses, in an amount to be determined pursuant to the provisions of Section 309, may be located on a mezzanine level;

(15) An interior space provided as an open space feature in accordance with the requirements of Section 138;

(16) Floor area in C-3 and Eastern Neighborhoods Mixed Use Districts devoted to child care facilities, provided that:

(A) Allowable indoor space is no less than 3,000 square feet and no more than 6,000 square feet;

(B) The facilities are made available rent free;

(C) Adequate outdoor space is provided adjacent, or easily accessible, to the facility. Spaces such as atriums, rooftops, or public parks may be used if they meet licensing requirements for child care facilities; and

(D) The space is used for child care for the life of the building as long as there is a demonstrated need. No change in use shall occur without a finding by the Planning Commission that there is a lack of need for child care and that the space will be used for a facility described in subsection (B)(17) below dealing with cultural, educational, recreational, religious, or social service facilities;

(17) Floor area in C-3 and Eastern Neighborhoods Mixed Use Districts permanently devoted to cultural, educational, recreational, religious, or social service facilities available to the general public at no cost or at a fee covering actual operating expenses, provided that such facilities are:

(A) Owned and operated by a nonprofit corporation or institution; or

(B) Are made available rent free for occupancy only by nonprofit corporations or institutions for such functions. Building area subject to this subsection shall be counted as Occupied Floor Area, except as provided in subsections (a) through (f) in the definition for Floor Area, Occupied, for the purpose of calculating the freight loading requirements for the project;

(18) In the C-3-O(SD) District, space devoted to personal services, eating and drinking uses, or retail sales of goods and that is located on the same level as the rooftop park on the Transbay Transit Center and directly accessible thereto by a direct publicly-accessible pedestrian connection meeting the standards of Section 138(j)(1); and

(19) In the C-3-O(SD) District, publicly-accessible space on any story above a height of 600 feet devoted to public accommodation that offers extensive views, including observation decks, sky lobbies, restaurants, bars, or other retail uses, as well as any elevators or other vertical circulation dedicated exclusively to accessing or servicing such space. The space must be open to the general public during normal business hours throughout the year, and may charge a nominal fee for access.

(20) [Expired]

(21) Any area devoted to bicycle parking, bicycle maintenance rooms, or car share spaces when such features are provided as part of a Development Project's compliance with the Transportation Demand Management Program set forth in Section 169 of the Planning Code.

(Amended by Ord. 52-15; Ord. 34-17; Ord. 13-18; Ord. 296-18; see Sec. 102 history note.)

Floor Area, Occupied. Floor area devoted to, or capable of being devoted to, a principal or Conditional Use and its accessory uses. For purposes of computation, "Occupied Floor Area" shall consist of the Gross Floor Area, as defined in this Code, minus the following:

(a) Accessory parking and loading spaces and driveways, and maneuvering areas incidental thereto;

(b) Exterior walls of the building;

(c) Mechanical equipment, appurtenances, and areas necessary to the operation or maintenance of the building itself, wherever located in the building;

(d) Restrooms and space for storage and services necessary to the operation and maintenance of the building itself, wherever located in the building;

(e) Space in a retail store for store management, show windows, and dressing rooms, and for incidental repairs, processing, packaging, and stockroom storage of merchandise for sale on the premises; and

(f) Incidental storage space for the convenience of tenants.

(Amended by Ord. 99-17; see Sec. 102 history note.)

Floor Area Ratio. The ratio of the Gross Floor Area of all the buildings on a lot to the area of the lot. In cases in which portions of the gross floor area of a building project horizontally beyond the lot lines, all such projecting gross floor area shall also be included in determining the floor area ratio.

Floor Area, Usable. Generally, the sum of the gross areas of the several floors of a building, measured from the exterior walls or from the center lines of common walls separating two buildings. See alternative definition for the Bernal Heights Special Use District.

Formula Retail. Formula Retail shall have the meaning set forth in Section 303.1 of the Planning Code.

G

Gas Station. A Retail Automotive Use that provides motor fuels, lubricating oils, air, and water directly into motor vehicles and without providing Automotive Repair services, and which also includes self-service operations that sell motor fuel only. This use is subject to the controls in Sections 202.2(b) and 187.1.

(Amended by Ord. 188-15; see Sec. 102 history note.)

General Entertainment. See Entertainment, General.

General Grocery. See Grocery, General.

Gift Store-Tourist Oriented. A Retail Sales and Service Use that involves the marketing of small art goods, gifts, souvenirs, curios, or novelties to the public, particularly those who are visitors to San Francisco rather than local residents.

Grain Elevator. An Industrial Use defined as a storage facility for grain that contains a bucket elevator or a pneumatic conveyor that scoops up grain from a lower level and deposits it in a silo or other storage facility. This use also covers the entire elevator complex including, but not limited to, receiving and testing offices, weighbridges, and storage facilities.

Grocery, General. A Retail Sales and Services Use that:

(a) Offers a diverse variety of unrelated, non-complementary food and non-food commodities, such as beverages, dairy, dry goods, fresh produce and other perishable items, frozen foods, household products, and paper goods;

(b) May provide beer, wine, and/or liquor sales for consumption off the premises with a California Alcoholic Beverage Control Board License type 20 (off-sale beer and wine) or type 21 (off-sale general) that occupy less than 15% of the Occupied Floor Area of the establishment (including all areas devoted to the display and sale of alcoholic beverages);

(c) May prepare minor amounts of food on site for immediate consumption;

(d) Markets the majority of its merchandise at retail prices; and

(e) Shall operate with the specified conditions in Section 202.2(a)(1).

(f) Such businesses require Conditional Use authorization for conversion of a General Grocery use greater than 5,000 square feet, pursuant to Section 202.3 and 303(l).

(Amended by Ord. 188-15; Ord. 129-17; see Sec. 102 history note.)

Grocery, Specialty. A Retail Sales and Services Use that:

(a) Offers specialty food products such as baked goods, pasta, cheese, confections, coffee, meat, seafood, produce, artisanal goods, and other specialty food products, and may also offer additional food and non-food commodities related or complementary to the specialty food products;

(b) May provide beer, wine, and/or liquor sales for consumption off the premises with a California Alcoholic Beverage Control Board License type 20 (off-sale beer and wine) or type 21 (off-sale general) which occupy less than 15% of the Occupied Floor Area of the establishment (including all areas devoted to the display and sale of alcoholic beverages);

(c) May prepare minor amounts of food on site for immediate consumption off-site with no seating permitted; and

(d) Markets the majority of its merchandise at retail prices.

(e) Such businesses that provide food or drink per subsections (b) and (c) above shall operate with the specified conditions in Section 202.2(a)(1).

(Amended by Ord. 188-15; Ord. 129-17; see Sec. 102 history note.)

Gross Floor Area. See Floor Area, Gross

Ground Floor. First Story, as defined under Story, below.

(Added by Ord. 206-19; see Sec. 102 history note.)

Group Housing. A Residential Use that provides lodging or both meals and lodging, without individual or limited cooking facilities or kitchens, by prearrangement for 30 days or more at a time and intended as Long-Term Housing, in a space not defined by this Code as a Dwelling Unit. Except for Group Housing that also qualifies as Student Housing as defined in this Section 102, 100% Affordable Housing as defined in Planning Code Section 315, or housing operated by an organization with tax-exempt status under 26 United States Code Section 501(c)(3) providing access to the unit in furtherance of it[3] primary mission to provide housing, the residential square footage devoted to Group Housing shall include both common and private space in the following amounts: for every gross square foot of private space (including bedrooms and individual bathrooms), 0.5 gross square feet of common space shall be provided, with at least 15% of the common space devoted to communal kitchens with a minimum of one kitchen for every 15 Group Housing units. Group Housing shall include, but not necessarily be limited to, a Residential Hotel, boardinghouse, guesthouse, rooming house, lodging house, residence club, commune, fraternity or sorority house, monastery, nunnery, convent, or ashram. It shall also include group housing affiliated with and operated by a medical or educational institution, when not located on the same lot as such institution, which shall meet the applicable provisions of Section 304.5 of this Code concerning institutional master plans.

(Amended by Ord. 50-22; see Sec. 102 history note.)

Gym. A Retail Sales and Service Use including a health club, fitness, gymnasium, or exercise facility when including equipment and space for weight-lifting and cardiovascular activities.

(Amended by Ord. 111-21; see Sec. 102 history note.)

H

Hazardous Waste Facility. An Industrial Use that includes any use involving the treatment, transfer, storage, resource recovery, disposal, or recycling of hazardous waste that is produced at an off-site facility, but shall not include a facility that: (1) manages only used oil, used oil filters, latex paint, antifreeze, small household batteries or lead acid batteries; or (2) establishes that it is not required to obtain a hazardous waste facility permit from the State of California. The terms "hazardous waste," "treatment," "transfer," "storage," "disposal," "off-site facility," and "used oil" as used herein shall have the meaning given those terms in the California Health and Safety Code, Division 20, Chapter 6.5, Articles 2 and 13, which are hereby incorporated by reference.

Health Service. See Service, Health.

Heavy Manufacturing. See Manufacturing, Heavy.

Height (of a building or structure). The vertical distance by which a building or structure rises above a certain point of measurement. See Section 260 of this Code for how height is measured.

Historic Building. A Historic Building is a building or structure that meets at least one of the following criteria:

- It is individually designated as a landmark under Article 10;
- It is listed as a contributor to an historic district listed in Article 10, or if the historic district does not list contributors, is determined to be a contributor through historic resource review;
- It is a Significant or Contributory Building under Article 11, with a Category I, II, III or IV rating;

- It has been listed or has been determined eligible for listing in the California Register of Historical Resources; or,
- It has been listed or has been determined eligible for listing in the National Register of Historic Places.

(Added by Ord. 248-23; amended by Ord. 297-24; see Sec. 102 history note.)

Homeless Shelter. A Residential Use defined as living and/or sleeping accommodations without any fee to individuals and families who are homeless, as defined in the Federal Homeless Emergency Assistance and Rapid Transition to Housing (HEARTH) Act of 2009 (S.896), as amended from time to time. Homeless Shelters shall comply with the requirements of the Standards of Care for City Shelters contained in Administrative Code, Chapter 20, Article XIII, including the requirement for operational standards in Section 20.404(d).

Horizontal Elements. All roof areas and all floor plates, except floor plates at or below grade.

Hospital. An Institutional Healthcare Use that includes a hospital, medical center, or other medical institution that provides facilities for inpatient or outpatient medical care and may also include medical offices, clinics, laboratories, and employee or student dormitories and other housing, operated by and affiliated with the institution, which institution has met the applicable provisions of Section 304.5 of this Code concerning Institutional Master Plans.

(Amended by Ord. 188-15; see Sec. 102 history note.)

Hotel. A Retail Sales and Services Use that provides tourist accommodations, including guest rooms or suites, which are intended or designed to be used, rented, or hired out to guests (transient visitors) intending to occupy the room for less than 32 consecutive days. This definition also applies to buildings containing six or more guest rooms designated and certified as tourist units, under Chapter 41 of the San Francisco Administrative Code. For purposes of this Code, a Hotel does not include (except within the Bayshore-Hester Special Use District as provided for in Sections 713 and 780.2 of this Code) a Motel, which contains guest rooms or suites that are independently accessible from the outside, with garage or parking space located on the lot, and designed for, or occupied by, automobile-traveling transient visitors. Hotels shall be designed to include all lobbies, offices, and internal circulation to guest rooms and suites within and integral to the same enclosed building or buildings as the guest rooms or suites.

Hotel, Residential. A Residential Use defined in Chapter 41 of the San Francisco Administrative Code that contains one or more residential hotel units. A residential hotel unit is a guest room, as defined in Section 203.7 of Chapter XII, Part II, of the San Francisco Municipal Code (Housing Code), which had been occupied by a permanent resident on September 23, 1979, or any guest room designated as a residential unit pursuant to Sections 41.6 or 41.7 of Chapter 41 of the San Francisco Administrative Code. Residential hotels are further defined and regulated in the Residential Hotel Unit Conversion and Demolition Ordinance, Chapter 41, of the San Francisco Administrative Code.

Hours of Operation. A commercial Use Characteristic limiting the permitted hours during which any commercial establishment, not including automated teller machines, may be open for business. Other restrictions on the hours of operation of Movie Theaters, Adult Businesses, Adult Sex Venues, Nighttime Entertainment, and General Entertainment Uses shall apply pursuant to provisions in Section 303(p), when such uses are permitted as Conditional Uses. A Pharmacy may qualify for the exception to operate on a 24-hour basis provided in Section 202.2(a)(2) of the Code. The hours of operation of a principally permitted Adult Sex Venue are subject to the provisions in Section 202.2(a)(8).

(Amended by Ord. 129-17; Ord. 202-18; Ord. 75-22; Ord. 70-23; see Sec. 102 history note.)

I

Industrial Use. A Use Category containing the following uses: Agricultural and Beverage Processing 1 and 2, Automobile Wrecking, Automobile Assembly, Grain Elevator, Hazardous Waste Facility, Junkyard, Livestock Processing 1 and 2, Heavy Manufacturing 1, 2, and 3, Light Manufacturing, Metal Working, Ship Yard, Storage Yard, Volatile Materials Storage, and Truck Terminal.

(Amended by Ord. 229-17; Ord. 202-18; see Sec. 102 history note.)

Infrastructure. Open space and recreational facilities; public realms improvements such as pedestrian improvements and streetscape improvements; public transit facilities; and community facilities such as libraries, child care facilities, and community centers.

In-Kind Agreement. An agreement acceptable in form and substance to the City Attorney and the Director of Planning, under which the project sponsor agrees to provide a specific set of community improvements, at a specific phase of construction, in lieu of contribution to the relevant Fund.

In Lieu Fee. A fee paid by a project sponsor in lieu of complying with a requirement of this Code and that is not a development impact fee governed by the Mitigation Fee Act.

Institutional Community Use. A subcategory of Institutional Uses that includes Child Care Facility, Community Facility, Private Community Facility, Job Training, Religious Institution, Social Service or Philanthropic Facility, and Public Facility.

(Amended by Ord. 182-19, see Sec. 102 history note.)

Institutional Education Use. A subcategory of Institutional Uses that includes Post-Secondary Educational Institution, School, and Trade School.

Institutional Healthcare Use. A subcategory of Institutional Uses that includes Hospital, Medical Cannabis Dispensary, and Residential Care Facility.

Institutional Use. A Use Category that includes Child Care Facility, Community Facility, Private Community Facility, Hospital, Job Training, Medical Cannabis Dispensary, Religious Institution, Residential Care Facility, Social Service or Philanthropic Facility, Post-Secondary Educational Institution, Public Facility, School, and Trade School.

(Amended by Ord. 63-20; see Sec. 102 history note.)

Interior Lot. See Lot, Interior.

Intermediate Length Occupancy. A Residential Use characteristic that applies to a Dwelling Unit offered for occupancy by a natural person for an initial stay, whether through lease, subscription, license, or otherwise, for a duration of greater than 30 consecutive days but less than one year. This use characteristic is subject to the requirements of Section 202.10.

(Added by Ord. 78-20; see Sec. 102 history note.)

Internet Service Exchange. A Utility and Infrastructure Use defined as a location that contains any of the following uses (excluding a Wireless Telecommunications Services Facility): switching equipment (whether wireline or wireless) that joins or connects occupants, customers, or subscribers to enable customers or subscribers to transmit data, voice or video signals to each other; one or more computer systems and related equipment used to build, maintain, or process data, voice or video signals, and provide other data processing services; or a group of network servers.

(Amended by Ord. 166-16; see Sec. 102 history note.)

J

Jewelry Store. A Retail Sales and Service Use that primarily involves the sale of jewelry to the general public. It may involve sales of precious stones, gems, precious metals, gold and silver, or clocks and watches. Repair services or setting, custom design or manufacture of individual pieces of jewelry may also be provided.

Job Training. A Institutional Community Use that provides job training and may also provide vocational counseling and job referrals.

Junk Yard. An Industrial Use defined as an outdoor space where junk, waste, discarded or salvaged materials are stored or handled, including house-wrecking yards, used lumber yards, and places or yards for storage of salvaged house wrecking and structural steel materials and equipment, excluding automobile wrecking operations, which is defined as a separate use in this Section of the Code; yards or establishments for the sale, purchase, or storage of used cars or machinery in operable condition; and the processing of used, discarded, or salvaged materials as part of a permitted manufacturing operation in the same premises.

K

Kennel. A Retail Sales and Services Use where dogs, or dogs and cats, are boarded for compensation, or are cared for or trained for hire, or are kept for sale or bred for sale, where the care, breeding, or sale of the dogs, or dogs and cats, is the principal means of livelihood of the occupants of the premises.

(Amended by Ord. 111-21; see Sec. 102 history note.)

L

Laboratory. A Non-Retail Sales and Services Use intended or primarily suitable for scientific research. The space requirements of uses within this category include specialized facilities and/or built accommodations that distinguish the space from Office uses, Light Manufacturing, or Heavy Manufacturing. Examples of laboratories include the following:

(a) Chemistry, biochemistry, or analytical laboratory;

(b) Engineering laboratory;

(c) Development laboratory;

(d) Biological laboratories including those classified by the Centers for Disease Control (CDC) and National Institutes of Health (NIH) as Biosafety level 1, Biosafety level 2, or Biosafety level 3;

(e) Animal facility or vivarium, including laboratories classified by the CDC/NIH as Animal Biosafety level 1, Animal Biosafety level 2, or Animal Biosafety level 3;

(f) Support laboratory;

(g) Quality assurance/Quality control laboratory;

(h) Core laboratory; and

(i) Cannabis testing facility (any use requiring License Type 8—Testing Laboratory, as defined in California Business and Professions Code, Division 10).

(Amended by Ord. 229-17; see Sec. 102 history note.)

Large-Scale Urban Agriculture. See Agriculture, Large Scale Urban.

Laundromat. A Retail Sales and Service Use that is used for the purpose of washing, drying, dry cleaning, starching, or ironing, for the general public, wearing apparel, household linens, or other washable fabrics, or a place used or maintained for the storage, collection, or delivery of such articles for such service. A Laundromat use shall include any place, whether self-service or otherwise, maintained for the general public for the purpose of washing and drying wearing apparel, household linens, or other washable fabrics, by coin-operated, or card-operated laundry machinery.

(Amended by Ord. 209-21; see Sec. 102 history note.)

Length (of a Building or Structure). See Plan Dimensions.

(Added by Ord. 206-19; see Sec. 102 history note.)

Licensed Child Care Facility. A child care facility that has been issued a valid license by the California Department of Social Services pursuant to California Health and Safety Code Sections 1596.80-1596.875, 1596.95-1597.09, or 1597.30-1597.61.

Life Science. A Non-Retail Sales and Service Use that involves the integration of natural and engineering sciences and advanced biological techniques using organisms, cells, and parts thereof for products and services. This includes the creation of products and services used to analyze and detect various illnesses, the design of products that cure illnesses, and/or the provision of capital goods and services, machinery, instruments, software, and reagents related to research and production. Life Science uses may utilize office, laboratory, light manufacturing, or other types of space. As a subset of Life Science uses, Life Science laboratories typically include biological laboratories and animal facilities or vivaria, as described in the Laboratory definition Subsections (d) and (e).

Light Manufacturing. See Manufacturing, Light.

Limited Live Performance. An Accessory Use as defined in Section 1060 of the Police Code

Limited Restaurant. See Restaurant, Limited.

Liquor Store. A Retail Sales and Service Use that sells beer, wine, or distilled spirits to a customer in an open or closed container for consumption off the premises and that needs a State of California Alcoholic Beverage Control Board License type 20 (off-sale beer and wine) or type 21 (off-sale general) This classification shall not include retail uses that:

(a) are both (1) classified as a General Grocery, a Specialty Grocery, or a Restaurant- Limited, and (2) have a Gross Floor Area devoted to alcoholic beverages that is within the applicable accessory use limits for the use district in which it is located, or

(b) have both (1) a Non-residential Use Size of greater than 10,000 gross square feet and (2) a gross floor area devoted to alcoholic beverages that is within accessory use limits as set forth in Section 204.3 or Section 703(d) of this Code, depending on the zoning district in which the use is located.

(c) For purposes of Planning Code Sections 249.5, 781.8, 781.9, 782, and 784, the retail uses explicitly exempted from this definition as set forth above shall only apply to General Grocery and Specialty Grocery stores that exceed 5,000 square feet in size and shall not:

(1) sell any malt beverage with an alcohol content greater than 5.7 percent by volume; any wine with an alcohol content of greater than 15 percent by volume, except for “dinner wines” that have been aged two years or more and maintained in a corked bottle; or any distilled spirits in container sizes smaller than 600 milliliters;

(2) devote more than 15 percent of the gross square footage of the establishment to the display and sale of alcoholic beverages; and

(3) sell single servings of beer in container sizes 24 ounces or smaller.

Liquor Store uses are subject to the operating conditions of Section 202.2(a)(6). Where conditionally permitted, the Conditional Use authorization shall also satisfy the conditions of Section 303(z).

(Amended by Ord. 129-17; Ord. 182-19; see Sec. 102 history note.)

Livery Stable. A Retail Entertainment, Arts and Recreation Use where horses and carriages are kept for hire and where stabling is provided. This use also includes horse riding academies.

Livestock Processing 1. An Industrial Use that involves the live storage, killing or dressing of poultry, rabbits or other small livestock, and/or the tanning or curing of raw hides or skins from an animal of any size. Direct sales to customers is permitted on site. This use is subject to the location and operating restrictions in Section 202.2(d).

Livestock Processing 2. An Industrial Use that involves the live storage, killing or dressing of cows, pigs, goats, and other large livestock and/or the tanning or curing of raw hides or skins from an animal of any size. Direct sales to customers is permitted on site. This use is subject to the location and operating restrictions in Section 202.2(d).

Live/Work Project. A Housing Project containing more than one Live/Work Unit.

Live/Work Unit. A hybrid Residential and PDR Use that is defined as a structure or portion of a structure combining a residential living space for a group of persons including not more than four adults in the same unit with an integrated work space principally used by one or more of the residents of that unit; provided, however, that no otherwise qualifying portion of a structure that contains a Group A occupancy under the Building Code shall be considered a Live/Work Unit. No City official, department, board, or commission shall issue or approve a building permit or other land use entitlement authorizing a new live/work unit as defined here, except as authorized under Section 210.5, or as an accessory use under Section 204.4. Lawfully approved live/work units are subject to the provisions of Sections 181 and 317 of this Code.

(Amended by Ord. 122-23; Ord. 159-23; see Sec. 102 history note.)

Long Term Housing. Housing intended for occupancy by a person or persons for 32 consecutive days or longer.

Lot. A parcel of land under one ownership that constitutes, or is to constitute, a complete and separate functional unit of development, and that does not extend beyond the property lines along streets or alleys. A lot as so defined generally consists of a single Assessor's lot, but in some cases consists of a combination of contiguous Assessor's lots or portions thereof where such combination is necessary to meet the requirements of this Code. In order to clarify the status of specific property as a lot under this Code, the Zoning Administrator may, consistent with the provisions of this Code, require such changes in the Assessor's records, placing of restrictions on the land records, and other actions as may be necessary to assure compliance with this Code. The definition of "lot" shall also be applicable to piers under the jurisdiction of the Port Commission.

Lot, Corner. A lot bounded on two or more adjoining sides by streets that intersect adjacent to such lot, provided that the angle of intersection of such streets along such lot does not exceed 135 degrees. For the purposes of this Code, no Corner Lot shall be considered wider or deeper than 125 feet, and the remainder of any lot involved shall be considered to be an Interior Lot. Whenever a Corner Lot is resubdivided, only that portion which thereafter is bounded on adjoining sides by streets as herein described shall be a Corner Lot.

Lot, Interior. A lot other than a Corner Lot.

Lot Size (Per Development). The permitted gross lot area for new construction or expansion of existing development.

M

Mandatory Discretionary Review. A hearing before the Planning Commission that is required by the Planning Code at which the Commission will determine whether to approve, modify, or disapprove a permit application.

Manufacturing 1, Heavy. An Industrial Use having the potential of creating substantial noise, smoke, dust, vibration, and/or other environmental impacts or pollution, and including, but not limited to:

(a) Concrete mixing, concrete products manufacture,

(b) Electric foundry or foundry for nonferrous metals

(c) Enameling, lacquering, wholesale paint mixing from previously prepared pigments and vehicles,

(d) Woodworking mill, manufacture of woodfibre, sawdust or excelsior products not involving chemical processing,

(e) Blast furnace, rolling mill, or smelter; and

(f) Ice manufacturing plant.

This use is subject to the location and operation controls in Section 202.2(d)

Manufacturing 2, Heavy. An Industrial Use having the potential of creating substantial noise, smoke, dust, vibration, and/or other environmental impacts or pollution, and including, but not limited to:

(a) Production or refining of petroleum products, excluding such products used solely as fuel sources;

(b) Rendering or reduction of fat, bones, or other animal material, where adequate provision is made for the control of odors through the use of surface condensers and direct-flame afterburners or equivalent equipment;

(c) Incineration of garbage, refuse, dead animals or parts thereof;

This use is subject to the controls in Section 202.2(d).

(Amended by Ord. 217-21; see Sec. 102 history note.)

Manufacturing 3, Heavy. An Industrial Use having the potential of creating substantial noise, smoke, dust, vibration, and/or other environmental impacts or pollution, and including, but not limited to:

(a) Battery manufacture;

(b) Manufacture of corrosive acid or alkali, cement, gypsum, lime, plaster of Paris, explosive, fertilizer, glue or gelatin from fish or animal refuse;

(c) Manufacture, refining, distillation, or treatment of any of the following: abrasives, acid (noncorrosive), alcohol, ammonia, asbestos, asphalt, bleaching powder, candles (from tallow), celluloid, chlorine, coal, coke, creosote, dextrine, disinfectant, dye, enamel, gas carbon or lampblack, gas (acetylene or other inflammable), glucose, insecticide, lacquer, linoleum, matches, oilcloth, oil paint, paper (or pulp), petroleum products (excluding such products used solely as fuel sources), perfume, plastics, poison, potash, printing ink, refuse mash or refuse grain, rubber (including balata or gutta-percha or crude or scrap rubber), shellac, shoe or stove polish, soap, starch, tar, turpentine, or varnish.

(d) Foundry, structural iron or pipe works, boilermaking where riveting is involved, locomotive works, roundhouse or railroad shop.

This use is subject to the location and operation controls in Section 202.2(d)

(Amended by Ord. 217-21; see Sec. 102 history note.)

Manufacturing, Light. An Industrial Use that provides for the fabrication or production of goods, by hand or machinery, for distribution to retailers or wholesalers for resale off the premises, primarily involving the assembly, packaging, repairing, or processing of previously prepared materials. Light manufacturing uses include production and custom activities usually involving individual or special design, or handiwork, such as the following fabrication or production activities, as may be defined by the Standard Industrial Classification Code Manual as light manufacturing uses:

(a) Food processing;

(b) Apparel and other garment products;

(c) Furniture and fixtures;

(d) Printing and publishing of books or newspapers;

(e) Leather products;

(f) Pottery;

(g) Glass-blowing;

(h) Commercial laundry, rug cleaning, and dry cleaning facility;

(i) Measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks; or

(j) Manufacture of cannabis products or cannabis extracts that are derived without the use of volatile organic compounds (any use requiring License Type 6—Manufacturer 1, as defined in California Business and Professions Code, Division 10).

It shall not include Trade Shop, Agricultural and Beverage Processing 1 or 2, or Heavy Manufacturing 1, 2, or 3. This use is subject to the location and operation controls in Section 202.2(d).

(Amended by Ord. 229-17; Ord. 111-21; see Sec. 102 history note.)

Maritime Use. A Use Characteristic defined as any use that requires access to or use of San Francisco Bay waters in order to function or operate in the normal course of business including, but not limited to, uses associated with waterborne commerce, navigation, fisheries, and recreation, and industrial, commercial, and other operations directly related to the conduct of waterborne commerce, navigation, fisheries, or recreation on property subject to public trust. Maritime Uses also includes houseboats or residential uses on the water.

Marquee. A permanent roofed structure attached to and supported entirely by a building, including any object or decoration attached to or part of said marquee, no part of which shall be used for occupancy or storage, with the purpose of providing protection from sun and rain and/or embellishment of the façade, as further regulated in Section 3106 of the Building Code.

Massage, Chair/Foot. A Retail Sales and Service Use where the only massage service provided is chair or foot massage, such service is visible to the public, and customers are fully clothed at all times.

Massage Establishment. A Retail Sales and Service Use defined by Section 29.5 of the Health Code. For purposes of the Planning Code only, "Massage Establishment" shall include a "Massage Establishment" but shall not include a "Sole Practitioner Massage Establishment," as these terms are defined in Section 29.5 of the Health Code. The Massage Establishment shall first obtain a permit from the Department of Public Health pursuant to Section 29.25 of the Health Code, or a letter from the Director of the Department of Public Health certifying that the establishment is exempt from such a permit under Section 29.25 of the Health Code

(Amended by Ord. 73-15; Ord. 63-20; Ord. 233-21; Ord. 37-22; see Sec. 102 history note.)

Medical Cannabis Dispensary. An Institutional Healthcare Use that is either (a) a cooperative or collective operating under the authority of a permit issued by the Director of Health under Article 33 of the Health Code, or (b) a Medicinal Cannabis Retailer as defined in Police Code Section 1602. A Medical Cannabis Dispensary Use is permitted only if it meets the conditions listed in Section 202.2(e).

(Amended by Ord. 229-17; see Sec. 102 history note.)

Metal Working. An Industrial use that includes metal working or blacksmith shop; excluding presses of over 20 tons' capacity and machine-operated drop hammers. This use is subject to location and operational controls in Section 202.2(d).

Mobile Food Facility. Any vehicle or pushcart used in conjunction with a commissary or other permanent food facility upon which food is sold or distributed at retail prices. Mobile Food Facility does not include a "Transporter" used to transport packaged food from a food facility or other approved source to the consumer. A Mobile Food Facility does not include any use that sells goods, wares, or merchandise other than food or drink intended for human consumption. For the purposes of the Planning Code, a Mobile Food Facility that is a temporary Use is regulated as an intermittent activity, per Section 205.4; a Mobile Food Facility that exceeds the limitations set forth in Section 205.4 is considered a Restaurant or Limited Restaurant Use, as defined in this Section 102, and is regulated as such by the Use controls for the respective zoning district. Mobile Food Facilities shall comply with the good neighbor policies set forth in Public Works Code Section 184.94 as well as Planning Code Section 202.2(a)(1).

(Amended by Ord. 129-17; see Sec. 102 history note.)

MOH. The Mayor's Office of Housing and Community Development or its successor.

Mortuary. A Retail Sales and Services Use that provides funeral services, funeral preparation, or burial arrangements, including retail establishments that predominantly sell or offer for sale caskets, tombstones, or other funerary goods. In RH, RM, RTO, and RC Districts only, this use includes Columbarium use, which provides for the storage of cremated remains in niches.

Motel. A Retail Sales and Services Use that includes an auto court, motor lodge, tourist court, or other facility similarly identified, contains rooms or suites of rooms, none with individual cooking facilities, which are offered for compensation and are primarily for the accommodation of transient guests traveling by automobile, and where each sleeping unit is independently accessible from the outside. This use is subject to the controls listed in Section 202.2(a).

Movie Theater. A Retail Entertainment, Arts and Recreation Use that displays motion pictures, videos, slides, or closed-circuit television pictures. This use does not include an adult theater, which is regulated as an Adult Business. Removal of a Movie Theater is subject to the controls in Section 202.4.

MTA. The Municipal Transportation Agency or its successor.

MTA Director. The Director of MTA or his or her designee.

Municipal Railway (Muni). The public transit system owned by the City and under the jurisdiction of the MTA.

N

Neighborhood Agriculture. See Agriculture, Neighborhood.

Neighborhood-Serving Business. A neighborhood-serving business cannot be defined by the type of use, but rather by the characteristics of its customers, types of merchandise or service, its size, trade area, and the number of similar establishments in other neighborhoods. The primary clientele of a "neighborhood-serving business," by definition, is comprised of customers who live and/or work nearby.

While a neighborhood-serving business may derive revenue from customers outside the immediately surrounding neighborhood, it is not dependent on out-of-neighborhood clientele.

A neighborhood-serving use provides goods and/or services which are needed by residents and workers in the immediate neighborhood to satisfy basic personal and household needs on a frequent and recurring basis, and which if not available require trips outside of the neighborhood.

A use may be more or less neighborhood-serving depending upon its trade area. Uses that, due to the nature of their products and service, tend to be more neighborhood-serving are those which sell convenience items such as groceries, personal toiletries, magazines, and personal services such as cleaners, laundromats, and film processing. Uses that tend to be less neighborhood-oriented are those which sell more specialized, more expensive, less frequently purchased comparison goods such as automobiles and furniture.

For many uses (such as stores selling apparel, household goods, and variety merchandise), whether a business is neighborhood-serving depends on the size of the establishment: the larger the use, the larger the trade area, hence the less neighborhood-oriented.

Whether a business is neighborhood-serving or not also depends in part on the number and availability of other similar establishments in other neighborhoods: the more widespread the use, the more likely that it is neighborhood-oriented.

Net Addition. The total amount of gross floor area defined in Planning Code Section 102 contained in a development project, less the gross floor area contained in any structure demolished or retained as part of the proposed development project.

Nighttime Entertainment. See Entertainment, Nighttime.

Non-Auto Vehicle Sales or Rental. A Retail Sales and Service Use offering new or used bicycles, scooters, motorcycles, boats, or other marine vehicles for sale, rent, or lease when conducted entirely within an enclosed building.

Non-Commercial Entertainment and Recreation. See Entertainment and Recreation, Non-Commercial.

Nonprofit Organization. An organization organized and operated for nonprofit purposes within the provisions of California Revenue and Taxation Code Sections 23701-23710, inclusive, as demonstrated by a written determination from the California Franchise Tax Board exempting the organization from taxes under Revenue and Taxation Code Section 23701.

Non-Residential Use. Space within any structure or portion thereof intended or primarily suitable for, or accessory to, occupancy by retail, office, commercial, or uses other than a Residential Use as defined in this Section. For the purposes of Article 4, residential components of Institutional Uses other than Religious Institutions shall be defined as a "residential use," and non-residential use shall not include PDR and publicly owned and operated community facilities.

Non-Residential Use Size. The permitted gross floor area allowed each individual non-residential use. Gross Floor Area is defined in this Section of the Code.

Non-Retail Use. A type of Commercial Use that involves the sale of goods or services to other businesses rather than the end user, or that does not provide for direct sales to the general public on site. Uses in this category include, but are not limited to, Non-Retail Sales and Service Uses and Non-Retail Automotive Uses.

Notice of Special Restrictions. A document recorded with the San Francisco Recorder's Office detailing specific restrictions placed on an Assessor's lot that are typically associated with an approval action by the Planning Department, Planning Commission, Zoning Administrator, or other City agency.

(Amended by Ord. 202-18; see Sec. 102 history note.)

O

Occupied Floor Area. See Floor Area, Occupied.

Office, General. A Non-Retail Sales and Service Use that includes space within a structure or portion thereof intended or primarily suitable for occupancy by persons or entities which perform, provide for their own benefit, or provide to others at that location, services including, but not limited to, the following: professional, banking, insurance, management, consulting, technical, sales, and design; and the non-accessory office functions of manufacturing and warehousing businesses, multimedia, software development, web design, electronic commerce, and information technology. This use shall exclude Non-Retail Professional Services as well as Retail Uses; repair; any business characterized by the physical transfer of tangible goods to customers on the premises; wholesale shipping, receiving and storage; and design showrooms or any other space intended and primarily suitable for display of goods.

Office Use. A grouping of uses that includes General Office, Retail Professional Services, and Non-Retail Professional Services. This use shall exclude: retail uses other than Retail Professional Services; repair; any business characterized by the physical transfer of tangible goods to customers on the premises; wholesale shipping, receiving and storage; and design showrooms or any other space intended and primarily suitable for display of goods.

(Amended by Ord. 249-23, see Sec. 102 history note.)

One Ownership. Ownership of a parcel or contiguous parcels of property or possession thereof under a contract to purchase by a person or persons, firm, corporation or partnership, individually, jointly, in common, or in any other manner whereby such property is under single or unified control. The term shall include condominium ownership. The term "owner" shall mean the person, firm, corporation or partnership exercising one ownership as herein defined.

Open Air Sales. A Commercial Use Characteristic generally categorized as a Retail Sales and Service Use that involves open air sale of new and/or used merchandise, except vehicles, but including agricultural products, plants and gardening supplies, building materials, crafts, and/or art work.

(Amended by Ord. 182-19, see Sec. 102 history note.)

Open Recreation Area. A Non-Commercial Entertainment, Arts and Recreation Use that is not publicly owned which is not screened from public view, has no structures other than those necessary and incidental to the open land use, is not operated as a gainful business, and is devoted to outdoor recreation such as golf, tennis, or riding.

Open Space, Required. Any front setbacks, side or rear yards, courts, usable open space or other open area provided in order to meet the requirements of this Code.

Open Use. Any use of a lot that is not conducted within a Building.

Ornamental Fencing. A decorative metal fence made of wrought iron or fencing that gives the appearance of wrought-iron fencing, but expressly excludes plastic-based materials, barbed wire, similar non-decorative fences as well as traditional chain-link or woven wire fences. Chain-link or woven wire fences may be used if the fencing visible from the public right-of-way is bordered by rails on the top and bottom and has well-built columns that are at least 8 inches wide and are topped with caps. The columns shall be spaced no more than 8 feet apart.

Outdoor Activity Area. A Commercial Use characteristic defined as an area associated with a legally established use, not including primary circulation space or any public street, located outside of a building or in a courtyard, which is provided for the use or convenience of patrons of a commercial establishment including, but not limited to, sitting, eating, drinking, dancing, and food-service activities.

P

Parcel Delivery Service. See Service, Parcel Delivery.

Parking Garage, Private. A Non-Retail Automotive Use that provides temporary parking accommodations for automobiles, trucks, vans, bicycles, or motorcycles in a garage not open to the general public, without parking of recreational vehicles, mobile homes, boats, or other vehicles, or storage of vehicles, goods, or equipment. Provisions regulating automobile parking are set forth in Sections 155, 156, 303(t) or (u) and other provisions of Article 1.5 of this Code.

(Amended by Ord. 99-17; see Sec. 102 history note.)

Parking Garage, Public. A Retail Automotive Use that provides temporary parking accommodations for automobiles, trucks, vans, bicycles, or motorcycles in a garage open to the general public, without parking of recreational vehicles, mobile homes, boats, or other vehicles, or storage of vehicles, goods, or equipment. Provisions regulating automobile parking are set forth in Sections 155, 156, 303(t) or (u) and other provisions of Article 1.5 of this Code.

(Amended by Ord. 99-17; see Sec. 102 history note.)

Parking Lot, Private. A Non-Retail Automotive Use that provides temporary off-street parking accommodations for private automobiles, trucks, vans, bicycles, or motorcycles on an open lot or lot surrounded by a fence or wall not open to the general public, without parking of recreational vehicles, motor homes, boats, or other vehicles, or storage of vehicles, goods, or equipment. Provisions regulating automobile parking are set forth in Sections 155, 156, 303(t) or (u) and other provisions of Article 1.5 of this Code.

(Amended by Ord. 99-17; see Sec. 102 history note.)

Parking Lot, Public. A Retail Automotive Use that provides temporary parking accommodations for private automobiles, trucks, vans, bicycles, or motorcycles on an open lot or lot surrounded by a fence or wall open to the general public, without parking of recreational vehicles, motor homes, boats, or other vehicles, or storage of vehicles, goods, or equipment. Provisions regulating automobile parking are set forth in Sections 155, 156, 303(t) or (u) and other provisions of Article 1.5 of this Code.

(Amended by Ord. 99-17; see Sec. 102 history note.)

Passive Outdoor Recreation. A Non-Commercial Entertainment, Arts and Recreation Use defined as an open space used for passive recreational purposes that is not publicly owned and is not screened from public view, has no structures other than those necessary and incidental to the open land use, is not served by vehicles other than normal maintenance equipment, and has no retail or wholesale sales on the premises. Such open space may include, but not necessarily be limited to, a park, playground, or rest area.

PDR Use. See Production, Distribution, and Repair Use.

Permeable Surface. Permeable Surfaces are those that allow water to infiltrate the underlying soils. Permeable Surfaces shall include, but not be limited to, vegetative planting beds, porous asphalt, porous concrete, single-sized aggregate, open-jointed blocks, stone, pavers, or brick that are loose-set and without mortar. Permeable Surfaces are required to be contained so neither sediment nor the permeable surface material discharges off the site.

(Amended by Ord. 202-18; see Sec. 102 history note.)

Pharmacy. A Retail Sales and Service Use in which the profession of pharmacy is practiced and where prescriptions are compounded

and offered for sale. This Section shall not be construed to limit any qualifying pharmacy from offering other retail goods in addition to prescription pharmaceuticals. Pharmacies are subject to controls in Section 202.2(a).

Philanthropic Facility. See Social Service or Philanthropic Facility.

Plan Dimensions. The linear horizontal dimensions of a building or structure, at a given level, between the outside surfaces of its exterior walls. The "length" of a building or structure is the greatest plan dimension parallel to an exterior wall or walls and is equivalent to the horizontal dimension of the corresponding elevation of the building or structure at that level. The "diagonal dimension" of a building or structure is the plan dimension between the two most separated points on the exterior walls.

Planning Commission (Commission). The San Francisco Planning Commission.

Planning Department (Department). The San Francisco Planning Department. For purposes of Article 4, may include the Planning Department's designee, including the Mayor's Office of Housing and other City agencies or departments.

Post-Secondary Educational Institution. An Institutional Education Use, public or private, that is certified by the Western Association of Schools and Colleges, provides educational services such as a college or university, and has met the applicable provisions of Section 304.5 of this Code concerning institutional master plans. Such institution may include employee or student dormitories and other housing operated by and affiliated with the institution. Such institution shall not have industrial arts as its primary course of study.

Power Plant. A Industrial Use defined as a steam, fossil-fuel, or any other type of thermal power plant. A Power Plant shall mean each individual power generation unit capable of independent operation, but shall not include on-site power generation units less than ten megawatts in size. Intensification of a Power Plant use requires Conditional Use authorization per Section 178(c), and is subject to the controls in Section 202.2(d).

Principal Façades. See Façades, Principal.

Principal (or Principally Permitted) Use. A Use permitted as of right in each established district where listed for that class of district in Articles 2, 7, 8, or 9 and as regulated in this Code. Principally permitted uses may be required to comply with the Operating Conditions of Section 202.2.

(Added by Ord. 129-17; see Sec. 102 history note.)

Production, Distribution, and Repair (PDR) Use. A grouping of uses that includes, but is not limited, to all Industrial and Agricultural Uses, Ambulance Services, Animal Hospital, Automotive Service Station, Automotive Repair, Automotive Wash, Arts Activities, Business Services, Catering, Commercial Storage, Kennel, Motor Vehicle Tow Service, Livery Stable, Parcel Delivery Service, Public Utilities Yard, Storage Yard, Trade Office, Trade Shop, Wholesale Sales, and Wholesale Storage.

(Amended by Ord. 202-18; Ord. 111-21; see Sec. 102 history note.)

Public Facility. An Institutional Use that consists of publicly or privately owned use that provides public services to the community, whether conducted within a building or on an open lot, and which has operating requirements that necessitate location within the district and is in compliance with the General Plan, including civic structures (such as museums, post offices, administrative offices of government agencies), public libraries, police stations, and transportation facilities. Such use shall not include service yards, machine shops, garages, incinerators, Utility Installations, and publicly operated parking in a garage or lot (Public Automobile Parking Garages and Public Parking Lots).

(Amended by Ord. 202-18; see Sec. 102 history note.)

Public Transportation Facility. A Utility and Infrastructure Use involving passenger terminal facilities for mass transportation of a single or combined modes including, but not limited to, aircraft, ferries, fixed-rail vehicles and buses, whether public or privately owned or operated, when in conformity with the General Plan. In Districts where such uses are permitted, conditional use authorization shall be required if the facility is: (a) an Automotive Use, as defined in this Section; and (b) other than a boarding platform, bus stop, transit shelter, or similar ancillary feature of a transit system; or(c) a landing field for aircraft.

Public Utilities Yard. A Utility and Infrastructure Use that is defined as a service yard for public utility, or public use of a similar character, if conducted entirely within an area completely enclosed by a wall or concealing fence not less than six feet high.

Q

None.

R

Rear Façade. See Façade, Rear.

Recreation. See Entertainment and Recreation Use.

Religious Institution. An Institutional Community Use with a tax-exempt status as a religious institution granted by the United States Government and that is used primarily for collective worship or ritual or observance of common religious beliefs. Such institution may include, on the same lot, the housing of persons who engage in supportive activity for the institution.

Replacement of Use. The total amount of Gross Floor Area, as defined in Section 102 of this Code, to be demolished and reconstructed by a development project.

Reproductive Health Clinic. A Retail Sales and Service Use that is a clinic licensed pursuant to applicable provisions of the California Health and Safety Code that meets both of the following requirements: a) provides directly to patients medical services consisting of Abortions or Emergency Contraception as those terms are defined in Administrative Code Section 93.3; and b) primarily specializes in

reproductive health services as defined in California Penal Code 423.1. A Reproductive Health Clinic that meets the foregoing requirements may also provide additional medical and allied health services by physicians or other healthcare professionals.

(Added by Proposition O, 11/5/2024; see Sec. 102 history note.)

Required Open Space. See Open Space, Required.

Residential Building. Any structure containing one or more Residential Units as a principal use, regardless of any other uses present in the building.

Residential Care Facility. An Institutional Healthcare Use providing lodging, board and care for a period of 24 hours or more to persons in need of specialized aid by personnel licensed by the State of California. Such facility shall display nothing on or near the facility that gives an outward indication of the nature of the occupancy except for a sign as permitted by Article 6 of this Code, shall not provide outpatient services, and shall be located in a structure which remains residential in character. Such facilities shall include, but not necessarily be limited to, a board and care home, family care home, long-term nursery, orphanage, rest home or home for the treatment of addictive, contagious or other diseases, or psychological disorders.

Residential Hotel. See Hotel, Residential.

Residential Unit. A legal conforming or non-conforming Dwelling Unit or a legal non-conforming Live/Work Unit

Residential Use. A Use Category consisting of uses that provide housing for San Francisco residents, rather than visitors, including Dwelling Units, Group Housing, Residential Hotels, Senior Housing, Homeless Shelters, and for the purposes of Article 4 only any residential components of Institutional Uses. Single Room Occupancy, Intermediate Length Occupancy, and Student Housing designations are considered characteristics of certain Residential Uses.

(Amended by Ord. 129-17; Ord. 63-20; Ord. 78-20; see Sec. 102 history note.)

Retail Workspace. A Retail Sales and Service Use open to the general public that provides space to work that is made available on a daily or hourly basis. Such use is only permitted as a principal use in conjunction with the concurrent operation of a principally or conditionally permitted Eating and Drinking Use, which Eating and Drinking Use shall (a) occupy no less than one-third of the gross floor area of the premises and (b) face the street. A Retail Workspace may provide services to the business community along with services to the general public. If the Retail Workspace exclusively provides services to the business community, it shall be considered a General Office Use as defined in the Planning Code.

(Added by Proposition H, 11/3/2020; see Sec. 102 history note.)

Restaurant. A Retail Sales and Service use that serves prepared, ready-to-eat cooked foods to customers for consumption on the premises and which has seating. As a minor and incidental use, it may serve such foods to customers for off-site consumption. It may provide on-site beer, wine, and/or liquor sales for drinking on the premises (with ABC license types 02, 23, 41, 47, 49, 59, 75, or 87); however, if it does so, it shall be required to operate as a Bona Fide Eating Place. It is distinct and separate from a Limited-Restaurant. Such businesses shall operate with the specified conditions in Section 202.2(a)(1).

It shall not be required to operate within an enclosed building so long as it is also a Mobile Food Facility. Any associated outdoor seating and/or dining area is subject to regulation as an Outdoor Activity Area as set forth elsewhere in this Code.

(Amended by Ord. 188-15; 129-17; Ord. 205-19; see Sec. 102 history note.)

Restaurant, Limited. A Retail Sales and Service Use that serves ready-to-eat foods and/or drinks to customers for consumption on or off the premises, that may or may not have seating. It may include wholesaling, manufacturing, or processing of foods, goods, or commodities on the premises as an Accessory Use as set forth in Sections 204.3 or 703(d), 803.2(d), 803.3(b)(1)(C) and 825(c)(1)(C) depending on the zoning district in which it is located. It includes, but is not limited to, foods provided by sandwich shops, coffee houses, pizzerias, ice cream shops, bakeries, delicatessens, and confectioneries meeting the above characteristics, but is distinct from a Specialty Grocery, Restaurant, and Bar. Within the North Beach SUD, it is also distinct from Specialty Food Manufacturing, as defined in Section 780.3(b). It shall not provide on-site beer and/or wine sales for consumption on the premises, but may sell beer and/or wine for consumption off the premises with a California Alcoholic Beverage Control Board License type 20 (off-sale beer and wine), if all areas devoted to the display and sale of alcoholic beverages occupy less than 15% of the Occupied Floor Area of the establishment. Such businesses shall operate with the specified conditions in Section 202.2(a)(1).

(Amended by Ord. 129-17; Ord. 202-18; Ord. 285-18; Ord. 63-20; see Sec. 102 history note.)

Retail Entertainment, Arts and Recreation. See Entertainment, Arts and Recreation, Retail.

Retail Sales and Service, General. A Retail Sales and Service Use that provides goods and/or services to the general public and that is not listed as a separate Retail Sales and Service Use in this Section 102. This use includes, but is not limited to the sale or provision of the following goods and services:

(a) Personal items such as tobacco and magazines;

(b) Household goods and service (including paint, fixtures, and hardware, but excluding other building materials);

(c) Variety merchandise, pet supply stores, and pet grooming services;

(d) Florists and plant stores;

(e) Apparel and accessories;

(f) Antiques, art galleries, art supplies, and framing service;

(g) Home furnishings, furniture, and appliances;

(h) Books, stationery, greeting cards, office supplies, copying service, music, and sporting goods; and

(i) Toys, gifts, and photographic goods and services.

(Amended by Ord. 129-17; Ord. 285-18; Ord. 111-21; Ord. 209-21; see Sec. 102 history note.)

Retail Use. A Commercial Use that includes uses that involve the sale of goods, typically in small quantities, or services directly to the ultimate consumer or end user including, but not limited to, Retail Sales and Service Uses, some Entertainment, Arts and Recreation Uses, and Retail Automotive Uses.

(Amended by Ord. 129-17; see Sec. 102 history note.)

S

Sales and Services, Non-Retail. A Commercial Use category that includes Uses that involve the sale of goods or services to other businesses rather than the end user, or that does not provide for direct sales to the consumer on site. Uses in this category include, but are not limited to: Business Services, Catering, Commercial Storage, Design Professional, General Office, Laboratory, Life Science, Non-Retail Professional Service, Trade Office, Wholesale Sales, and Wholesale Storage.

(Amended by Ord. 129-17; Ord. 249-23; see Sec. 102 history note.)

Sales and Services, Retail. A Commercial Use category that includes Uses that involve the sale of goods, typically in small quantities, or services directly to the ultimate consumer or end user with some space for retail service on site, excluding Retail Entertainment Arts and Recreation, and Retail Automobile Uses and including, but not limited to: Adult Business, Animal Hospital, Bar, Cannabis Retail, Chair and Foot Massage, Tourist Oriented Gift Store, General Grocery, Specialty Grocery, Gym, Hotel, Jewelry Store, Kennel, Laundromat, Liquor Store, Massage Establishment, Mortuary (Columbarium), Motel, Non-Auto Sales, Pharmacy, Restaurant, Limited Restaurant, General Retail Sales and Service, Financial Service, Fringe Financial Service, Limited Financial Service, Health Service, Personal Service, Retail Professional Service, Self-Storage, Tobacco Paraphernalia Establishment, and Trade Shop.

(Amended by Ord. 188-15; Ord. 129-17; Ord. 229-17; Ord. 111-21; Ord. 209-21; Ord. 249-23; see Sec. 102 history note.)

San Francisco. The City and County of San Francisco.

School. An Institution Educational Use, public or private, certified by the Western Association of Schools and Colleges that provides educational instruction to students in kindergarten through twelfth grade. Such institution may include employee or student dormitories and other housing operated by and affiliated with the institution. This use is distinct and separate from a Post-Secondary Educational Institution, which is defined under this Section of the Code.

Senior Housing. A Residential Use defined as dwellings that are specifically designed for and occupied by senior citizens. Senior Housing is subject to the conditions listed in Section 202.2(f).

(Amended by Ord. 63-20; see Sec. 102 history note.)

Service, Ambulance. A Non-Retail Automotive Use that provides medically related transportation services.

Service, Business. A Non-Retail Sales and Service Use that provides the following kinds of services primarily to businesses and/or to the general public and does not fall under the definition of Office: radio and television stations, newspaper bureaus, magazine and trade publication publishing, microfilm recording, slide duplicating, bulk mail services, parcel shipping services, parcel labeling and packaging services, messenger delivery/courier services, sign painting and lettering services, non-vehicular equipment rental, or building maintenance services.

(Amended by Ord. 188-15; Ord. 129-17; Ord. 229-17; Ord. 111-21; see Sec. 102 history note.)

Service, Financial. A Retail Sales and Service Use that provides banking services and products to the public, such as banks, savings and loans, and credit unions, when occupying more than 15 feet of linear frontage or 200 square feet of gross floor area. Any applicant for a financial service use shall provide the Planning Department with a true copy of the license issued to it by the State of California.

Service, Fringe Financial. A Retail Sales and Service Use that provides banking services and products to the public and is owned or operated by a "check casher" as defined in California Civil Code Section 1789.31, as amended from time to time, or by a "licensee" as defined in California Financial Code Section 23001(d), as amended from time to time. Any applicant for a fringe financial service use shall provide the Department with a true copy of the license issued to it by the State of California. A Nonprofit Fringe Financial Service shall mean a Fringe Financial Service that is exempted from payment of income tax under Section 23701(d) of the California Revenue and Taxation Code and Section 501(c)(3) of the Internal Revenue Code of the United States. Any such Nonprofit Fringe Financial Service shall provide the Planning Department with a true copy(ies) of its income tax documentation demonstrating its exemption from payment of income tax under State and Federal Law. A new Fringe Financial Service, with the exception of a Nonprofit Fringe Financial Service, shall not locate within one-quarter mile of an existing Fringe Financial Service.

Service, Health. A Retail Sales and Service Use that provides medical and allied health services to the individual by physicians, surgeons, dentists, podiatrists, psychologists, psychiatrists, acupuncturists, chiropractors, Sole Practitioner massage therapists as defined in Section 29.5 of the Health Code, or any other health-care professionals when licensed by a State-sanctioned Board overseeing the provision of medically oriented services. It includes, without limitation, a clinic, primarily providing outpatient care in medical, psychiatric, or other health services, and not part of a Hospital or medical center, as defined by this Section of the Code, and Sole Practitioner Massage Establishments as defined in Section 29.5 of the Health Code, but does not include other Massage Establishments, which are defined elsewhere in this Code. Health Service does not include Reproductive Health Clinic, which is defined separately in this Section 102.

(Amended by Ord. 73-15; Ord. 233-21; Ord. 37-22; Proposition O, 11/5/2024; see Sec. 102 history note.)

Service, Limited Financial. A Retail Sales and Service Use that provides banking services, when not occupying more than 15 feet of linear frontage or 200 square feet of gross floor area. Automated teller machines, if installed within such a facility or on an exterior wall as a walk-up facility, are included in this category; however, these machines are not subject to the hours of operation, as defined in this Section of the Code and as set forth in the respective zoning district. Any applicant for a limited financial service use shall provide the Planning Department with a true copy of the license issued to it by the State of California.

Service, Motor Vehicle Tow. A Non-Retail Automotive Use that provides vehicle towing service, including accessory vehicle storage, when all tow trucks used and vehicles towed by the use are parked or stored on the premises.

Service, Non-Retail Professional. A Non-Retail Sales and Service Office Use that provides professional services primarily to other businesses including, but not limited to, accounting, legal, consulting, insurance, real estate brokerage, advertising agencies, public relations agencies, computer and data processing services, employment agencies, management consultants and other similar consultants, telephone message services, and travel services. This use may also provide services to the general public but is not required to. This use shall not include research services of an industrial or scientific nature in a commercial or medical laboratory, other than routine medical testing and analysis by a health-care professional or hospital.

(Amended by Ord. 63-20; Ord. 249-23; see Sec. 102 history note.)

Service, Parcel Delivery. A Non-Retail Automotive Use limited to facilities for the unloading, sorting, and reloading of local retail merchandise for deliveries, including but not limited to cannabis and cannabis products, where the operation is conducted entirely within a completely enclosed building, including garage facilities for local delivery trucks, but excluding repair shop facilities. Within PDR Districts, this use is not required to be operated within a completely enclosed building. Parcel Delivery Service for merchandise or products other than cannabis and cannabis products is not allowed as an accessory use to any other principal use.

(Amended by Ord. 229-17; Ord. 47-24; Ord. 54-24; Ord. 113-24; see Sec. 102 history note.)

Service, Personal. A Retail Sales and Services Use that provides grooming services to the individual, including salons, cosmetic services, tattoo parlors, and health spas, bathhouses, and steam rooms. Personal Service does not include Massage Establishment or Gym, which are defined separately in this Section 102.

(Amended by Ord. 285-18; Ord. 111-21; see Sec. 102 history note.)

Service, Retail Professional. A Retail Sales and Service Use that provides primarily to the general public, general business, or professional services including, but not limited to, management, clerical, accounting, legal, consulting, insurance, real estate brokerage, and travel services. It may provide services to the business community, provided that it also provides services to the general public. Otherwise, it shall be considered a Non-Retail Professional Service Use as defined in this Section 102.

This use does not include research service of an industrial or scientific nature in a commercial or medical laboratory, other than routine medical testing and analysis by a health-care professional or hospital.

(Amended by Ord. 285-18; Ord. 63-20; Ord. 249-23; see Sec. 102 history note.)

Shipyard. An Industrial Use that includes the building and repairing of ships.

Single Room Occupancy (SRO) Unit. A Residential Use characteristic, defined as a Dwelling Unit or Group Housing room consisting of no more than one occupied room with a maximum gross floor area of 350 square feet and meeting the Housing Code's minimum floor area standards. The unit may have a bathroom in addition to the occupied room. As a Dwelling Unit, it would have a cooking facility and bathroom. As a group housing room, it would share a kitchen with one or more other single room occupancy unit/s in the same building and may also share a bathroom. A single room occupancy building (or "SRO" building) is one that contains only SRO units and accessory living space.

Small Enterprise Workspace (S.E.W.). An S.E.W. is a use comprised of discrete workspace units of limited size that are independently accessed from building common areas. S.E.W.'s are subject to the controls listed in Section 202.2(g).

Social Service or Philanthropic Facility. An Institutional Community Use that provides programs and/or services of a charitable or public service nature, including but not limited to arts, education, financial or housing assistance, training, and advocacy. In addition to providing their services on site, such uses may also conduct their administrative activities on site as a Principal Use.

(Amended by Proposition H, 11/3/2020; see Sec. 102 history note.)

SOMA. The area bounded by Market Street to the north, The Embarcadero to the east, King Street to the south, and South Van Ness and Division Streets to the west.

Specialty Grocery. See Grocery, Specialty.

Sports Stadium. A Retail Entertainment, Arts and Recreation Use that includes any open-air sports stadium or arena, if conducted on premises not less than 200 feet from any R District.

SRO. Single Room Occupancy.

(Added by Ord. 188-15; see Sec. 102 history note.)

Storage, Commercial. A Non-Retail Sales and Service Use defined as a facility that stores within an enclosed building: contractors' equipment, building materials, or goods or materials used by other businesses at other locations. This use shall not include the storage of waste, salvaged materials, automobiles, inflammable or highly combustible materials, and wholesale goods or commodities.

Storage, Self. A Retail Sales and Service Use defined as a facility that stores, within an enclosed building, household and personal

goods.

Storage, Volatile Materials. An Industrial Use defined as bulk storage of inflammable, highly combustible, or explosive materials.

Storage, Wholesale. A Non-Retail Sales and Service Use defined as a facility that stores, within an enclosed building, wholesale merchandise that is not accessory to a Wholesale Sales use. This use includes cold storage facilities, but not storage of inflammables or hazardous materials, which is covered under Hazardous Materials Storage.

Storage Yard. An Industrial Use involving the storage of building materials or lumber, stones or monuments, livestock feed, or contractors' equipment, if conducted within an area enclosed by a wall or concealing fence not less than six feet high. This use does not include Vehicle Storage or a Hazardous Waste Facility.

Story. That portion of a building included between the upper surface of any floor and the upper surface of the floor next above, except that the topmost story shall be that portion of a building included between the upper surface of the topmost floor and the ceiling or roof above.

Any mezzanine, or intermediate level, shall be considered part of a story constituted by another floor provided it is an open and integral part of the story or room of which it is a portion. There shall be only one such mezzanine per story and it shall have a minimum glazed or unglazed opening of 50 percent on the interior side of the room or story and an area not exceeding one-third of the floor area of the story or room in which it is located. Any mezzanine not meeting these criteria shall be considered a separate story.

(a) ***First Story.*** The highest building story with a floor level that is not more than six feet above grade at the centerline of the frontage of the lot where grade is defined.

(1) ***Grade.*** For purposes of this definition, "grade" is the point of elevation of the finished surface of the ground, paving, or sidewalk at the property line located along primary frontage, i.e., any street frontage between two consecutive streets or alleys where the total street frontage is entirely within an NC District. If the lot has more than one property line or no property line located along primary frontage, the Zoning Administrator shall choose the property line facing a street or alley where the grade is defined. In such situations, the Zoning Administrator shall favor streets that serve as major transportation routes, major or secondary thoroughfares, and streets along which other commercial districts are located. When the property line is five feet or more from the building frontage, grade shall be taken at the surface of the ground, paving, or sidewalk along the building frontage.

(2) Provisions in Section 260 of this Code shall apply in defining the point of measurement at grade, where the building steps laterally in relation to the street used to define grade.

(b) ***Second Story.*** The story above the first story.

(c) ***Third Story and Above.*** The story or stories above the second story and below the ceiling of the topmost story of a building.

(d) ***Basement.*** Space located below the first story of a building when such space is of sufficient floor to ceiling height for legal occupancy.

Street. A right-of-way, 30 feet or more in width, permanently dedicated to common and general use by the public, including any avenue, drive, boulevard, or similar way, but not including any freeway or highway without a general right of access for abutting properties.

Structural Alterations. Any change in the supporting members of a Building, such as bearing walls, columns, beams, or girders.

Structure. Anything constructed or erected that requires fixed location on the ground or attachment to something having fixed location on the ground.

Student Housing. A Residential Use characteristic defined as a living space for students of accredited Post-Secondary Educational Institutions that may take the form of Dwelling Units, Group Housing, or SRO Units and is owned, operated, or otherwise controlled by an accredited Post-Secondary Educational Institution. Unless expressly provided for elsewhere in this Code, the use of Student Housing is permitted where the form of housing is permitted in the underlying Zoning District in which it is located. Student Housing may consist of all or part of a building, and Student Housing owned, operated, or controlled by more than one Post-Secondary Educational Institution may be located in one building.

(Amended by Ord. 63-20; see Sec. 102 history note.)

T

Temporary Cannabis Sales. A Temporary Use that sells or otherwise provides cannabis and cannabis-related products for adult use, and that may also include the sale or provision of cannabis for medicinal use. A Temporary Cannabis Sales Use may only be operated by the holder of a valid Medical Cannabis Dispensary Permit from the Department of Public Health. Any authorization for a Temporary Cannabis Sales Use shall expire on January 1, 2019, pursuant to Section 205.2.

(Added by Ord. 229-17; see Sec. 102 history note.)

Tobacco Paraphernalia Establishment. A Retail Sales and Service Use where more than 10% of the square footage of Occupied Floor Area, as defined in Section 102, or more than 10 linear feet of display area projected to the floor, whichever is less, is dedicated to the sale, distribution, delivery, furnishing, or marketing of Tobacco Paraphernalia from one person to another. For purposes of Sections 249.5, 719, 723, and 744 of this Code, however, Tobacco Paraphernalia Establishments shall mean retail uses where any Tobacco Paraphernalia is sold, distributed, delivered, furnished, or marketed from one person to another. “Tobacco Paraphernalia” means paraphernalia, devices, or instruments that are designed or manufactured for the smoking, ingesting, inhaling, or otherwise introducing into the body of tobacco, products prepared from tobacco, or controlled substances as defined in California Health and Safety Code Sections 11054, *et seq.* “Tobacco Paraphernalia” does not include lighters, matches, cigarette holders, any device used to store or

preserve tobacco, tobacco, cigarettes, cigarette papers, cigars, or any other preparation of tobacco that is permitted by existing law. Cannabis Retail Uses as defined in Section 102, Temporary Cannabis Retail Uses as defined in Section 205.2, and Medical Cannabis Dispensary Uses as defined in Section 102 are not Tobacco Paraphernalia Establishments.

(Amended by Ord. 202-18; Ord. 142-23; Ord. 70-24; see Sec. 102 history note.)

Trade Office. A Non-Retail Sales and Service Use that includes business offices of building, plumbing, electrical, painting, roofing, furnace, or pest control contractors, if no storage of equipment or items for wholesale use are located on site. It may also include incidental accessory storage of office supplies and samples if the storage of equipment and supplies does not occupy more than one-third of the total Gross Floor Area of the use. Such Trade Offices shall operate in a manner to reduce noise, vibration, and emissions impacts beyond the premises of the use. No processing of building materials, such as mixing of concrete or heating of asphalt shall be conducted on the premises. Parking, loading, and unloading of all vehicles used by the contractor shall be located entirely within the building containing the use.

(Amended by Ord. 70-23; see Sec. 102 history note.)

Trade School. An Institutional Education Use, public or private, where industrial arts is the primary course of study. Such use is not required to submit an institutional master plan pursuant to Section 304.5 of this Code.

Trade Shop. A Retail Sales and Service Use that provides custom-crafted goods and/or services for sale directly to the consumer, reserving some storefront space for display and retail service, subject to the conditions in Section 202.2. A trade shop includes, but is not limited to:

(a) Repair of personal apparel, accessories, household goods, appliances, furniture, and similar items, but excluding repair of motor vehicles and structures;

(b) Upholstery services;

(c) Carpentry;

(d) Printing of a minor processing nature, including multi-copy and blueprinting services and printing of pamphlets, brochures, resumes, and small reports, but excluding printing of books, magazines, or newspapers;

(e) Tailoring; and

(f) Other artisan craft uses, including fine arts uses. Arts Activities and Light Manufacturing shall be considered distinct from Trade Shops.

(Amended by Ord. 285-18; Ord. 111-21; see Sec. 102 history note.)

Treasurer. The Treasurer for the City and County of San Francisco.

Truck Terminal. An Industrial Use where trucks meet and transfer goods to each other for shipment to other places.

U

Urban Agriculture. See Agriculture, Urban.

Use. The purpose for which land or a structure, or both, are legally designed, constructed, arranged, or intended, or for which they are legally occupied or maintained, let, or leased.

Use Characteristic. A feature of a Use, related to its physical layout, location, design, access, or other characteristics. Use Characteristics may be regulated independently of a Use itself. Residential Use Characteristics include Single Room Occupancy, Intermediate Length Occupancy, and Student Housing. Commercial Use Characteristics include Drive-up Facility, Formula Retail, Hours of Operation, Maritime Use, Open Air Sales, Outdoor Activity, and Walk-Up Facility.

(Added by Ord. 129-17; amended by Ord. 78-20; see Sec. 102 history note.)

Use Size (Non-Residential). See Non-Residential Use Size.

Utility and Infrastructure. A Use Category that includes Community Recycling Center, Internet Service Exchange, Power Plant, Public Transportation Facility, Public Utilities Yard, Wireless Telecommunications Services (WTS) Facility, and Utility Installation.

(Amended by Ord. 166-16; Ord. 202-18; see Sec. 102 history note.)

Utility Installation. A Utility and Infrastructure Use that includes, but is not necessarily limited to, water, gas, electric, transportation, or communications utilities, or public service facility, provided that operating requirements necessitate placement at this location. This use does not include Wireless Telecommunications Services Facilities, or Public Transportation Facilities, as defined in this Section of the Code.

(Amended by Ord. 166-16; see Sec. 102 history note.)

V

Variance. An authorization to deviate from the strict application of certain Planning Code requirements pursuant to Section 305 of this Code.

(Added by Ord. 129-17; see Sec. 102 history note.)

Vehicle Storage Garage. A Retail Automotive Use that provides for the storage of buses, recreational vehicles, mobile homes, trailers, or boats and/or storage for more than 72 hours of other vehicles in an enclosed structure. It shall not include rooftop storage. A Vehicle

Storage Garage shall comply with the street frontage requirements of the district in which it is located.

Vehicle Storage Lot. A Retail Automotive Use that provides for the storage of buses, recreational vehicles, mobile homes, trailers, or boats and/or storage for more than 72 hours of other vehicles on an open lot. It shall not include rooftop storage. Vehicle Storage Lots shall comply with the Screening and Greening requirements of Section 142.

Vehicular Use Area. An area of a lot not located within any enclosed or partially enclosed structure and that is devoted to a use by or for motor vehicles including parking (accessory or non-accessory); and Automotive Uses that are not enclosed by a structure including, but not limited to, storage of automobiles, trucks or other vehicles; gasoline stations; car washes; motor vehicle repair shops; loading areas; and service areas. Vehicular use areas shall be subject to landscaping and screening requirements of Section 142(b).

W

Waiver Agreement. An agreement acceptable in form and substance to the City Attorney and the Planning Department under which the City agrees to waive all or a portion of the Community Improvements Impact Fee.

Walk-Up Facility. A Use Characteristic defined as a structure designed for provision of pedestrian-oriented services when located on an exterior building wall, including window service, self-service operations, and automated bank teller machines (ATMs). Such facilities shall provide waste receptacles, and be kept free of litter.

(Amended by Ord. 70-23; see Sec. 102 history note.)

Wholesale Sales. A Non-Retail Sales and Service Use that exclusively provides goods or commodities for resale or business use, including accessory storage. This use includes cannabis distribution (any use requiring License Type 11—Distributor, as defined in California Business and Professions Code, Division 10). It shall not include a nonaccessory storage warehouse.

(Amended by Ord. 229-17; see Sec. 102 history note.)

Width of a Street or Alley. Unless specified elsewhere in this Code, the width of a street or alley shall be the distance measured along a line that is perpendicular to the centerline of that street or alley and extends from the mid-point of the front property line of a given parcel to a front property line on the opposite side of that street or alley.

Wireless Telecommunications Services (WTS) Facility. A Utility and Infrastructure Use defined as a facility that sends and/or receives wireless radio frequency (RF) signals, AM/FM, microwave, or electromagnetic waves, for the purpose of providing voice, data, images or other information; including but not limited to digital (previously "cellular") mobile phone service, personal communication service and paging services. WTS Facilities may be located either inside or outside of an enclosed building.

Such facilities include, but are not limited to, directional (panel), omni-directional and parabolic antennas, related electronic equipment, power sources, screening elements, supporting equipment, towers and structures. The term does not include facilities exempt under the Federal Communications Commission's Over The Air Receiving Device rules. A WTS Facility is also referred to as a "Personal Wireless Services Facility," as defined in the Federal Communications Act.

A WTS Facility is subject to the Wireless Telecommunications Services Facility Siting Guidelines ("Guidelines") adopted by the Planning Commission, including but not limited to any design criteria included in those Guidelines.

(Amended by Ord. 166-16; see Sec. 102 history note.)

Wireless Telecommunications Services (WTS) Facility, Macro. A Macro WTS Facility is generally characterized by significant spatial effects and more than two antennas. A WTS Facility is considered a Macro WTS Facility unless determined by the Zoning Administrator to be a Micro WTS Facility.

(Added by Ord. 166-16; see Sec. 102 history note.)

Wireless Telecommunications Services (WTS) Facility, Micro. The Zoning Administrator shall determine whether a proposed WTS Facility is a Micro WTS Facility. A Micro WTS Facility is generally characterized by

(a) limited spatial effects;

(b) a small number of antennas (typically up to two);

(c) an absence of substantial cumulative effects on neighborhood character or aesthetics, when considered in conjunction with other WTS Facilities at the same project site; and

(d) a location that is not "disfavored" as specified in the Guidelines.

(Added by Ord. 166-16; see Sec. 102 history note.)

Wireless Telecommunications Services Facility, Temporary. A Wireless Telecommunications Services Facility located on a parcel of land and consisting of a vehicle-mounted facility, a building-mounted antenna, or a similar facility, and associated equipment, that is used to provide temporary coverage for a large-scale event or an emergency, or to provide temporary replacement coverage due to the removal of a permitted, permanent WTS facility necessitated by the demolition or major alteration of a nearby property.

(Added by Ord. 166-16; see Sec. 102 history note.)

X, Y, Z

None.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 69-87, App. 3/13/87; Ord. 131-87, App. 4/24/87; Ord. 32-91, App. 1/25/91; Ord. 63-91, App. 2/27/91; Ord. 14-15 , File No. 141210, App. 2/13/2015, Eff. 3/15/2015; Ord. 22-15, File No. 141253, App. 2/20/2015, Eff. 3/22/2015; Ord. 52-15 , File No. 141266, App. 4/30/2015, Eff. 5/30/2015; Ord. 73-

15, File No. 141303, App. 5/28/2015, Eff. 6/27/2015; Ord. 161-15, File No. 150804, App. 9/18/2015, Eff. 10/18/2015; Ord. 162-15 , File No. 150805, App. 9/18/2015, Eff. 10/18/2015; Ord. 188-15 , File No. 150871, App. 11/4/2015, Eff. 12/4/2015; Ord. 162-16 , File No. 160657, App. 8/4/2016, Eff. 9/3/2016; Ord. 166-16 , File No. 160477, App. 8/11/2016, Eff. 9/10/2016; Ord. 217-16, File No. 160424, App. 11/10/2016, Eff. 12/10/2016; Ord. 34-17, File No. 160925, App. 2/17/2017, Eff. 3/19/2017; Ord. 95-17, File No. 170125, App. 5/12/2017, Eff. 6/11/2017; Ord. 99-17, File No. 170206, App. 5/19/2017, Eff. 6/18/2017; Ord. 129-17, File No. 170203, App. 6/30/2017, Eff. 7/30/2017; Ord. 229-17, File No. 171041, App. 12/6/2017, Eff. 1/5/2018; Ord. 13-18, File No. 171096, App. 2/9/2018, Eff. 3/12/2018; Ord. 195-18, File No. 180268, App. 8/10/2018, Eff. 9/10/2018; Ord. 202-18, File No. 180557, App. 8/10/2018, Eff. 9/10/2018; Ord. 285-18, File No. 180806, App. 12/7/2018, Eff. 1/7/2019; Ord. 296-18, File No. 180184, App. 12/12/2018, Eff. 1/12/2019; Ord. 7-19, File No. 180917, App. 1/25/2019, Eff. 2/25/2019; Ord. 15-19, File No. 181046, App. 2/8/2019, Eff. 3/11/2019; Ord. 116-19, File No. 181156, App. 6/28/2019, Eff. 7/29/2019; Ord. 182-19, File No. 190248, App. 8/9/2019, Eff. 9/9/2019; Ord. 205-19, File No. 181211, App. 9/11/2019, Eff. 10/12/2019; Ord. 206-19, File No. 190048, App. 9/13/2019, Eff. 10/14/2019; Ord. 208-19, File No. 190594, App. 9/20/2019, Eff. 10/21/2019; Ord. 63-20, File No. 200077, App. 4/24/2020, Eff. 5/25/2020; Ord. 78-20, File No. 191075, App. 5/22/2020, Eff. 6/22/2020; Proposition H, 11/3/2020, Eff. 12/18/2020; Ord. 111-21, File No. 210285, App. 8/4/2021, Eff. 9/4/2021; Ord. 209-21, File No. 210808, App. 11/19/2021, Eff. 12/20/2021; Ord. 217-21, File No. 210807, App. 12/10/2021, Eff. 1/10/2022; Ord. 233-21, File No. 210381, App. 12/22/2021, Eff. 1/22/2022; Ord. 37-22, File No. 211263, App. 3/14/2022, Eff. 4/14/2022; Ord. 50-22, File No. 211299, App. 3/31/2022, Eff. 5/1/2022; Ord. 75-22, File No. 220264, App. 5/13/2022, Eff. 6/13/2022; Ord. 190-22, File No. 220036, App. 9/16/2022, Eff. 10/17/2022; Ord. 264-22, File No. 220811, App. 12/22/2022, Eff. 1/22/2023; Ord. 53-23, File No. 210585, App. 4/21/2023, Eff. 5/22/2023; Ord. 70-23, File No. 220340, App. 5/3/2023, Eff. 6/3/2023; Ord. 122-23, File No. 230371, App. 7/5/2023, Eff. 8/5/2023; Ord. 142-23, File No. 230410, App. 7/26/2023, Eff. 8/26/2023; Ord. 159-23, File No. 230732, App. 7/28/2023, Eff. 8/28/2023; Ord. 248-23, File No. 230446, App. 12/14/2023, Eff. 1/14/2024; Ord. 249-23, File No. 230701, App. 12/14/2023, Eff. 1/14/2024; Ord. 2-24, File No. 230704, App. 1/19/2024, Eff. 2/19/2024; Ord. 47-24, File No. 231223, App. 3/15/2024, Eff. 4/15/2024; Ord. 54-24, File No. 240169, App. 3/22/2024, Eff. 4/22/2024, Retro. 3/30/2024; Ord. 62-24, File No. 230310, App. 3/28/2024, Eff. 4/28/2024; Ord. 70-24, File No. 231225, App. 4/5/2024, Eff. 5/6/2024; Ord. 113-24, File No. 240193, App. 6/13/2024, Eff. 7/14/2024, Retro. 3/30/2024; Ord. 297-24, File No. 241055, App. 12/19/2024, Eff. 1/19/2025; Proposition O, 11/5/2024, Eff. 12/20/2024)

AMENDMENT HISTORY

Section amended in its entirety; Ord. 22-15, Eff. 3/22/2015 (for the legislative history of prior definition provisions, see the Editor's Note below). See individual definitions for subsequent amendment history notes.

CODIFICATION NOTES

1. So in Proposition H, 11/3/2020.
2. So in Ord. 75-22.
3. So in Ord. 50-22.

Editor's Note:

As part of its substantial amendments to this Code, Ord. 22-15 *consolidated the Art. 1 definitions into a single section, Sec.102 above. Previously, Art. 1 definitions had been codified under separate section numbers. For the purpose of retaining the legislative history of the now superseded Art. 1 definition provisions, the terms formerly defined in this Article are set out below, along with their history notes as they existed immediately prior to the effectiveness of Ord.* 22-15.

SEC. 102.1. ALLEY.

(Amended by Ord. 443-78, App. 10/6/78)

SEC. 102.2. ARTS ACTIVITIES AND SPACES.

(Added by Ord. 412-88, App. 9/10/88; Ord. 36-08, File No. 080157, App. 3/17/2008)

SEC. 102.3. BUILDING.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88)

SEC. 102.4. COURT.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88)

SEC. 102.5. DISTRICT.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 69-87, App. 3/13/87; Ord. 131-87, App. 4/24/87; Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90; Ord. 217-05, File No. 050865, App. 8/19/2005; Ord. 72-08, File No. 071157, App. 4/3/2008; Ord. 298-08, File No. 081153, App. 12/19/2008; Ord. 61-09, File No. 090181, App. 4/17/2009; Ord. 90-11, File No. 110301, App. 6/9/2011, Eff. 7/9/2011; Ord. 98-11, File No. 110229, App. 6/15/2011, Eff. 7/15/2011; Ord. 196-11, File No. 110786, App. 10/4/2011, Eff. 11/3/2011; Ord. 176-12, File No. 120472, App. 8/7/2012, Eff. 9/6/2012; Ord. 182-12, File No. 120665, App. 8/8/2012, Eff. 9/7/2012; Ord. 56-13, File No. 130062, App. 3/28/2013, Eff. 4/27/2013)

SEC. 102.6. DWELLING.

(Amended Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88)

SEC. 102.6.1. DWELLING SPECIFICALLY DESIGNED FOR AND OCCUPIED BY SENIOR CITIZENS.

(Added by Ord. 130-10, File No. 090906, App. 6/24/2010 ; amended by Ord. 62-13, File No. 121162, App. 4/10/2013, Eff. 5/10/2013)

SEC. 102.7. DWELLING UNIT.

(Amended Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88; Ord. 218-14, File No. 140381, App. 10/27/2014, Eff. 11/26/2014, Oper. 2/1/2015)

SEC. 102.8. FAMILY.

(Amended Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88)

SEC. 102.9. FLOOR AREA, GROSS.

(Amended Ord. 414-85, App. 9/17/85; Ord. 537-88, App. 12/16/88; Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90; Ord. 275-03, File No. 021577, App. 12/10/2003; Ord. 129-06, File No, 060372, App. 6/22/2006; Ord. 298-08, File No. 081153, App. 12/19/2008; Ord. 173-12, File No. 120471, App. 8/2/2012, Eff. 9/1/2012 ; Ord. 182-12, File No. 120665, App. 8/8/2012, Eff. 9/7/2012; Ord. 232-14, File No. 120881, App. 11/26/2014, Eff. 12/26/2014)

SEC. 102.10. FLOOR AREA, OCCUPIED.

(Amended Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88)

SEC. 102.11. FLOOR AREA RATIO.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88 ; Ord. 182-12, File No. 120665, App. 8/8/2012, Eff. 9/7/2012)

SEC. 102.12. HEIGHT (OF A BUILDING OR STRUCTURE).

(Amended by Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88)

SEC. 102.13. LIVE/WORK UNIT.

(Added by Ord. 412-88, App. 9/10/88; amended by Ord. 56-02, File No. 012127, App. 4/29/2002; Ord. 218-14, File No. 140381, App. 10/27/2014, Eff. 11/26/2014, Oper. 2/1/2015)

SEC. 102.14. LOT.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88; Ord. 15-98, App. 1/16/98)

SEC. 102.15. LOT, CORNER.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88)

SEC. 102.16. LOT, INTERIOR.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88)

SEC. 102.17. NIGHTTIME ENTERTAINMENT USES.

(Added by Ord. 115-90, App. 4/6/90; amended by Ord. 172-11, File No. 110506, App. 9/12/2011, Eff. 10/12/2011)

SEC. 102.18. ONE OWNERSHIP.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90)

SEC. 102.19. OPEN SPACE, REQUIRED.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90)

SEC. 102.20. OPEN USE.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90)

SEC. 102.21. PLAN DIMENSIONS.

(Amended by Ord. 443-78, App. 10/6/78; Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90)

SEC. 102.22. PRINCIPAL FACADES.

(Amended by Ord. 414-85, App. 9/17/85; Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90)

SEC. 102.23. STORY.

(Amended by Ord. 414-85, App. 9/17/85; Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90)

SEC. 102.24. STORY, GROUND.

(Amended by Ord. 414-85, App. 9/17/85; Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90)

SEC. 102.25. STREET.

(Amended by Ord. 414-85, App. 9/17/85; Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90)

SEC. 102.26. STRUCTURE.

(Amended by Ord. 414-85, App. 9/17/85; Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90)

SEC. 102.27. STRUCTURAL ALTERATIONS.

(Amended by Ord. 414-85, App. 9/17/85; Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90)

SEC. 102.28. USE.

(Added Ord. 414-85, App. 9/17/85; amended by Ord. 412-88, App. 9/10/88; Ord. 115-90, App. 4/6/90)

SEC. 102.29. BEDROOM.

(Added by Ord. 298-08, File No. 081153, App. 12/19/2008)

SEC. 102.30. WIDTH, STREET OR ALLEY.

(Added by Ord. 298-08, File No. 081153, App. 12/19/2008)

SEC. 102.31. VEHICULAR USE AREAS.

(Added by Ord. 84-10, File No. 091453, App. 4/22/2010)

SEC. 102.32. ORNAMENTAL FENCING.

(Added by Ord. 84-10, File No. 091453, App. 4/22/2010)

SEC. 102.33. PERMEABLE SURFACES.

(Added by Ord. 84-10, File No. 091453, App. 4/22/2010)

SEC. 102.34. MOBILE FOOD FACILITY.

(Added by Ord. 297-10, File No. 101351, App. 12/3/2010)

SEC. 102.35. URBAN AGRICULTURE.

(Added by Ord. 66-11, File No. 101537, App. 4/20/2011, Eff. 5/20/2011)

SEC. 102.36. STUDENT HOUSING.

(Added by Ord. 188-12, File No. 111374, App. 9/11/2012, Eff. 10/11/2012)

SEC. 102.37. COTTAGE FOOD OPERATION.

(Added by Ord. 288-13, File No. 130998, App. 12/26/2013, Eff. 1/25/2014)

EXHIBIT 21

Introduction to the San Francisco General Plan

Land Acknowledgement:

The City and County of San Francisco acknowledges that we are on the unceded ancestral homeland of the Ramaytush Ohlone, who are the original inhabitants of the San Francisco Peninsula. As the indigenous stewards of this land and in accordance with their traditions, the Ramaytush Ohlone have never ceded, lost, nor forgotten their responsibilities as the caretakers of this place, as well as for all peoples who reside in their traditional territory. As guests, we recognize that we benefit from living and working on their traditional homeland. We wish to pay our respects by acknowledging the Ancestors, Elders, and Relatives of the Ramaytush Ohlone community and by affirming their sovereign rights as First Peoples.

Introduction

San Francisco is a place of singular beauty, combining an exquisite natural setting with a unique human-made urban landscape. Human settlement of San Francisco originated with the Ramaytush Ohlone people, who maintained three semi-sedentary villages on the peninsula. The Spanish colonists built on or near those lands when they established the Presidio and the Mission, resulting in the eventual displacement, subjugation, and cultural erasure of these communities. Since then, the City has grown with a density that is unusual on the West Coast. Where other cities flatten their hills or wind streets around them, here the rush to develop created a defiant street grid that accentuates the inclines and introduces dramatic vistas across the bay and deep into the cosmopolitan center. San Francisco's lively and varied pattern of neighborhoods, commercial centers, and parks has nurtured a remarkable diversity of communities. It has been not only a hub for the Bay Area but a global center of economic energy, technological innovation, and influential political, social, and cultural movements.

Amid this beloved setting lies the inherent, often hidden fragility, including vulnerability to natural disasters and to the mounting consequences of anthropogenic climate change. The city has also been shaped by a history of injustices including segregation, urban renewal, and the inequitable distribution of environmental benefits and burdens. The City's human scale is justly celebrated for its charm and livability – but the City continues to struggle with housing affordability.

Purpose

The San Francisco General Plan is the embodiment of the City's vision for the future, serving to guide evolution and growth over time. It provides a comprehensive set of goals, objectives and policies that influence how people live, work, and move about, as well as the quality and spirit of the City. Periodic updates via a public adoption process ensure that this document remains freshly relevant. The General Plan governs actions by all arms of San Francisco's government. It is implemented by the city's direction of public resources and guidance of private development.

State law and San Francisco's Charter require a comprehensive, long-term general plan for the physical development of the city. The San Francisco General Plan ensures that there is adequate infrastructure to support residential, commercial, recreational and institutional land uses and facilities, and that neighborhoods are walkable and connected by a robust transportation system geared toward public transit, walking, and biking. Economic growth should position San Francisco for a resilient future sustainably linked to and coordinated with regional development.

The General Plan attempts to navigate complex imperatives between preserving cherished qualities and assets, tackling needed changes, and preparing for both known and unpredictable challenges and crises. In 2020, as the COVID-19 pandemic and the killing of George Floyd highlighted inequalities, the Planning Commission passed Resolution Number 20738 to center the Planning Department's work program and resource allocation on racial and social equity. This mandate has been incorporated into the General Plan. In doing so, the City and County of San Francisco acknowledges and apologizes for the history of inequitable planning policies and actions that have resulted in racial disparities. San Francisco must take reparative actions and build accountability in collaboration with American Indian communities, Black communities, communities of color, and other historically marginalized and disenfranchised communities.

Process and Vision

The General Plan's goals, objectives and policies have been developed with extensive community engagement. These robust conversations and public hearings are designed to distill a shared vision for the City's future.

In this shared vision, San Francisco strives to be...

...a just city, committed to racial and social equity, starting with recognizing and seeking to rectify past injustices.

…an inclusive city, where all can find a home and community as well a nurturing environment for creativity and self-expression.

...a safe, livable and environmentally sustainable city, where all are able to live healthy lives and access thriving natural systems, restorative parks, and a high-quality built environment. The climate crisis requires urgent local, regional, and global action.

...an economically vital city, where all are able to prosper. Economic vitality is possible only where stable, meaningful livelihoods are protected, entrepreneurial dynamism is fostered within an ecosystem that can withstand geopolitical turbulence and financial volatility, and everyone can access ladders to opportunity.

...a city that recognizes that achieving justice, inclusivity, safety, livability, environmental sustainability and economic vitality requires accountable government, regional cooperation, transparent processes, and incorporation of diverse communities into all aspects of decision making.

Structure

The General Plan consists of a series of Elements and Area Plans.

Each Element addresses a topic and generally applies citywide, while Area Plans relate these topics comprehensively to specific parts of the city in a greater level of detail. Several of the Elements correspond to topics that state law requires the General Plan to address, including Air Quality, Community Facilities, Environmental Protection, Housing, Recreation and Open Space, Safety and Resilience, and Transportation. San Francisco has also chosen to address additional topics through Elements including Arts, Commerce and Industry, and Urban Design. Policies related to land use are located throughout the General Plan and are cross-referenced in a Land Use Index.

Environmental Justice policies required by the State have been integrated throughout the General Plan. The Environmental Justice Framework, hereby incorporated into the General Plan by reference, sets out key policy priorities and strategies which will be integrated into elements, area plans, and supporting documents to improve public health and other outcomes in Environmental Justice Communities, which are primarily communities of color and lower-income communities that face higher pollution levels and other health risks.

Area Plans of the San Francisco General Plan include:

- Balboa Park Station
- Bayview Hunters Point
- Candlestick Point *Subarea*
- Central SoMa (South of Market)
- Central Waterfront
- Chinatown
- Civic Center
- Downtown
- East SoMa (South of Market)
- Executive Park *Subarea*
- Glen Park
- Hunters Point Shipyard
- Market and Octavia
- Mission
- Northeastern Waterfront
- Rincon Hill
- Showplace Square/Potrero
- Transit Center District *Subarea*
- Treasure Island/Yerba Buena Island
- Van Ness Avenue
- Western Shoreline
- Western SoMa (South of Market)

Amended by the Board of Supervisors Ordinance No. 0084-23 on 05/09/2023.

Amended by Resolution No.14149 adopted on 06/27/1996.

EXHIBIT 22

CITY OF SAN FERNANDO

REVISED GENERAL PLAN

Prepared For:

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TABLE OF CONTENTS

I. INTRODUCTION AND BACKGROUND I-1

Purpose and Function I-1

General Plan Legislation I-2

Definitions of Key Planning Terms I-3

Previous General Plan I-4

Revised General Plan I-5

II. LOCAL AND REGIONAL SETTING II-1

Regional Setting II-1

Local Setting II-3

III. GENERAL PLAN OVERVIEW III-1

Introduction III-1

Descriptions of Required Elements III-1

IV. LAND USE ELEMENT IV-1

Introduction and Background IV-1

Issues and Opportunities IV-3

Goals and Objectives IV-6

Implementation Measures IV-6

Internal Consistency IV-8

V. CIRCULATION ELEMENT V-1
Introduction and Background V-1
Findings and Conclusions V-2
Issues and Opportunities V-4
Goals and Objectives V-5
Implementation Measures V-6
Internal Consistency V-7

VI. HOUSING ELEMENT VI-1
Introduction and Background VI-1
Findings and Conclusions VI-2
Issues and Opportunities VI-4
Goals and Objectives VI-5
Implementation Measures VI-6

VII. OPEN SPACE/CONSERVATION/ PARKS-RECREATION ELEMENT VII-1
Introduction and Background VII-1
Findings and Conclusions VII-3
Issues and Opportunities VII-6
Goals and Objectives VII-7
Implementation Measures VII-8
Internal Consistency VII-9

VIII. SAFETY ELEMENT VIII-1
Introduction and Background VIII-1
Findings and Conclusions VIII-3
Issues and Opportunities VIII-5
Goals and Objectives VIII-6
Implementation Measures VIII-7

IX. NOISE ELEMENT IX-1
Introduction and Background IX-1
Findings and Conclusions IX-2
Issues and Opportunities IX-3
Goals and Objectives IX-3
Implementation Measures IX-4
Internal Consistency IX-7

X. COMPOSITE IMPLEMENTATION MEASURES MATRIX X-1

LIST OF EXHIBITS

1. Regional Location Map II-4
2. Land Use Element -- Issue Areas IV-11
3. Major Land Use Recommendations IV-12
4. Land Use Element Map IV-13
5. Circulation Element Map V-8
6. Open Space/Conservation/Parks-Recreation Map VII-10
7. Current Noise Contours IX-8
8. Future Noise Contours IX-9

I.
INTRODUCTION AND BACKGROUND

I.
INTRODUCTION AND BACKGROUND

PURPOSE AND FUNCTION

The 1987 General Plan establishes a statement on the future of the community and indicates how the City plans to respond to diverse human needs such as shelter, commerce, employment, recreation and the protection of health, safety and welfare. The General Plan establishes the manner in which these needs will be met by the adoption of city policies for several areas of concern which are called "elements." Each "element" deals with a major aspect of the human and physical environment which makes up the San Fernando community. There are seven elements which are required to be included in a modern General Plan -- land use, circulation, housing, open space, conservation, safety and noise.

San Fernando, which is predominantly a residential community characterized by low rise buildings, is almost entirely built-out. The 1987 General Plan establishes a complete and adequate general plan and also resolves several issues affecting the built and unbuilt environment of the City. With the adoption of all the elements, the City now has a complete and adequate General Plan meeting the requirements of the State planning law. In addition, the Planning Commission and City Council are in on informed position to

resolve several land use issues that affect sub-areas of the community. These "issue areas" include those in the list below:

1. Mission Boulevard
2. San Fernando/Truman Street
3. San Fernando Airport area
4. Kalisher Street
5. Commercial land use and zoning designations
6. Multiple-family land use designations

GENERAL PLAN LEGISLATION

Originally, a general plan consisted of only a "land use" element and "circulation" element. In the past 20 years several other elements were added to the general plan including housing, open space, conservation, safety and noise. Most of these elements were added to the General Plan in the early 1970's in response to issues and problems which the State legislature determined needed the attention of local government. The "Housing Element", for instance, was added to the list of mandatory elements in 1967 because the home building industry considered it a means to increasing housing production. Since then the State legislature has made several refinements to the general plan housing element requirement. Another example is the "Seismic Safety Element" which became a mandatory element following the public concern for health and safety that was evident after the devastating effects of the local earthquake in February 1971.

In 1984, the most recent revisions to the legislation governing the preparation of general plans were enacted. One revision combined the "Seismic Safety Element" and the "Safety Element" into a single document which must include generally the same information as previously contained in the two elements. The requirement for a "Scenic Highways Element" was deleted and changes were made regarding the information and methods of preparing the "Noise Element".

Another major revision related to the <u>implementation</u> of a general plan after it is adopted by the Planning Commission and the City Council. Section 65400 of the Government Code was amended to read:

Section 65400. After the legislative body has adopted all or part of a general plan, the planning agency shall do all of the following:

(a) Investigate and make recommendations to the legislative body regarding reasonable and practical means for implementing the general plan or any element of the general plan, so that it will serve as an effective guide for the orderly growth and development, preservation and conservation of open-space land and natural resources, and the efficient expenditure of public funds relating to the subjects addressed in the general plan.

(b) Provide an annual report to the legislative body on the status of the plan and progress in its implementation. (emphasis added)

The 1987 General Plan completely meets the letter and spirit of the revisions made to Government Code Section 65400. Each element contains a detailed list and description of current and proposed "implementing actions".

Another requirement that is met by the 1987 General Plan is the "housing" element update. Article 10.6 of the Government Code requires that this element be reviewed and updated periodically but no later than once every five-years. The 1987 General Plan includes the updated Housing Element.

DEFINITIONS OF KEY PLANNING TERMS

The Government Code uses several words that at best may be called "planning terminology." Definitions for these terms, however, are not provided. Some of the planning terms that will be used in the 1985 General Plan are goal, objective, policy, implementation action and program. These terms are defined in the "General Plan Guidelines" prepared by the State Office of Planning and Research, as follows:

Goal: The ultimate purpose of an effort stated in a way that is general in nature and immeasurable.

Objective: A measurable goal. Example -- "To reduce peak-hour traffic congestion to service level "C" by 1984".

Policy (1): A collective term describing those parts of a general plan that guide action, including goals, objectives, policies, principles, plan proposals, and standards in both text and diagrams.

Policy (2): A specific statement guiding action and implying clear commitment. Example -- "Recreational uses in wildlife refuges and nature preserves shall be limited to those activities which are compatible with maintaining the environment with a minimum of disruption, such as hiking and horseback riding".

Implementation Program (Action Program): A coordinated set of measures to carry out the policies of the general plan. Example -- Open space action program for implementing open space policies.

Implementation Measure: An action, procedure, program or technique that carries out general plan policy. Example -- "Develop a geologic hazard overlay zoning classification and apply it to all geologic hazard areas identified in the general plan".

Several of the elements have terms unique to their intent and purpose. For instance, the "housing" element is the only one which refers to the planning term "objectives". In this instance, the term means "numerical targets" which represent the maximum feasible effort by the City that can be achieved during a five-year period. Another example is the "noise" element which contains many technical terms and concepts. The terms and concepts unique to each element will be included in a Technical Appendix. The intent and purpose of each element will be described briefly in the discussion of each element. The legislative definitions of each element will be reproduced in a Technical Appendix.

PREVIOUS GENERAL PLAN

The previous General Plan consisted of the elements that were adopted on October 1, 1973 (C.C. Resolution #4694, P.C. Resolution # 502 and 516) which included Population, Circulation, Public Facilities, Land Use and Housing. The Seismic Safety Element was not adopted in October 1973. In addition, the current General Plan includes the Open Space Element that was adopted by the Planning Commission and City Council in May, 1973. Finally, the General Plan includes the updated Housing Element that was approved in September 1983.

As a result, the City needed three elements to have a complete General Plan -- Conservation, Safety and Noise. In addition, other elements needed to be updated to reflect present-day interests and values and satisfy the content requirements of the most recent planning legislative requirements. The emphasis of the 1987 General Plan is to adopt the three elements mentioned above, to update the remaining elements particularly the Land Use Element, and to incorporate the ways of resolving the issues and concerns affecting certain sub-areas of the community.

REVISED GENERAL PLAN

A major function of the 1987 General Plan is to consolidate or pull together all of the elements into a single document and thereby provide an opportunity to establish a uniform data base and set forth internally consistent policy statements. The revised General Plan includes the following elements: Land Use, Circulation, Housing, Open Space/Conservation/Parks, Safety and Noise. The 1987 General Plan achieves several purposes, as listed below:

1. Prepare and adopt one document which is understood by the community's residents, businesses and developers.

2. Incorporate all the data requirements of each element into a Technical Appendix.

3. Present each element according to a common format.

4. Update the contents of the elements adopted in 1973 and 1983.

5. Focus on the most important aspects of each element.

6. Achieve a General Plan that in written statements and illustrations communicates to the community the positions of the Planning Commission and City Council on San Fernando's future revitalization and development.

II.
REGIONAL AND LOCAL SETTING

REGIONAL SETTING

San Fernando is bordered on the north and west by the Simi Hills and the Santa Susana Mountains. The Santa Monica Mountains, to the south, separate the area from the Los Angeles Basin, while the San Gabriel Mountains lie to the northeast. Although San Fernando lies close to the base of the San Gabriel Mountains, most land within the City exhibits a very gentle slope with elevations ranging form a low of 1,017 feet to a high of 1,250 feet above sea level.

San Fernando lies on a portion of an alluvial fan resulting from the deposition of alluvial materials from the steeply sloping canyons to the north and east. Major contributors include the Pacoima Wash, May Canyon, Wilson Canyon and Sombrero Canyon. Deposits of sands, gravels and conglomerates up to 1,500 feet in depth are found in the area. These materials overlie a greater thickness of poorly sorted non-marine sediments (Saugus Formation), which in turn overlies up to 18,000 feet of older sediments.

San Fernando exhibits a climate similar to most other portions of the San Fernando Valley. The variance in climate is moderate with warm dry summers and precipitation usually occurring in the winter and early spring months. The average annual rainfall is approximately 17 inches. Sunshine is abundant during the summer and fall months. Temperatures range from a mean minimum of 46.2 degrees to a mean maximum of 79.4 degrees. Prevailing winds are from the south.

The City of San Fernando is strongly affected by surrounding communities. A portion of the labor force comes form outlying areas and commercial facilities within the City are dependent on trade for the surrounding region. Consequently, commercial, industrial, recreational and housing demands in San Fernando follow a pattern more representative of a larger city.

LOCAL SETTING

Development of the San Fernando Valley was initiated with the establishment of the Mission de San Fernando Rey in 1797 under the leadership of padres Fermin Lasuen and Francisco Dumetz. Lands adjacent to the Mission were used for farming and raising herds of cattle. After passing through various ownerships, half of the mission tract was sold to George K. Porter, a San Francisco shoe manufacturer, and Senator Charles Maclay in 1874. On September 15, 1874 they filed a tract map entitled Map of the City of San Fernando and were credited as being the initial subdividers of San Fernando.

The subdivision included that portion of the City south of the Southern Pacific Railroad tracks and a portion of the City of Los Angeles extending southwest to the Mission. This subdivision established much of the City's street pattern with many of the streets still retaining their original names. Present land use patterns were being formed at this time and a period of rapid growth from 1920 to 1930 witnessed a further consolidation of land uses. The first zoning ordinance and plan, adopted in 1929, reflected land uses as of that date. Changes in land use and zoning patterns since then have been relatively minor.

The City contains approximately 2.4 square miles and is completely surrounded by the City of Los Angeles. Residential uses occupy approximately 620 acres or 39 percent of the City. Some of the developed area was destroyed during the February 1971 earthquake. Approximately nine percent of the City is vacant, which provides a potential for new development. The major portion of any new growth will have to occur in areas of regeneration. Expansion through annexation would not be feasible due to the City being completely surrounded by the City of Los Angeles.

Regional Location Map
SAN FERNANDO GENERAL PLAN

EXHIBIT II-1

III.
GENERAL PLAN OVERVIEW

III.
GENERAL PLAN OVERVIEW

INTRODUCTION

A major function of the General Plan is to consolidate all of the elements into a common format and thereby provide an opportunity to establish a uniform data base and set forth consistent and contemporary policy statements. Over the years, the Planning Commission and City Council have adopted several elements acknowledging local needs and changing planning requirements under California planning law.

DESCRIPTIONS OF REQUIRED ELEMENTS

The Land Use Element establishes guidelines for the public and private uses of land, including residential; commercial; industrial; open space, parks and recreation; and public facilities and buildings. The element explains these land use categories and, in text and map form, identifies their location and intensity of use.

The Circulation Element establishes a plan for the achievement of a transportation system which provides for efficient intra-and inter-City movement of motor vehicles. The

circulation and transportation system is designed to meet the facility demands generated by planned land uses. The Circulation Element sets forth a framework for an orderly pattern of development, providing maximum transportation efficiency while minimizing adverse impacts to the City's environmental quality.

The Housing Element is concerned with how well the current and future housing supply meets the needs of San Fernando's residents. The element, in particular, deals with the physical condition of housing; financial assistance needs of resident households; need for new housing construction; improving upon the City's role in housing; and achieving equal housing opportunity.

The Open Space/Conservation/Parks Element designates open space areas for the following purposes: managed production of resources; outdoor recreation; public health and safety; and preservation of natural resources. The Conservation section of the Element deals with the conservation, development and utilization of natural resources. The Parks section of the Element consists of an inventory, analysis and policy recommendations for the City's park and recreation resources. A Parks Element is an optional element of the General Plan and because it relates closely to open space and conservation issues, these three elements have been combined in a single element.

The Safety Element is intended to establish information and guidelines which result in protecting the San Fernando community from any unreasonable risks associated with the effects of seismically induced hazards; other geologic hazards; flooding; wildland and urban fires; and hazardous wastes. This element also addresses items related to fire hazards such as evacuation routes, peak load water supply requirements and minimum road widths and clearances around structures.

The purpose of the Noise Element is to provide information on current and future noise levels in the City. In undeveloped areas, this information then is used to identify the most suitable locations for land uses particularly sensitive to noise impacts. In San Fernando, the adopted Noise Element will facilitate the enforcement of standards and codes and thereby protect the health and well-being of the persons living and working in San Fernando.

IV.
LAND USE ELEMENT

IV.
LAND USE ELEMENT

INTRODUCTION AND BACKGROUND

General Plan Legislation

The adoption of a General Plan by cities and counties became a legal requirement 33 years ago in 1955. At that time, a General Plan consisted only of a Land Use Element and a Circulation Element. In 1971, the Legislature created one of the most important features of State planning law by requiring that zoning and subdivision approvals be consistent with the General Plan. Government Code Section 65302 (a) defines the Land Use Element as follows:

> A Land Use Element which designates the proposed general distribution and general location and extent of the uses of the land for housing, business, industry, open space, including agriculture, natural resources, recreation, and enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal facilities, and other categories of public and private uses of land. The Land Use Element shall include a statement of the standards of population density and building density recommended for the various districts and other territory covered by the plan. The Land Use Element shall also identify areas covered by the plan which are subject to flooding and shall be reviewed annually with respect to such areas.

Purpose and Function

The purpose of the Land Use Element is to establish a pattern for compatible land uses to reflect existing conditions and to guide future development. By law, the element must set clear standards for the density of population and the intensity of development for each proposed land use category. The Land Use Element which has the broadest scope of the seven required elements, provides a composite discussion of the issues which are addressed in the other elements through text, diagrams and a land use map.

The General Plan, particularly the Land Use Element, governs the future direction of a local jurisdiction. Prior to 1971, the General Plan was considered just a guideline; however, because of the consistency requirement enacted in 1971, the General Plan has assumed greater importance. Consistency with the adopted General Plan is now mandatory for all land use approvals.

In addition to the seven mandated elements of the General Plan, other optional elements may be included to address areas of concern that, in the judgement of the City, relate to the physical development of the community. Once an optional element has been adopted, it is as important and legally binding as a mandatory element.

Section 65300.5 of the Government Code requires that the General Plan be consistent throughout (i.e., "internally consistent"). The assumptions and projections used in the Housing Element, for instance, must be consistent with those used in the Land Use Element and the Open Space Element. Local policies must not conflict with Statewide policies pertaining to housing, open space and environmental quality.

Land use categories designated by the General Plan must be defined in terms of population density and building intensity. Allowable uses for each district must be indicated. Density ranges must be given for residential designations to facilitate implementation through zoning districts. Zoning laws regulate the geographic allocation and allowed uses of land. Finally, the Zoning Ordinance must conform to the adopted General Plan. It is one of the implementation measures used to achieve the goals and objectives of the General Plan.

Several zoning designations <u>may</u> be encompassed within one General Plan land use category. Therefore, the zoning of a property may change without requiring a change

in the land use designation. The General Plan has a long term perspective. It must be structured enough to provide overall direction with adequate flexibility to accommodate changing conditions.

ISSUES AND OPPORTUNITIES

The former San Fernando General Plan contained 12 land use designations. The 12 categories, which are defined in Chart IV-1, are listed below:

Residential

1. Low Density
2. Medium Density
3. High Density

Commercial

4. Central Business District
5. Neighborhood Shopping
6. Highway Related
7. Automotive Sales and Services
8. Multi-Use

Industrial

9. Light Industrial
10. Industrial

Other

11. Public/Quasi-Public
12. Neighborhood Park/Landscaping

A major focus of the General Plan Update and the efforts of the Citizens Advisory Committee was to reexamine the appropriateness of these land use categories and how they have been applied to different areas of the City.

Upon review of available data and existing development conditions, the following issue areas emerged as warranting more detailed analysis from a land use planning standpoint:

1. Central Business District
2. San Fernando - Truman Area
3. Kalisher Street
4. Mission Boulevard
5. Airport Site
6. Glenoaks Boulevard
   Medium Density/Neighborhood Commercial
7. Recreation Park Surplus Land
8. Brand Boulevard High Density
9. Multi-Use on McClay

Each of these issues are described in Part A of the Technical Appendix. Background data are presented for each issue in the following terms:

1. Description of the Land Use Issue
2. Existing Conditions and Surrounding Land Uses
3. Current Land Use and Zoning Designations
4. Identification of Problems and Opportunities
5. Alternative Courses of Action

Exhibit IV-1 shows the location of the various areas. A synopsis of land use issues follows.

Central Business District

There is no zoning designation to implement the Central Business District land use designation. More specific guidance is needed to realize the economic potential of the CBD and to create a distinct visual identity for this area.

San Fernando-Truman Area

In this portion of the City, the existing Land Use Element designation is not consistent with the current zoning. The land use designation is Industrial and the zoning categories are M-1, C-2 and R-2.

Kalisher Street

The primary land use issues associated with this area are incompatibility of existing uses and land use intensity. Kalisher Street is designated Multi-Use Commercial on the General Plan and the surrounding neighborhood is designated Medium Density Residential. Kalisher Street contains a mixture of residential, commercial and quasi-public uses.

Mission Boulevard

The study area is presently designated Multi-Use Commercial on the General Plan. The area contains both commercial and residential uses. The issue is whether to retain the Multi-Use designation or adopt a Commercial designation.

Airport Site

The issue regarding this study area is the choice of an appropriate designation for the former San Fernando airport, located in the northeastern portion of the City.

Glenoaks Boulevard -- Medium Density/Neighborhood Commercial

While this area is designated Medium Density and Neighborhood commercial on the General Plan, development has remained primarily low density residential.

Recreation Park Surplus Land

The issue is whether to retain this property as a park site on the revised General Plan.

Brand Boulevard High Density Residential

Within this area, the zoning is not consistent with the General Plan designation. The study area is shown on the General Plan as High Density Residential. Zoning is R-1, Single Family Residential.

Multi-Use on McClay

The issue is whether to retain the Multi-Use designation or change the designation to commercial, which reflects existing development.

Goals and Objectives

Goals:

- To retain the small town character of San Fernando.
- To promote economic viability of commercial areas.
- To maintain an identity that is distinct from surrounding communities.

Objectives:

- To conserve single family neighborhoods.
- To attract new commercial activities, particularly within the downtown area.

Implementation Measures

Possible land use alternatives for the various issue areas were reviewed by the General Plan Citizens Advisory Committee at several meetings. The Committee meetings included a workshop held at the Santa Rosa Church to solicit comments from residents and business owners in the Kalisher Street area. The Planning Commission held several hearings to receive public testimony and to consider the range of land use alternatives

for each area under study. The Planning Commission recommendations were then submitted to the City Council.

The recommended land use designations for the issue areas are identified below and shown in Exhibit IV-11.

Central Business District

Change the CBD boundaries to the following:

- North - Railroad Tracks
- West - Mission Boulevard
- East - Chatsworth Drive
- South - Celis Street

San Fernando - Truman

From the railroad track to Truman Street, Industrial except for the corner parcel bounded by the railroad track to the north, Hubbard Avenue to the west, Meyer Street to the east and Truman Street to the south. That parcel and the area from Truman Street to San Fernando Road will be commercial.

Kalisher Street

Kalisher Street will be commercial from Pico to Coronell, then medium density residential from the south side of Coronell to the City limit.

Mission Boulevard

This area will be commercial from Pico to Mott, then medium density residential from the south side of Mott to the City limit.

Airport Site

The northern third of the property will be commercial. The remainder will be industrial.

Glenoaks Boulevard

The area bounded by Pioneer Park to the north, Harding to the west, Alexander to the east and Glenoaks to the south will be medium density. The area bounded by Lucas to the north, Brand to the east, Glenoaks to the south and an alley to the west will also be medium density. The remainder of that study area will be low density residential.

Residential Park

Retain Park land use designation.

Brand Boulevard

This area will be office professional from Celis to the north side of Kewen, the low density from the south side of Kewen to O'Melveny.

Maclay

Change of designation to commercial.

The complete Land Use Element Map is shown as Exhibit IV-111.

Internal Consistency

The Land Use Element is a synthesis of the other General Plan elements. It designates open areas identified in the Open Space/Conversation/Parks Element. The selection of land uses is also influenced by technical data contained in the Noise, Safety and Circulation Elements. The range of residential designations reflects the needs identified in the Housing Element.

CHART IV-I

CITY OF SAN FERNANDO
CURRENT LAND USE ELEMENT CATEGORIES
AND IMPLEMENTING ZONES

LAND USE	INTENT OF LAND USE DESIGNATIONS	IMPLEMENTING ZONES
Residential		
Low Density Residential	Single family dwellings at a density of 0-6 dwelling units per acre.	R-I
Medium Density Residential	Single family dwellings, duplexes and multiple-family dwellings at a density of 6-17 dwelling units per acre.	R-2
High Density Residential	A diversity of multiple-family housing types at a density of 17-43 dwelling units per acre.	R-3 RPD
Commercial		
Central Business District	A major retail area of community-wide significance.	C-2
Neighborhood Shopping	Commercial uses which provide for the immediate shopping needs of nearby residents.	C-I
Highway Related Commercial	Commercial development located along major arterials.	No specific zone
Automotive Sales and Services	To consolidate automobile sales and service facilities while protecting them for the encroachment of incompatible uses.	No specific zone

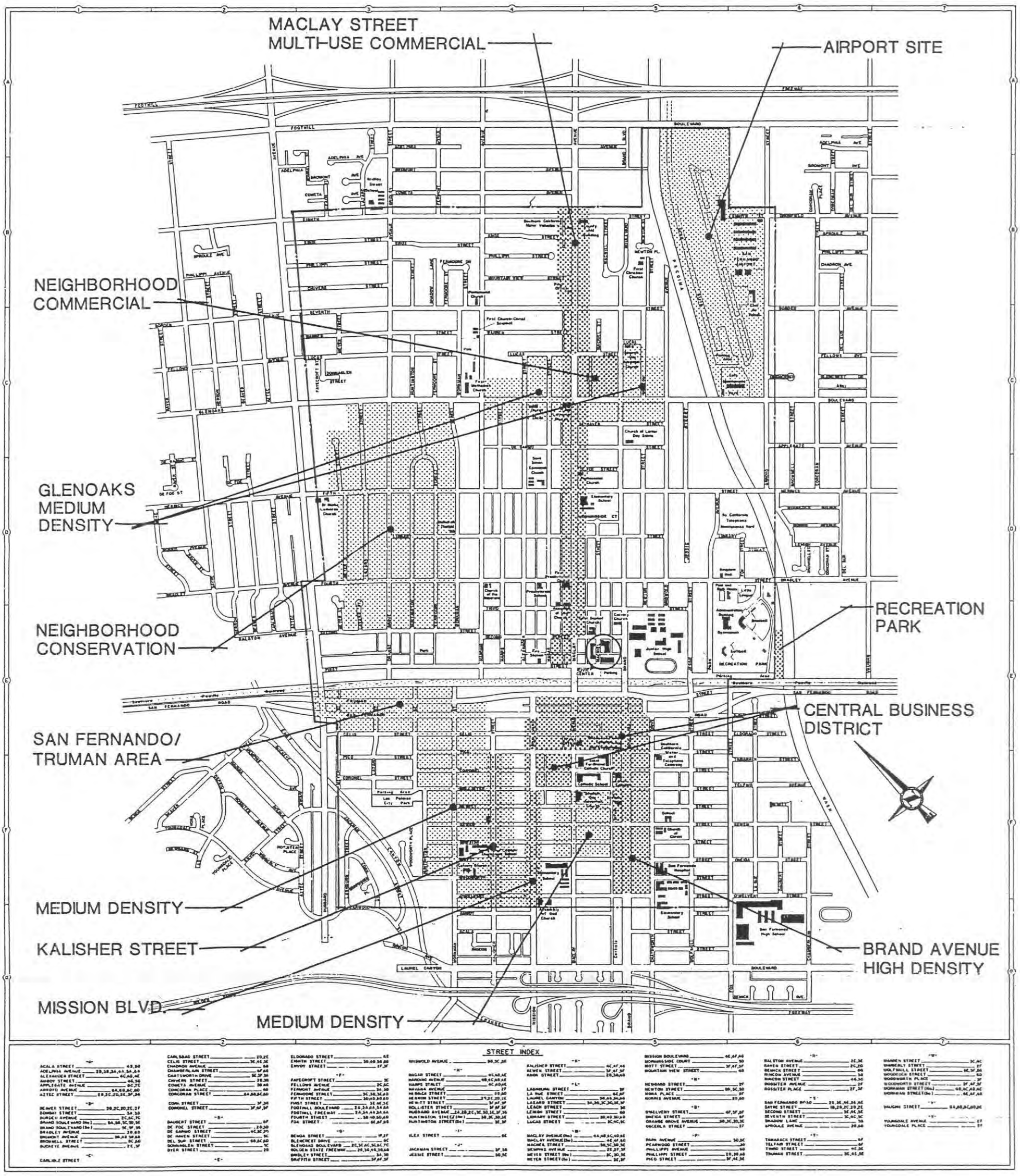
Land Use	Intent of Land Use Designations	Appropriate Zones
Multi-Use	Areas that lend themselves to more than one type of development, facilitating a mixture of commercial, office and residential uses.	No specific zone
Industrial		
Light Industrial	Provides for the operation of light manufacturing uses and related services.	M-1
Heavy Industrial	To provide for a variety of industrial activities under development standards designed to limit impacts on surrounding land uses.	M-2
Public/Quasi-Public	Provides the necessary infrastructure to maintain a quality living environment. Such facilities include school and the civic center.	No specific zone
Neighborhood Park/Landscaping	Defines active and passive recreational facilities.	No specific zone

"THE MISSION CITY"

SAN FERNANDO

CALIFORNIA

INCORPORATED AUGUST 31, 1911



Land Use Issue Areas
SAN FERNANDO GENERAL PLAN

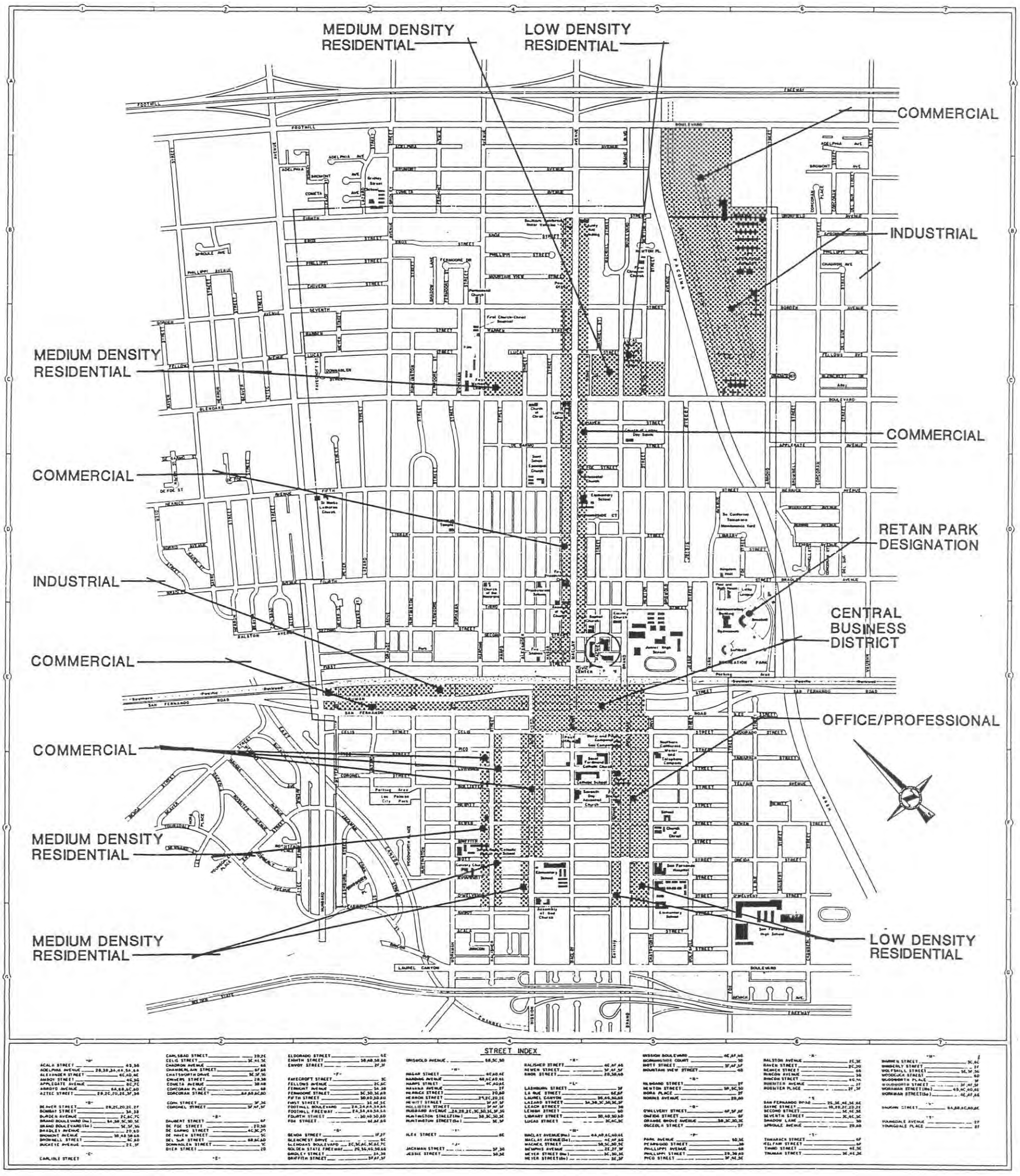
EXHIBIT IV-I

"THE MISSION CITY"

SAN FERNANDO

CALIFORNIA

INCORPORATED AUGUST 31, 1911



Major Land Use Recommendations
SAN FERNANDO GENERAL PLAN

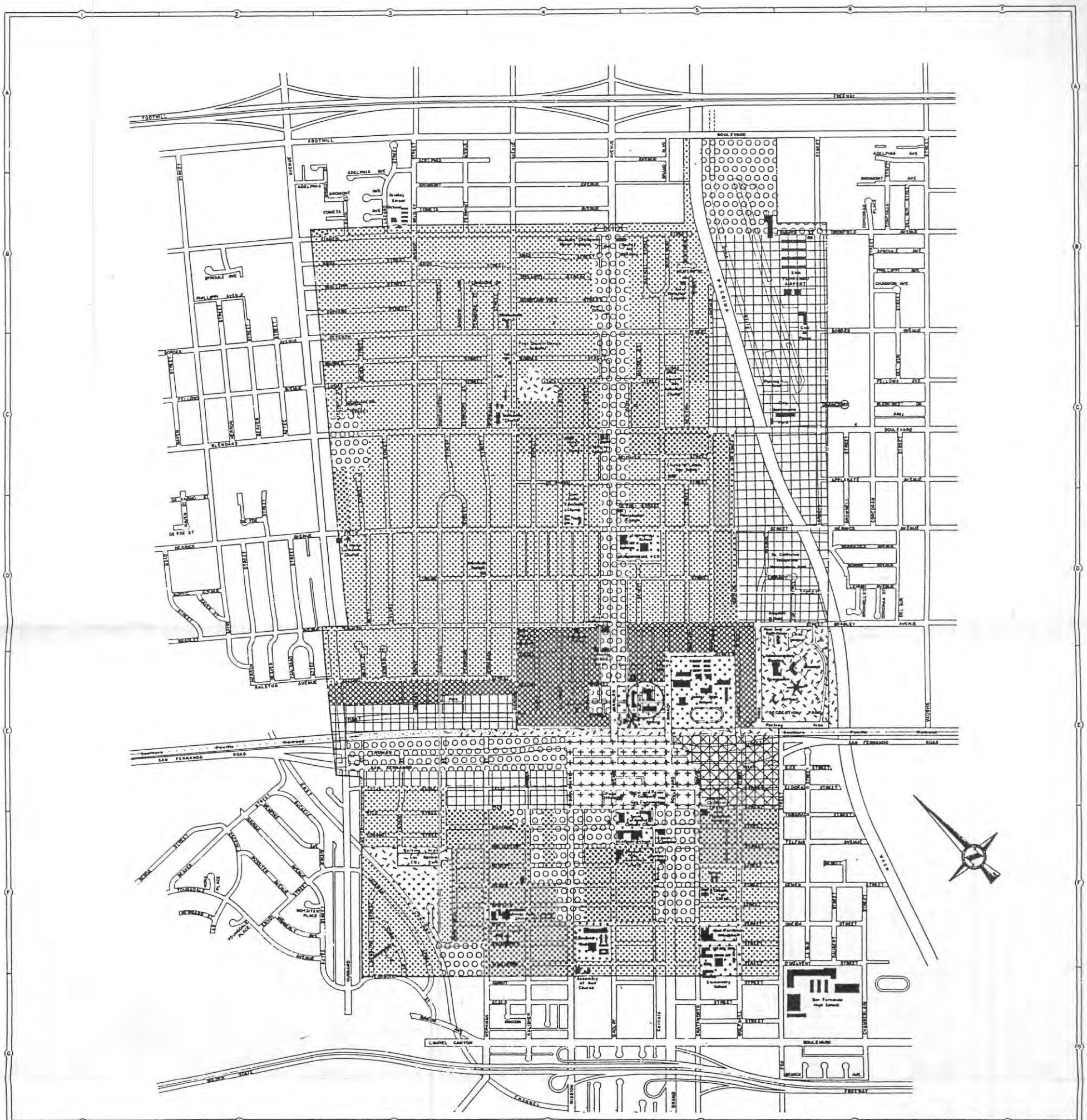
EXHIBIT IV-II

"THE MISSION CITY"

SAN FERNANDO

CALIFORNIA

INCORPORATED AUGUST 31, 1911



LOW DENSITY RESIDENTIAL (0-6 DU/AC)

MEDIUM DENSITY RESIDENTIAL (6-17 DU/AC)

HIGH DENSITY RESIDENTIAL (17-43DU/AC)

CENTRAL BUSINESS DISTRICT

NEIGHBORHOOD SHOPPING

MULTI-USE (COMMERCIAL, OFFICE, & RESIDENTIAL)

HIGHWAY RELATED COMMERCIAL

AUTOMOTIVE SALES & SERVICE

LIGHT INDUSTRIAL

HEAVY INDUSTRIAL

PUBLIC/QUASI-PUBLIC

CIVIC CENTER

ELEMENTARY SCHOOL

JUNIOR HIGH SCHOOL

SENIOR HIGH SCHOOL

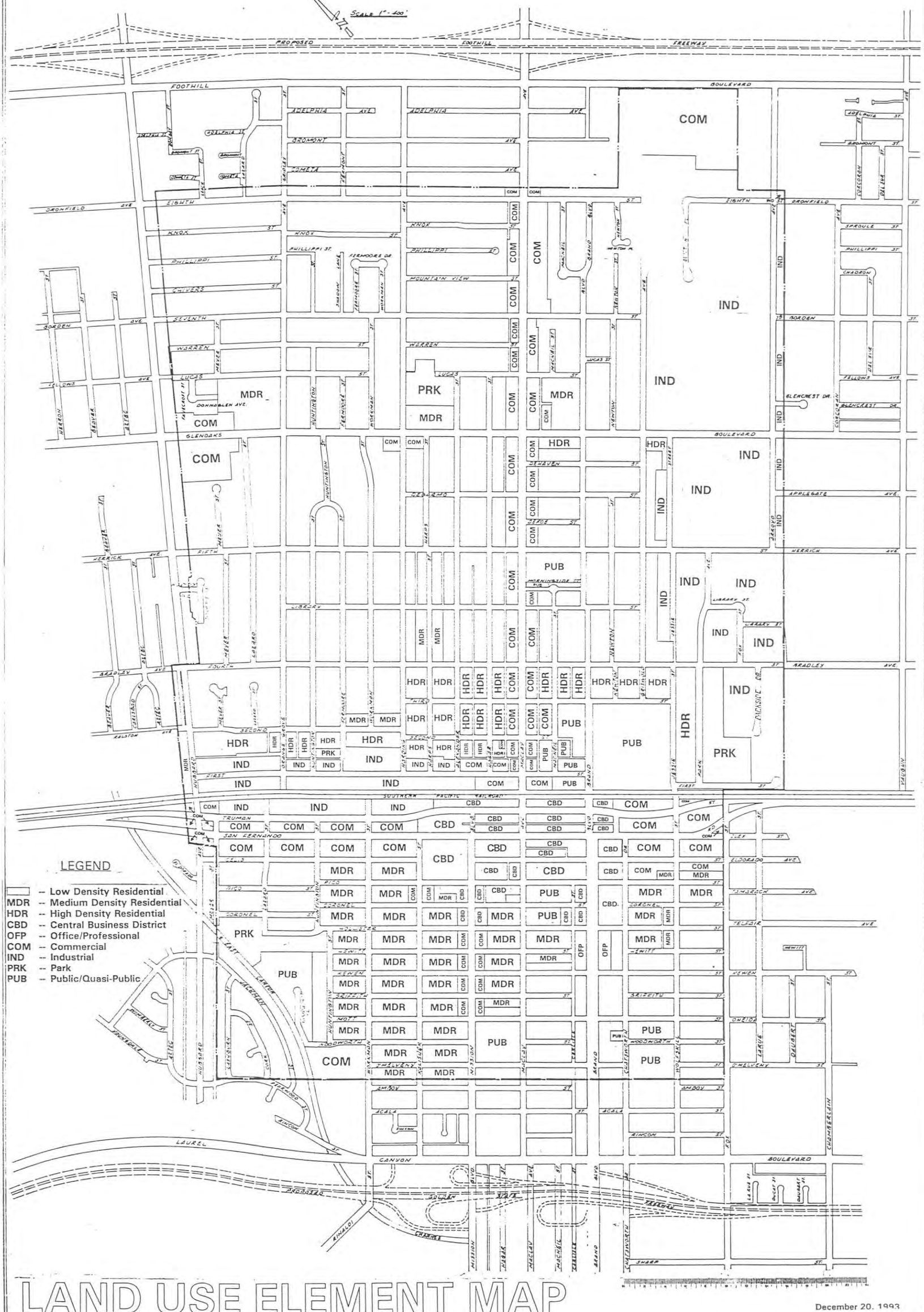
NEIGHBORHOOD PARK/ LANDSCAPING

Land Use Element Map

SAN FERNANDO GENERAL PLAN

EXHIBIT IV-III

MAP OF THE CITY OF SAN FERNANDO



LAND USE ELEMENT MAP

December 20, 1993

V.
CIRCULATION ELEMENT

V.
CIRCULATION ELEMENT

INTRODUCTION AND BACKGROUND

General Plan Legislation

The Circulation Element has been a required element of the General Plan since 1955. Section 65302 (b) of the California Government Code requires:

> A Circulation Element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the plan.

During the past 20 years, transportation technology has advanced rapidly. This enhanced technology has resulted in an increased emphasis on the provision of a balanced multi-model transportation system to meet the needs of residents and businesses.

Purpose and Function

The purpose of the Circulation Element is to provide a safe and efficient transportation system for existing and proposed land uses within the community. The Element provides a basis for the orderly pattern of development while minimizing the impact of transportation services on residential neighborhoods and the environmental quality of the community.

Relationship to Other General Plan Elements

The manner in which people and goods move within and through the City is an important factor in maintaining a quality living environment. The Circulation Element must be closely coordinated with the Land Use and Housing Elements to fully utilize the resources of the community. In addition, the Circulation Element is also closely related to the Noise Element. For instance, the Circulation Element prescribes traffic volumes for the various roadways comprising the transportation network, while the Noise Element describes the baseline noise levels which are necessary to achieve noise compatible land uses. In an urban environment, aesthetic elements of a circulation system such as medians, street trees and attractive pedestrian walkways can provide passive open space and positive visual resources.

This topic is considered in the Open Space/Conservation/Parks-Recreation Elements. This 1987 Circulation Element revises and updates, as appropriate, the Element which was adopted in 1973. That Circulation Element incorporated many of the freeway improvements which were achieved during the past decade. The achievement of those improvements has resulted in less traffic through the core area of the City.

FINDINGS AND CONCLUSIONS

This section summarizes the major findings and conclusions regarding circulation services and transportation facilities available within the City of San Fernando. The principal sources of background data for preparation of this section are listed below:

- The 1973 Circulation Element of the General Plan.
- CalTrans, "1985 Traffic Volumes on California Highways."

- Traffic impact analysis studies for public and private projects.
- Citywide speed zone surveys.
- Traffic studies on coordination of railroad operations with vehicular traffic movements.
- Service data from the Southern California Rapid Transit District.

Findings

1. The local street system is comprised of major highways, secondary highways, collector and local access streets. A description of the existing arterial system is provided in Section B of the Technical Appendix. The functions of these streets are briefly described below:

   The major function of major and secondary highways is to move large volumes of traffic from one part of the City to another. On-street parking and access points along these highways to adjacent land uses are carefully considered in relationship to traffic volumes.

   Collector streets provide both land access and traffic circulation within residential neighborhoods and commercial and industrial areas. This system differs from the arterial system in that facilities on the collector system may penetrate residential neighborhoods, distributing trips from the arterials, through the area, to the ultimate destination. The collector street system moves traffic to local shopping centers, schools, parks and between adjacent neighborhoods.

   The function of the access street is to provide direct access to individual parcels. The access street is not designed for through traffic.

2. As the City of San Fernando is surrounded by freeways there is excellent freeway access. The City is served by the Golden State Freeway (I-5), the San Diego Freeway (I-405), the Foothill Freeway (I-210), and the Simi-San Fernando Freeway (State Route 118). These routes are shown in Exhibit V-1.

3. San Fernando is served by two major inter-regional bus lines, the Greyhound Bus Lines and the Continental Trailways Bus System. Both offer service from San Fernando to points lying outside the Southern California Rapid Transit District and vice versa. Both lines use the Golden State Freeway in making connections to either Los Angeles or points to the north. There is no east-west service emanating in San Fernando.

4. The City of San Fernando lies near the northern boundary of the Southern California Rapid Transit District. Through the numerous

lines that make up this system, access is provided to points as far south as Newport Beach and as far east as Yucaipa. San Fernando is served by 10 lines that make connections with other sections of the San Fernando Valley and downtown Los Angeles. These lines are described in Section B of the Technical Appendix.

5. Although the San Fernando Airport is no longer in operation, there are adequate regional facilities to provide air passenger and freight services.

6. Approximately five trains, almost exclusively freight, pass through San Fernando each day. A "Team Track" allows local dealers to ship or receive merchandise directly from parked freight cars.

7. The City is bounded by mountain ranges to the east and north and Van Norman Dam is located to the west. These areas do not generate traffic and, as a result, most through traffic from the west, north and east is generated in a relatively small area lying between the City of San Fernando and the above-mentioned geographic features.

Conclusions

1. The City of San Fernando is fully developed with well-established traffic patterns. The City's circulation system is classified according to the character of service which the street is intended to provide.

2. Street standards utilized by the City of Los Angeles are not appropriate for the City of San Fernando. Due to the geographic location of the City, arterials perform a somewhat different function in the circulation network.

3. Topographic barriers limit the area of traffic generation and there is more than average freeway access. Because of these factors, much of the traffic usually carried by arterials will use the freeway system instead. The City of San Fernando street classifications are described in Section B of the Technical Appendix.

4. There are adequate regional transportation facilities to serve the needs of the community.

ISSUES AND OPPORTUNITIES

This section outlines circulation related issues and opportunities in the City of San Fernando. The identification of these issues and opportunities serves to highlight areas

of interest that should be considered in circulation planning and decisions on traffic improvements.

Issues

1. Traffic blockages, due to railroad switching movements, can impede through traffic circulation along major arterials and can restrict the movement of emergency vehicles.

Opportunities

1. Traffic studies have been completed that provide information useful to the coordination of railroad operations with vehicular traffic movements and to improve traffic flow through the City.

2. The construction of the Foothill and Simi Valley Freeways altered traffic patterns, resulting in less through traffic within the core area of the City. Concurrently, access to other destinations of regional interest was improved for San Fernando residents and businesses.

GOALS AND OBJECTIVES

This section identifies the continuing and long-range goals and objectives of the Circulation Element. As is the case for the other General Plan Elements, the goals and objectives are based on the information summarized in the previous sections, the data contained in the Technical Appendix and the 1973 Circulation Element.

Goals

1. To provide an efficient street system which allows maximum accessibility, while providing maximum safety and economy of movement.

2. To provide a street system that links San Fernando to other communities and regional facilities, while providing the residents of those communities with easily accessible routes to various facilities within the City of San Fernando.

3. To recognize problem areas and to implement programs aimed at solving those problems.

Objectives

1. Conflicts between vehicular traffic and railway operations will be minimized to the maximum extent possible.

2. The Central Business District will be enhanced as a commercial area through the establishment of efficient circulation patterns.

3. Traffic improvements will be implemented, as needed, to respond to changes in regional traffic patterns that affect local circulation.

IMPLEMENTATION MEASURES

This section presents the policies and action programs adopted by the Planning Commission and City Council in order to achieve a circulation and transportation system that meets the needs of the community. The implementation measures are, in effect, a statement of the policies and actions which have been endorsed by the City over the recent years.

Policies

1. The street classification system should separate those streets that are designed for through traffic from those that are local in nature. The intended function should be obvious to the driver.

2. San Fernando's circulation system should be coordinated with that of the City of Los Angeles, whose standards are different. This will insure the elimination of abrupt changes in the roadway that cause confusion and congestion for the motorist.

3. The circulation system should provide continuity of movement throughout the City and should facilitate safe, efficient emergency access.

Action Programs

1. Circulation Element Map Implementation -- Exhibit V-1 is the official Circulation Element Map that indicates the street classifications for roadways in San Fernando and the regional freeway system. The goals and objectives of this map will be continually implemented and any changes will be processed as an amendment to the General Plan.

2. Inter-governmental Coordination -- On the basis of City Council policy, there is coordination with the City of Los Angeles on a

continuing basis regarding roadway transition areas between San Fernando and Los Angeles. Although each City maintains different street standards, the intergovernmental coordination serves to maximize the provision for a continuity of movement throughout the City without confusion or congestion.

3. Traffic Signalization – The City utilizes a traffic signal interconnect system which sequences traffic lights at different intersections to provide progression of traffic movement throughout the City. New state-of-the-art computerized controllers are being phased in to upgrade the system.

4. Traffic Impact Studies – To avoid adverse impacts on businesses and residential neighborhoods, the City frequently authorizes special studies on the traffic impacts stemming from the development of public and private projects. In addition, the Traffic Commission continually surveys intersections at high accident locations for purposes of recommending traffic improvements.

INTERNAL CONSISTENCY

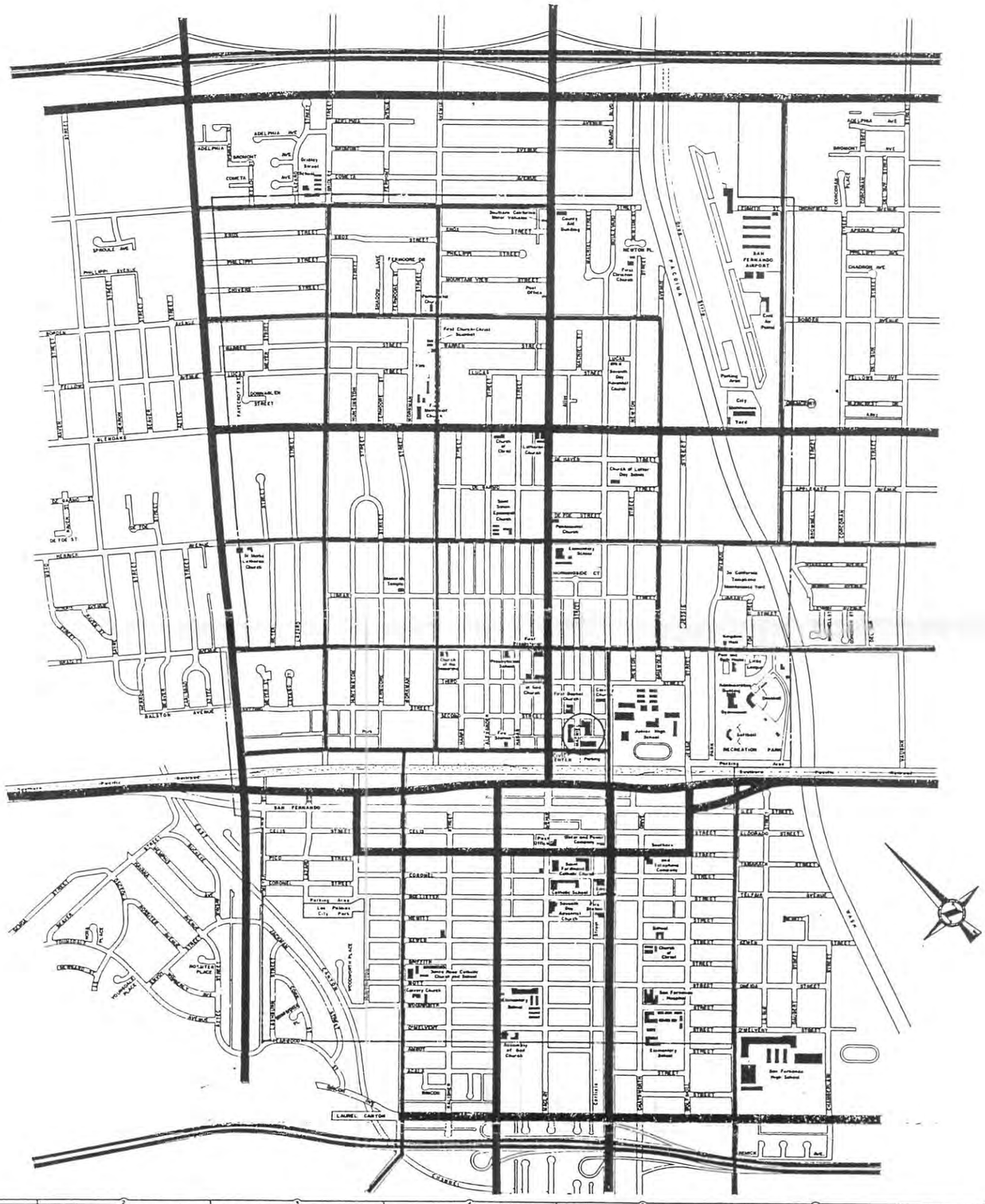
Street classifications are appropriate to serve the land use categories designated in the Land Use Element. The landscaping along major arterials provides passive open space, enhancing the visual image of the community to the motorist.

"THE MISSION CITY"

SAN FERNANDO

CALIFORNIA

INCORPORATED AUGUST 31, 1911



STREET INDEX

"A"

ACALA STREET 48,B8
ADELPHIA AVENUE 2D,3A,4A,5A,6A
ALEXANDER STREET 4C,4D,4E
AMIRO STREET 4B,5G
APPLEGATE AVENUE 4C,7C
ARROYO AVENUE 6A,6B,6C,6D
AZTEC STREET 2D,2E,2G,2F,3A

"B"

BALMER STREET 2B,2C,2D,2E,3F
BOMBAY STREET 3A,3B
BORDEN AVENUE 2C,6C,7C
BRAND BOULEVARD (No.) 3A,3B,3C,3D,3E
BRAND BOULEVARD (Sth) 3F,3G,3H
BRADLEY AVENUE 2D,6D
BROMONT AVENUE 3B,4B,5B,6B
BRUNNELL STREET 8C,8D
BUCKEYE AVENUE 2E,3F

"C"

CARLISLE STREET

CARLSBAD STREET 2D,3E
CELIS STREET 3F,4E,5E
CHADRON AVENUE 6B
CHAMBERLAIN STREET 6F,6G
CHATSWORTH DRIVE 1C,1F,3G
CHUPAN STREET 7B,8B
COMETA AVENUE 5B,6B
CONCORDIA PLACE 6B
CONCORDIA STREET 6A,6B,6C,6D

CONI STREET 3F,3G
CORONEL STREET 3F,4F,5F

"D"

DAUBERT STREET 6F
DE FOE STREET 1D,3A
DE GARMO STREET 4C,8C,7C
DE MAYO STREET 5C
DEL SUR STREET 6B,6C,6D
DONNAGLEN STREET 5C
DYER STREET 7D

"E"

ELDORADO STREET 6E
EMMITA STREET 3B,4B,5B,6B
ENVOY STREET 2F,3F

"F"

FAIRCROFT STREET 1C
FELLOWS AVENUE 5C,6C
FERMOUNT AVENUE 1C,3B
FERNDONE STREET 1C,2D,3E,4B
FIFTH STREET 3D,4D,5D,6D
FIRST STREET 2E,4F,5E
FOOTHILL BOULEVARD 2A,3A,4A,5A,6A
FOOTHILL FREEWAY 2A,3A,4A,5A,6A
FOURTH STREET 3D,4D,5D,6D
FOX STREET 6C,6F,6G

"G"

GENOA STREET 1F,2F
GLENCREST DRIVE 6C
GLENOAKS BOULEVARD 2C,3C,4C,5C,6C,7C
GOLDEN STATE FREEWAY 2D,3D,4D,5D,6D
GRIDLEY STREET 3C,5B
GRIFFITH STREET 3F,4F,5F

GRISWOLD AVENUE 5B,5C,5D

"H"

HAGAN STREET 4C,4D,4E
HARDING AVENUE 3B,4C,4D,4E
HARRIS STREET 4C,4D,4E
HARVARD AVENUE 2F
HENRICA STREET 7D,8D
HERON STREET 2F,3C,3D,3E
HEWITT STREET 3F,4F,5F
HOLLADAY STREET 3F,4F,5F
HOLLYWOOD AVENUE 2F,3D,3E,3F,3G,3H,5F,5G
HUNTINGTON STREET (No.) 3D,3E,3F,3G
HUNTINGTON STREET (Sth) 3E,3F

"I"

ILEX STREET 8C

"J"

JACKMAN STREET 5F,5G
JESSIE STREET 5D,5E

"K"

KAUFMAN STREET 4E,4F,4G
KENER STREET 5F,6F,6F
KIRON STREET 2B,3A,6A

"L"

LAGUNA DRIVE 3F
LA PUE STREET 6E,6F
LAUREL CARTON 3F,4A,5A,6A
LAZARD STREET 3A,3B,3C,3D,3E,3F
LEACH STREET 4B
LEMON STREET 6B
LINKART STREET 3C,4D,5D,6D
LUCAS STREET 3C,4C,5C

"M"

MACLAY AVENUE (No.) 4A,4B,4C,4D,4E
MACLAY AVENUE (Sth) 4E,4F,4G
MACNEIL STREET 5B,5C,5D,5E
MEMPHIS AVENUE 2E,2F,3F
MEYER STREET (No.) 3C,3D,3E
MEYER STREET (Sth) 3E,3F

MISSION BOULEVARD 4E,4F,4G
MONARDS SIDE COURT 5D
MOTT STREET 3F,4F,5F
MOUNTAIN VIEW STREET 4B

"N"

NEWHARD STREET 3F
NEWTON STREET 5F,5C,5D
NORA PLACE 2F
NORRIS AVENUE 1D,2B

"O"

O'HALLERAN STREET 4F,4F,5F
OLIVE STREET 5F
ORANGE GROVE AVENUE 5B,5C,5D,5E
OSCEOLA STREET 2F

"P"

PARK AVENUE 5D,5E
PEARWOOD STREET 6B
PHILLIPPI AVENUE 5D
PHILLIPPI STREET 2D,3D,4D
PICO STREET 3F,4F,5F

RALSTON AVENUE 1C,3C
RAVEN STREET 2C,2D
REMICA STREET 6B
RIBBON AVENUE 5D
ROBIN STREET 1C,1D
ROBSTER AVENUE 2F
ROSSLER PLACE 2F,3F

"S"

SAN FERNANDO ROAD 2D,3C,4C,5C,6C
SAYRE STREET 1D,2D,3F,2D,2E
SECOND STREET 3F,4F,5F
SEVENTH STREET 3C,4C,5C
SHADOW LANE 3B
SPROULE AVENUE 1D,2D

"T"

TAMARACK STREET 6F
TELFAIR STREET 6F
THIRD STREET 4F,5F
TRUMAN STREET 3E,4E,5E

"W"

WARREN STREET 3C,4C
WHISNELL STREET 2F
WOLFSKILL STREET 1C,3F
WOODCLIFF STREET 6B
WOODSWORTH PLACE 3F
WOODSWORTH STREET 3F,4F,5F
WORKMAN STREET (No.) 4B,4C,4D,4E
WORKMAN STREET (Sth) 4E,4F,4G

"Y"

YALMAN STREET 8A,8B,8C,8D,8E

"Y"

YOUNGDALE AVENUE 2F
YOUNGDALE PLACE 2F

FREEWAY

MAJOR ARTERIAL

SECONDARY ARTERIAL

Circulation Element
SAN FERNANDO GENERAL PLAN

EXHIBIT V-1

RESOLUTION NO. 6307

A RESOLUTION OF THE CITY COUNCIL
OF THE CITY OF SAN FERNANDO
AMENDING GENERAL PLAN AMENDMENT
GPA 1993-003 TO INCORPORATE
A MASTER BIKEWAY PLAN
INTO THE CIRCULATION ELEMENT
(GENERAL PLAN AMENDMENT NO. GPA 1993-003)

WHEREAS, the City Council identified the need for a citywide bikeway plan to encourage bicycle commuting throughout the city, and requested the Planning Commission review the Bikeway Master Plan for the establishment of bikeways and bicycle facilities; and

WHEREAS, development of a bikeway system and bicycle facilities encourages bicycle commuting as an alternative mode of transportation in compliance with state and local mandates for cleaner air and trip reduction measures; and

WHEREAS, compliance with state and local mandates requires incorporation of the Bikeway Master Plan into the general circulation element; and

WHEREAS, on December 7, 1993, the Planning Commission, following a duly noticed public hearing, at which evidence, both oral and written, was presented to and considered by said Commission, recommended to the Council that the General Plan Amendment GPA 1993-003 be amended to incorporate a Bikeway Master Plan into the general circulation element as set forth in Planning Commission Resolution No. 1097 ; and

WHEREAS, on December 20, 1993, the City Council held a duly noticed hearing to consider whether to amend GPA 1993-003. Evidence, both oral and written, was duly presented to and considered by the Council as said hearing.

THE CITY COUNCIL OF THE CITY OF SAN FERNANDO HEREBY FINDS, RESOLVES AND ORDERS AS FOLLOWS:

SECTION 1: Although no convenient bikeways currently exist throughout the City, a Class I bikeway is planned to be built along the Metrolink Corridor within the City limits.

SECTION 2: Applications for matching fund grants through programs such as the Bicycle Lane Accounts program require incorporation of a Bikeway Master Plan into the City's general circulation element. These programs offer funds to jurisdictions wanting to develop bicycle programs to encourage bicycle commuting as an alternative mode of transportation.

SECTION 3: State and local air quality regulations recommend jurisdictions implement trip reduction measures to reduce automobile emissions, a major source of air pollution in Southern California. Bikeway routes and bicyclist facilities outlined in the Bikeway Master Plan were drafted with the intention to comply with these regulations.

SECTION 4: Pursuant to CEQA Guidelines Section 15063, an Initial Study has been prepared for this project. After reviewing the Initial Study, the proposed Negative Declaration, and all comments received during the public review process, the City Council has determined that the project will not have a significant impact upon the environment. As a result of its review of the aforementioned documents, the City Council hereby approves the Negative Declaration and authorizes the Community Development Director to issue a Notice of Determination pursuant to CEQA Guidelines Section 15075.

Pursuant to Title 14, California Code of Regulations, Section 753.5(c) (1), the City Council has determined that, after considering the record as a whole, there is no evidence that the proposed project will have the potential for any adverse affect on wildlife resources or the habitat upon which the wildlife depends. Furthermore, on the basis of substantial evidence, the City Council hereby determines that any presumption of adverse impact has adequately been rebutted, and therefore, pursuant to Fish and Game Code Section 711.2 and Title 14, California Code of Regulations Section 753.5(a)(3), the project is not required to pay Fish and Game Department filing fees.

SECTION 5: The City Council therefore approves the general plan amendment GPA 1993-03 incorporating the Bikeway Master Plan into the General Circulation Element, as described in Exhibit "A" attached hereto and made a part hereof.

SECTION 6: The City Clerk shall endorse the amended general plan GPA 1993-03 incorporating the Bikeway Master Plan Circulation Element

PASSED, APPROVED AND ADOPTED this 20th day of December, 1993

MAYOR

CITY CLERK

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss
CITY OF SAN FERNANDO)

I, MARY STRENN, City Clerk of the City of San Fernando, do hereby certify that the foregoing Resolution No. 6307 was duly adopted by the City council and signed by the Mayor of said City as a meeting held on the 20th day of December, 1993; and that the same was passed by the following vote, to wit:

AYES: Acuna, Hernandez, Chacon, Ojeda, Wysbeek - 5

NOES: None - 0

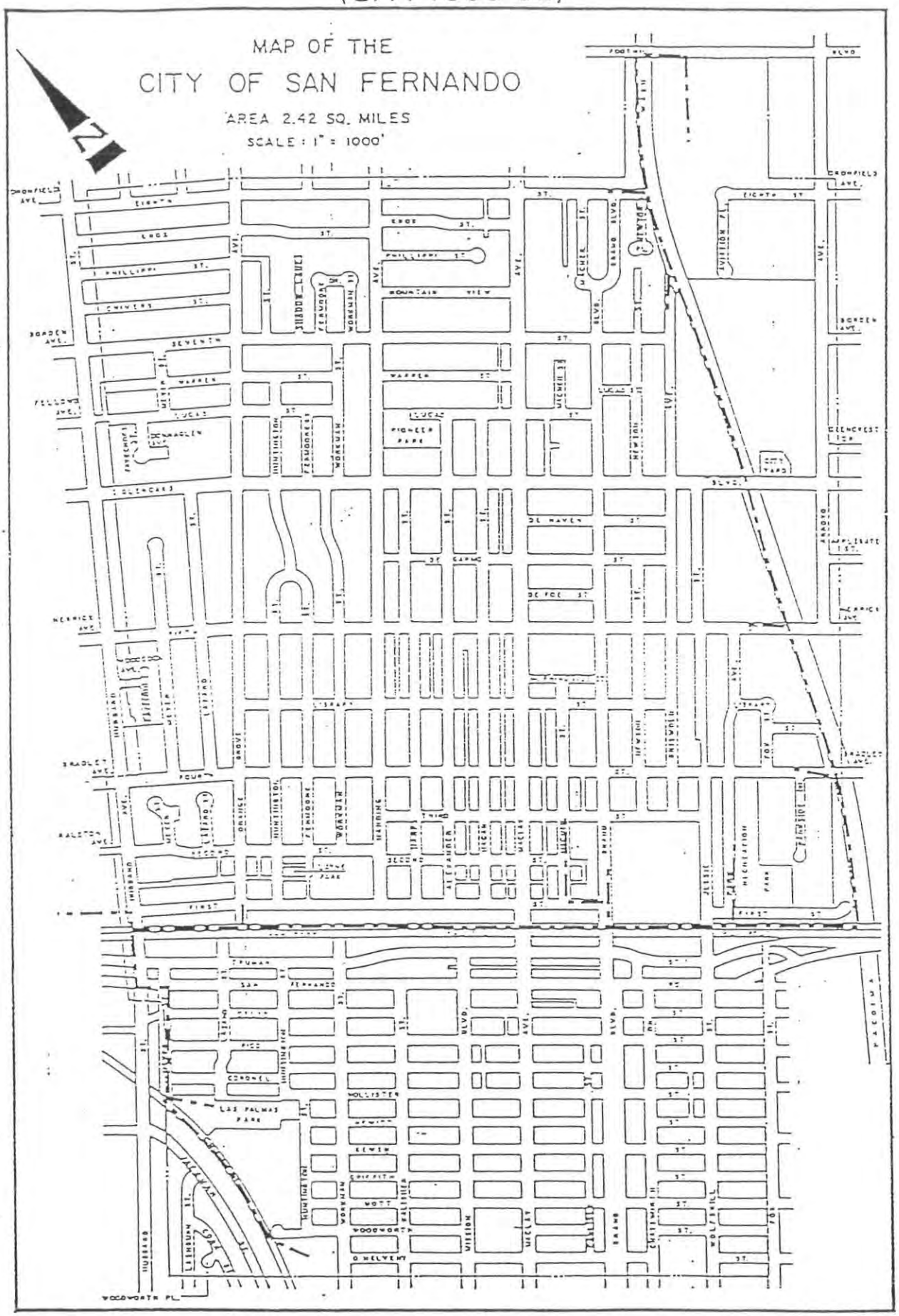
ABSENT: None - 0

ABSTAIN: None - 0

CITY CLERK

CC-224.PW

EXHIBIT A
(GPA 1993-03)



SAN FERNANDO BIKEWAY

VI.
HOUSING ELEMENT

VI.
HOUSING ELEMENT

INTRODUCTION AND BACKGROUND

AB 2853 (Ross Bill) established extensive requirements for the Housing Element of the General Plan, which are generally outlined in California Government Code Section 65583:

> "The housing element shall consist of an identification and analysis of existing and projected housing needs and a statement of goals, policies, quantified objectives and scheduled programs for the preservation, improvement and development of housing. The housing element shall identify adequate sites for housing, including rental housing, factory-built housing and mobilehomes and shall make adequate provision for the existing and projected needs of all economic segments of the community."

Pursuant to the authority granted by AB 2853, the California Legislature prepared guidelines for the adoption of a housing element and required that all elements adopted after October 1, 1981 be prepared in compliance with the Roos Bill.

The purpose of the Housing Element is to address on a practical level, the development of a comprehensive problem-solving strategy and implementation program responsive to the needs of the San Fernando community. As the major local housing strategy document, the San Fernando Housing Element is intended to provide all

concerned citizens and public officials with a knowledge of housing needs and to set forth an integrated set of policies and programs aimed at the attainment of expressed goals. In doing so, the Housing Element will serve to provide guidance in matters relating to housing and will also promote closer coordination of City, State and Federal housing policies and programs.

The San Fernando Housing Element is prepared in accordance with the requirements as set forth in Article 10.6 of the State of California Planning and Zoning Law. These regulations define specific areas of concern and need in the community, to be addressed as indicated below and on the following page.

> An assessment of housing needs and an inventory of resources and constraints relevant to the meeting of these needs.
>
> A statement of the community's goals, quantified objectives and policies relative to the maintenance, improvement and development of housing.
>
> A program which sets forth a five-year schedule of actions the local government is undertaking or intends to undertake to implement the policies and achieve the goals and objectives of the housing element through the administration of land use and development controls, provision of regulatory concessions and incentives and the utilization of appropriate Federal and State financing and subsidy programs when available.

FINDINGS AND CONCLUSIONS

As approximately 18.5% of the City's housing was constructed prior to 1940, a significant portion of the housing stock has exceeded or is nearing the 45-year life expectancy. This pre-1940 housing stock requires a great deal of attention. No matter how conscientiously a unit is maintained, it is a fact that housing wears out over time.

A total of 359 units, or approximately 6.5% of the City's total housing stock, is in need of minor or major repair to the roof, walls, foundation and/or premises. Major wall repairs (to walls, windows and/or porches) are required in 104 cases, major roof repairs in 115 instances, and major foundation repairs in 35 cases. All of these units would economically warrant rehabilitation. However, eight units are not suitable for rehabilitation.

111-3

The 1983 RHAM estimated that in April, 1980, 1,101 households in the City (20% of its total) were considered "in need". A household in need is defined as a lower income household (a household whose income is 80% or less of the County's median income, with adjustment for household size) paying over 30% of its income for housing. Approximately 72.5% of those lower income households identified as overpaying for housing are renters.

The City maintains membership in the Housing Authority of the County of Los Angeles, which administers the Section 8 Housing Assistance Payments Program. This program presently aids 81 lower-income households in the City, including 69 elderly (7 of which are handicapped) and 12 small family households, by paying the difference between 30% of an eligible household's income and the actual cost of renting a unit.

According to the 1983 RHAM model, 144 housing units would need to be added by January 1, 1988 to the City's January 1, 1983 total households (estimated at 5,472) to fulfill the City's share of regional housing needs and attain a 5% vacancy rate. Based on historical building activity trends, it is expected that the City's annual average allocation of 29 units can readily be provided for. Since new market rate housing is currently being sold in the City for around $100,000, which would require an income above 120% of County median income, the City's housing efforts should be directed at meeting the needs of Very Low, Low and Moderate Income households.

The cost of housing in San Fernando is one of its most important problems. The rapid increase of property values and housing costs which now characterizes most of southern California is the result of a number of factors, including interest rates, costs of materials, land and labor, speculation and a wide-spread demand for housing in combination with a limited supply of new units. However, the City's 1980 median housing value of $68,700 was substantially lower than the County's $87,400 median value and the State's $84,500 figure. Similarly, the City's 1980 median contract rent of $228 also fell below County and State levels. Therefore, the City's housing stock is affordable to a much greater range of income levels.

The number and size of vacant sites available for residential development in the City are extremely limited. Buildout of the 39 vacant parcels presently zoned R-1, R-2 or R-3 would add only 102 units to the City's housing inventory (24 units each in the R-1 and R-2 Zones and 54 units in the R-3 Zone). These sites, which total approximately 6.8 acres, are

scattered throughout the City's residential areas and range in size from 2,500 to 22,000 square feet.

The greatest potential increase in dwelling units could occur in the "underdeveloped areas" of the City rather than through the development of vacant sites. Much of the City's R-2 and R-3 zoned property is presently occupied by single-family dwellings. Replacement of these units with multi-family development could yield at least an additional 1,200 units--490 units in the 6-17 units per acre density range and 717 in the 17-43 units per acre category. This yield could be higher if lot consolidation occurs.

Prevailing nongovernmental constraints include the cost of land, construction, and financing. First time homebuyers face the greatest difficulty in acquiring affordable ownership housing, due to insufficient assets, monthly income and/or an inability to qualify for a loan.

Development standards related to minimum lot size, setbacks, height, lot coverage and parking are applied to new residential construction through the City's zoning ordinance. These standards are consistent with those of other local jurisdictions and accepted planning practices. They are viewed as necessary to protect the public health, safety and welfare and maintain the quality of life, and are, therefore, not considered constraints on the development of housing.

ISSUES AND OPPORTUNITIES

Housing needs in San Fernando, as in other southern California communities, exceed the City's capacity to fully address them. There are land supply constraints and limited amounts of funding resources available from the State and Federal governments. The following is a summary list of issues and opportunities which is drawn from the detailed background information contained in Section B of the Technical Appendix.

1. The average household size in the City of San Fernando increased from 3.02 in 1970 ot 3.27 in 1980. This contrasts with household density changes throughout Los Angeles County, which declined rather than increased.

2. Hispanic families are overrepresented in the lower income categories and underrepresented in the upper income categories when compared to the City-wide income distribution.

3. San Fernando is an established, nearly built-out urban area, with very little growth in terms of dwelling units occurring over the last 20 years.

4. Single-family units continue to be the prevalent type of housing, comprising approximately 76% of the housing stock. However, building permits issued over recent years show a trend toward higher density developments (condominimums, townhouses).

5. The 1980 Census reported a City vacancy rate of 2.2% for rental housing and .9% for ownership housing, both of which are significantly below the ideal 5% vacancy rate.

6. The number of housing units greater than 45 years old will grow substantially in the next ten years. The City is implementing several programs in the area of conservation and rehabilitation.

GOALS AND OBJECTIVES

Goals

The City of San Fernando has adopted the following three goals for its housing program, which are consistent with State housing policies:

1. The provision of decent housing in a satisfying environment for all persons regardless of age, race, sex, marital status, ethnic background, source of income or other arbitrary factors.

2. The provision of housing selection by location, type, price and tenure.

3. The development of a balanced residential environment with access to employment opportunities, community facilities and adequate services.

Objectives

1. The rehabilitation of 50 housing units with substandard conditions during the next five years.

2. The construction of at least 100 new housing units over the next five years.

IMPLEMENTATION MEASURES

Policies

1. Promote the rehabilitation of substandard and deteriorating housing.

2. Encourage the maintenance and repair of existing housing to prevent deterioration of housing in the City.

3. Promote efforts to remove substandard units which cannot be rehabilitated.

4. Develop property maintenance controls and/or programs designed to encourage proper levels of property upkeep.

5. Fulfill the City's share of regional housing needs to the maximum feasible extent.

6. Maintain the supply of affordable housing within the City in same condition.

7. Locate residential uses in proximity to commercial areas and transportation routes for accessibility to services.

8. Provide adequate infrastructure to accommodate future residential development.

9. Promote a housing stock that varies sufficiently in cost and type to meet the economic and social needs of its residents.

10. Use available funding to subsidize low- and moderate-income housing.

11. Discourage the conversions of apartment units to condominiums where such conversions will diminish the supply of low- and moderate-income rental housing.

12. Ensure a continuing supply of affordable housing.

13. Promote housing opportunities for all persons regardless of race, religion, sex, marital status, ancestry, national origin, color or physical handicap.

14. Take positive steps to assure that all segments of the population are aware of their rights and responsibilities regarding fair housing.

15. Ensure that fair housing practices are applied to all housing offered within the City.

IMPLEMENTATION PROGRAMS

The City has developed a number of housing policies and programs to be implemented over the next five years. The policies and programs are organized around five issues that are identified by the State as important priorities in addressing local housing problems. These issue areas are:

- Preserving Housing and Neighborhoods
- Preserving Affordability
- Standards and Plans for Adequate Sites
- Promoting Equal Opportunity
- Housing Assistance

The action programs are described in the Chart VI-1. Each program action is described in terms of the following:

- Program Category
- Program Description
- Quantitative Objective
- Funding
- Responsible Agency
- Consistency with Community Goals

CITY OF SAN FERNANDO — HOUSING PROGRAM DESCRIPTION
1985-1990

Program Category	Program Description	Quantitative Objective	Funding	Responsible Agency	Consistency with Community Goals
Conserve and improve existing housing.					
1. Structural conservation and rehabilitation.	Annually update 1982 housing survey.	Maintain an accurate assessment of units in need of rehabilitation.	Planning Department Budget	San Fernando Planning Department	Promote the rehabilitation of substandard and deteriorating housing.
	Continue administering rehabilitation programs.	Rehabilitation and improvement of areas where deterioration is not severe.	CDBG Funds, Department Budget	San Fernando Planning Department	Encourage the maintenance and repair of existing housing to prevent deterioration.
	Continue Building Code enforcement program.	Process 90 code violations per year	CDBG Funds, Department Budget	San Fernando Building Department	Develop programs to encourage proper levels of property upkeep.
	Pursue participation in the Section 8 Moderate Rehabilitation Program.	Conservation of rental housing stock and provision of rental subsides.	Section 8 Program	San Fernando City Administrator's Office City Council.	To preserve housing and neighborhoods.
	Use redevelopment tax increment to improve housing stock.	Continued funding of housing rehabilitation program.	Redevelopment Tax Increament.	San Fernando Planning Dept. City Council, City Administrator's Office.	To provide decent housing for all persons.

Program Category	Program Description	Quantitative Objective	Funding	Responsible Agency	Consistency with Community Goals
2. Preserving Affordability	Section 8 program.	Maintenance of affordable rental housing with a goal of 3 additional units per year.	Department Budgets	San Fernando Planning Dept., City Administrator's Office.	Use available funding to subsidize low and moderate income housing.
	Prepare a Condominimum Conversion Ordinance.	Limitation of conversion of rental housing stock that would diminish the supply of low and moderate income housing.	Department Budget	San Fernando Planning Dept., City Attorney	Discourage conversion of apartment units to condominimum where such converisons will diminish the supply of affordable housing.
	Require development agreements to establish standards for affordable housing units where a density bonus has been granted.	Increase number of affordable housing units.	Provided by Developer		Ensure a continuting supply of affordable housing.
3. Provision of Adequate Housing Sites.	Establish criteria for the location of low and moderate income housing.	Compliance with State and Federal criteria.	Department Budget	San Fernando Planning Dept.	

Program Category	Program Description	Quantitative Objective	Funding	Responsible Agency	Consistency with Community Goals
	Review planned land uses for compatibility with General Plan.	Assure adequate levels of community facilities and services.	Department Budget	San Fernando Planning Dept.	
	Amend R-1 zoning to allow manufactured housing on permanent foundations.	Increase the availiability of sites for lower cost housing.	Department Budget	San Fernando Planning Dept., Planning Commission, City Council.	
	Amend R-1 zoning to permit the construction of second units on lots with existing single-family residences.	Increase the availibility of affordable rental units.	Department Budget	San Fernando Planning Dept., Planning Commission, City Council	
	Amend the zoning Ordinance to prohibit the sale or development of substandard lots under the same ownership.	Elimination of non-conforming lots.		San Fernando Planning Commission, City Council	
	Develop Residential Planned Development zone.	Lower housing costs due to design flexibility.		San Fernando Planning Dept., Planning Commission, City Council.	

Program Category	Program Description	Quantitative Objectives	Funding	Responsible Agency	with Community Goals
4. Promoting Equal Opportunity	Annually update city-wide survey of rental housing suitable for handicapped, elderly, and large family households.	Assist identified special needs groups in locating housing.	Department Budget	San Fernando Planning Dept.	
	Continue City's Fair Housing Program.	Fair housing practices.	Department Budget	San Fernando Planning Dept.	
	Designate a percentage of redevelopement tax increasment and residential mortgage revenue bond monies for meeting special needs.	Assist special groups in obtaining funding for rehabilitation or new residential development.	AB 1355, Marks-Toran, SB99, Section 8 Rehabilitation Funds, Redevelopment Tax Increasment.	City Administrator's Offices	
	Establish a service to match seniors who desire to share existing housing.	Increase affordable housing for seniors and reduce housing costs for senior homeowners.	Department Budget	San Fernando Planning Dept.	

Program Category	Program Description	Quantitative Objective	Funding	Responsible Agency	Consistency with Community Goals
5. Housing Assistance	Maintain membership in Los Angeles County Housing Authority.	Contained participation in Section 8 programs.	Department Budget	San Fernando City Council, City Administrator's Office.	
	Modify development standards and/or reduce fees for projects with affordable and/or elderly housing.	Encouragement of affordable and elderly housing.	CDBG funds, Redevelopment Tax Increment Department Budget.	San Fernando Planning Dept., Planning Commission City Council	
	Apply for Urban Counties Community Development Block Grant funds, when eligable.	Funds for rehabilitation and housing assistance, beginning in 1986.	Department Budget	San Fernando City Administrator's Office	
	Apply for Small Cities Community Development Block Grant program.	Funds for City's housing program.	Department Budget	San Fernando City Administrator's Office	
	Develop a home energy conservation program.	Reduced housing costs.	Department Budget	San Fernando Building and Planning Dept., Public Utilities.	

Program Category	Program Description	Quantitative Objective	Funding	Responsible Agency	Consistency with Community Goals
	Issue tax-exempt mortgage revenue bonds.	Expand affordable and market rate housing opportunities.	AB 1355, Marks-Toran, SB 99	San Fernando City Council, City Administrator's Office	
	Support non-profit organizations that may sponser affordable housing proposals.	Expansion of funding opportunities for affordable housing.	Department Budget	San Fernando City Council, City Administrator's Office	
	Use a portion of redevelopment tax increment to increase the supply of low and moderate-income housing.	Encourage affordable housing through incentives such as fee waivers and land write-downs.	Redevelopment Tax Increment	San Fernando City Council, City Administrator's Office	
	Reduce processing time for projects with affordable or elderly housing.	Encourage construction of affordable and elderly housing.	Department Budget	San Fernando Planning Dept., Planning Commission, City Council	
	Annual review of City-owned property that could be considered as surplus.	Potential affordable housing site.	General Funds	San Fernando Public Works Department City Council	

VII.
OPEN SPACE/CONSERVATION/PARKS-RECREATION ELEMENT

VII.
OPEN SPACE/CONSERVATION/PARKS-RECREATION ELEMENT

INTRODUCTION AND BACKGROUND

General Plan Legislation

The General Plan statutes established requirements for Open Space and Conservation Elements in 1970. According to Section 65560(b) of the Government Code, "open space" is any parcel or area of land or water which is essentially unimproved and devoted to open space use. "A conservation element," according to Section 65302(f) of the Government Code, is "for the conservation, development, and utilization of natural resources."

Assembly Bill No. 2038, which was approved in September 1984, enables communities to deal with issues of local concern or interest in the general plan as indicated by the following statement:

> "The general plan may include any other elements or address any other subjects which, in the judgement of the legislative body, relate to the physical development of the city." (Section 65303)

Under these provisions, optional elements may be prepared to suit community needs. Because of the City's interest in parks and recreation, this topic is incorporated in this element of the General Plan.

Purpose and Function

The purpose of the Open Space Element is to designate, as appropriate, open space land for the following purposes:

- Open space for the preservation of natural resources such as animal and plant life and ecological areas.
- Open space for the managed production of resources such as agricultural land areas or major mineral deposits.
- Open space for outdoor recreation such as areas particularly suited for park and recreation purposes.
- Open space for public health and safety such as areas which require special management or regulation because of hazardous conditions including earthquake fault zones and unstable soil areas.

The purpose of the Conservation Element is to establish policy guidelines (as needed) for the conservation, development and utilization of economically productive natural resources such as timber, water, agricultural land, minerals, fish, wildlife and rare or endangered species. In many urban-suburban communities such as San Fernando there are few natural resources that merit long-range conservation.

Local parks, school playgrounds and other accessible neighborhood parks are a major open space resource and valuable contribution to meeting the community's recreation needs. The analysis of these resources falls within the meaning of "open space for outdoor recreation." In addition, the inventory of current resources includes the wide range of sports, cultural and public service programs furnished by the City.

Relation to Other General Plan Elements

This 1987 Open Space/Conservation/Parks-Recreation Element revises and amends the previous "Open Space Element" of the City which is dated May 1973 and which was

adopted by the Planning Commission and City Council in mid-year 1973. In addition, the City's original General Plan includes a discussion of park and recreation needs and resources in the Land Use Element and the Public Facilities Element. This Element updates, as appropriate, the material included in those two Elements of San Fernando's original General Plan.

These three elements are combined into a single element because there would be an overlap and duplication in terms of the data and issues which would be addressed if the elements were presented individually. "Natural resources," for instance, is a subject that is included in both the Open Space and Conservation Elements. Moreover, "open space for outdoor recreation" incorporates the topics usually discussed in a parks and recreation element. Finally, the land which is designated as open space by this element also is included in the "open space" category of the text and map of the Land Use Element.

FINDINGS AND CONCLUSIONS

This section is a summary of the principal findings and conclusions pertaining to existing conditions and future trends affecting open space, conservation and parks and recreation resources. The findings and conclusions are presented in a manner consistent with the General Plan statutes and the advisory guidelines offered by the State Office of Planning and Research. The primary sources of background data for preparation of this section are listed below:

- The 1973 Land Use, Public Facilities and Open Space Elements of the General Plan.
- Inventory of recreation programs provided by the City for its residents.
- Field survey of neighborhood parks located in San Fernando.
- City of Los Angeles Recreation and Parks Department, "Valley Region Parks Inventory."
- 1985 Study for Proposed Senior Citizen Center.

Section D of the Technical Appendix includes an inventory of City parks, school playground and open space resources as well as other neighborhood and regional

parks that are accessible to San Fernando residents. In addition, two charts are contained in Section D of the Technical Appendix. The first chart is a summary of the recreational facilities that are located in each park and school located within or adjacent to San Fernando. The second chart presents a complete summary of the sports, cultural and public service programs offered by the City's Park and Recreation Department.

Findings

1. Urbanization and the compact size of San Fernando precludes the presence of ecologically important natural areas containing significant plant or animal life.

2. Commercially productive timber, water, mineral or agricultural resources are not located within the City limits.

3. The City presently has 24.7 acres of developed lands in four parks ranging in size from .9 acres to 15.5 acres and another 19 acres in four public school facilities (see Exhibit VII-1).

4. Other parks that are particularly accessible to San Fernando's residents include two Los Angeles City Parks which are the 19-acre Brand Park located opposite the San Fernando Mission and the 18-acre Paxton Park located at Paxton Street and Laurel Canyon Boulevard.

5. Hansen Dam Recreational Area, a 1,437 acre facility, is the major regional resource that is located near the San Fernando community. This facility is located adjacent to Glenoaks Boulevard.

6. The preservation of open space land for public health and safety is not possible since the City is almost fully developed. Building and development near the San Fernando Fault Zone should be controlled by means of the Alquist-Priolo Special Studies for Fault Hazards (as explained more completely in the Safety Element).

7. Water is supplied to San Fernando by a system of wells within the City. The groundwater elevations range from 660 to 1060 feet and the groundwater table is generally in excess of 75 feet. Following the 1971 earthquake, which caused extensive damage to the City's water well system, a permanent connection to the Metropolitan Water District was constructed.

8. The repairs to the water well system, subsequent to the earthquake, plus the MWD water connection provide the City of San Fernando with a continuing water supply capable of meeting both daily demands and emergency situations. There are no fire

flow deficiencies in any portion of the City, according to the standards established by the Fire Department.

9. There are no forest resources within the City of San Fernando.

10. San Fernando is a fully urbanized area with no prime agricultural soils located within its incorporated boundaries.

11. The Land Use Element does not designate any land for agricultural production.

12. The City does not contain any mineral resources.

13. Native vegetation and wildlife have been disrupted by urbanization. Only urban adaptable species remain in the area such as squirrels, mice, skunks and feral cats. The most commonly observed birds in urban areas are crows, starlings, house finches, house sparrows, spotted doves and Brewer's blackbirds.

14. No rare or endangered species of plants or animals are known to exist in the City of San Fernando.

Conclusions

1. Open space for the managed production of resources and for the preservation of natural resources are not issues pertinent to the City of San Fernando.

2. Open space for public health and safety cannot be provided because the City is already fully developed. Safety from seismic hazards must be provided through engineering design.

3. Residents of the community currently enjoy a ratio of 1.3 acres of developed City park acreage per 1000 persons. This ratio is enhanced to 2.3 acres per 1000 residents when the space available at the school playgrounds is included in the total inventory.

4. As the City is 92% developed, vacant land in large parcels is unavailable for acquisition for open space and recreational uses.

5. Because of the highly developed nature of the community, it is important to preserve, enhance and add land to existing open space and recreational areas when practical.

6. City park programs have high attendance from all age groups within the community. Soccer is the most popular team sport in the City.

ISSUES AND OPPORTUNITIES

This section identifies issues and opportunities pertaining to open space, conservation and parks and recreation as they affect the preparation of plans and programs in the future. The identification of these issues and opportunities is especially useful to the formulation of recommendations concerning goals and objectives as well as implementation measures.

Issues

1. Even if suitable or appropriate sites were available, it is unlikely that the City will have the economic means to purchase large properties for open space, park and recreation purposes.

2. There is a need for additional playing fields, particularly to accommodate the high demand for youth and adult participation in soccer. Because the demand for playing fields exceeds the capacity of existing facilities, there are waiting lists for soccer and softball. There are presently no available properties of sufficient size for development as teams sports facilities.

3. There are approximately 2,500 senior citizens residing in the City of San Fernando which represents 14% of the total population. A centralized facility is needed in order to provide additional senior services.

4. Retired adults are often limited in their ability to engage in recreational activities due to financial constraints and lack of mobility. Accessible passive open areas are often needed to serve this population segment.

5. Visual enhancement of the community is needed such as the provision of landscaping along major traffic corridors and in public places.

Opportunities

1. The acquisition of land adjacent to existing parks, as it becomes available, would greatly enhance open space, park and recreational opportunities within the City.

2. Small parcels of vacant land are the greatest potential for the provision of additional open space and park areas without causing a need for relocation. Such vacant parcels could be developed as mini-parks.

3. The lease or sale of the undeveloped portion of Recreation Park could provide funds for the acquisition of new parkland or for park improvements.

4. The City is planning to construct a senior citizen facility consisting of 3,600 square feet at Recreation Park which would provide the opportunity to contribute to meeting a variety of human needs.

5. The San Fernando Airport, located at Foothill Boulevard and Arroyo Street, is being redeveloped. Specific planning for the development of this site could include perimeter landscaping to enhance the visual character of the community. Trees, berming and ornamental landscaping can provide passive open space for viewing in highly urbanized areas.

GOALS AND OBJECTIVES

This section establishes continuing and long-range goals and objectives of the Open Space/Conservation/Parks-Recreation Element. The goals and objectives reflect the information pertaining to findings and conclusions as well as the identified issues and opportunities. The goals and objectives also are recommended in light of the 1973 Open Space Element and current practices of the Parks and Recreation Department.

Goals

1. To provide the fullest amount possible of open land for parks and recreational purposes and for the passive and visual enjoyment of the community residents.

2. To give aesthetic variety and distinction to the community by adding relief to developed areas through the conservation of existing and the development of new landscaping particularly along the urban corridors.

3. To provide a complete range of recreational, cultural and sports programs to meet the diverse needs of the community's population.

Objectives

1. It is the City's intent to provide a balanced distribution of parks that will encourage park patronage by all the population groups of the community.

2. Additional mini-parks should be developed, where feasible, to make open space and recreation areas more accessible to the elderly and to small children.

3. It is the City's intent to provide a central facility to conduct senior citizen activities, programs and services.

IMPLEMENTATION MEASURES

This section presents the policies and action programs adopted by the Planning Commission and City Council. These implementation measures are intended to convey to the community-at-large the concrete steps which the City will continue to take or initiate for purposes of contributing to the meeting of basic human needs for open space and recreational opportunities.

Policies

1. The policy of annexing open space land adjacent to existing park development, when feasible, will be continued in the future.

2. Federal, State and Community Development Block Grant funding programs that could be utilized for land acquisition and park development will be continually explored in terms of meeting San Fernando's needs.

3. The City will explore the possibility of selling or leasing the undeveloped portion of Recreation Park (which is not useable) for purposes of gaining resources to address additional open space, park and recreational needs.

Programs

1. Open Space Preservation -- Existing facilities that provide open space and recreation are preserved for future users by the Land Use Element and Zoning Ordinance. All parks and open space resources that are under public ownership are designated as open space by the Land Use Element of the General Plan. The text that defines this land use category prohibits the development of such land for urban and/or commercial uses. Sites that are designated as "Open Space" are further protected by the zoning which is applied to such land and which is consistent with the intent and purpose of the open space category.

2. Parks and Recreation Program -- This program is operated by the City's Park and Recreation Department under the guidance provided by the Parks and Recreation Commission, Planning Commission and City Council. A description of each park facility and the programs and services under the administration of the Parks and Recreation Department is provided in Section D of the Technical Appendix.

3. Senior Citizens Center Facility -- A grant application has been approved by the County Area Agency for the Senior Citizen Bond Act Funds.. The funding will be used to finance the construction of the proposed senior center (3,600 square feet) at Recreation Park.

INTERNAL CONSISTENCY

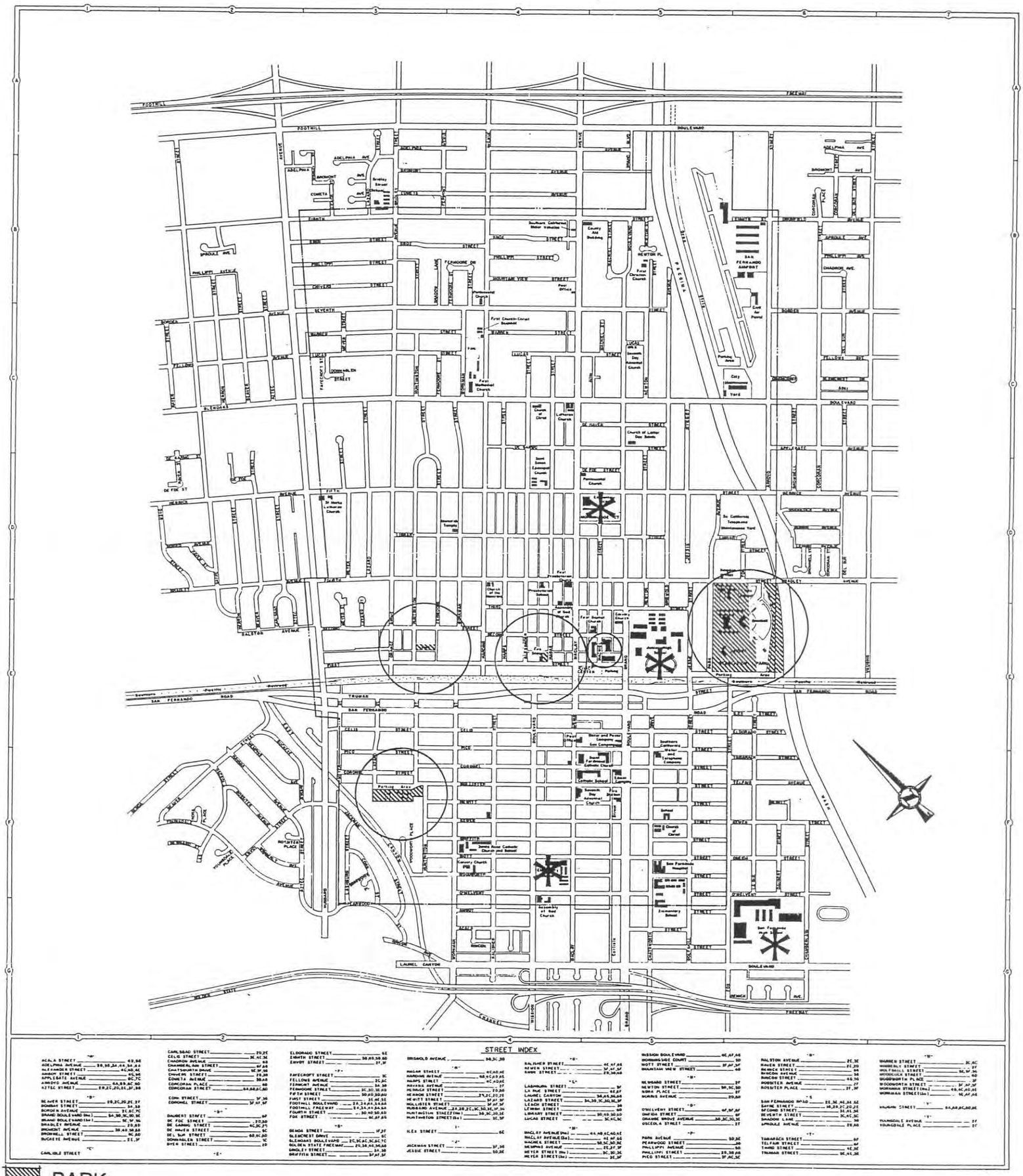
The Open Space/Conservation/Parks-Recreation Element is consistent with the areas designated as Open Space in the Land Use Element. The Land Use Element contains an "open space" category intended to preserve and protect open space areas under public ownership. Open space areas for public health and safety are not designated in the Safety Element or Land Use Element, as the City is fully developed.

"THE MISSION CITY"

SAN FERNANDO

CALIFORNIA

INCORPORATED AUGUST 31, 1911



PARK

SCHOOL

Parks and School Recreation Areas
SAN FERNANDO GENERAL PLAN

EXHIBIT VII-I

VIII.
SAFETY ELEMENT

VIII.
SAFETY ELEMENT

INTRODUCTION AND BACKGROUND

General Plan Legislation

In the past 15 years, three legislative acts have enumerated how localities are to address in community general plans the conditions that are hazardous to public health and safety. In 1970, the Safety Element became a mandatory element of the General Plan. The provision for a Safety Element was partly a reaction to damaging wildland fires that occurred in September and October of 1970. Following the local San Fernando earthquake in 1971, the State Legislature enacted legislation requiring counties and cities to adopt a Seismic Safety Element as part of the comprehensive General Plan. In 1984, there were revisions in General Plan legislation pertaining to these two elements. The Seismic Safety and Safety Elements were combined into a single element that would contain essentially the same information previously included in the two elements.

According to Section 65302(g) of the Government Code, the safety element is described in the following terms:

"A safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence and other geologic hazards known to the legislative body; flooding; and wildland and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, peak load water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards."

Purpose and Function

This element contains information on hazardous conditions that may affect the resident and working population of San Fernando. Information is presented in this element on the conditions listed below and on the next page.

- Seismically induced hazards such as surface rupture, ground shaking, ground failure and dam failure
- Subsidence and other geologic hazards
- Mudslides and landslides
- Flooding
- Urban fires
- Hazardous waste

Relation to Other General Plan Elements

Some community safety concerns overlap or are associated with the issues considered by the open space and land use elements. According to Government Code Section 65560 b(4), the safety element is linked to the implementation of a local open space plan. For instance, as a means of protecting public health and safety, open space land may be set-aside for these purposes in circumstances that need special regulation and management. Undeveloped land devoted to open space use may include area set-aside because of hazardous conditions such as earthquake fault zones, unstable soil areas and flood plains. In addition, a community's land use element usually incorporates the findings and recommendations relating to public safety and open space lands. For example, a separate "open space" land use

category may be established which would designate open space lands to protect public health and safety.

FINDINGS AND CONCLUSIONS

This section provides a summary of the principal findings and conclusions relating to the conditions described in the "introduction." The research findings and conclusions are based upon previous studies conducted on this subject, interviews with City staff and an engineering and geology study completed for the General Plan in August 1985. That study and the definitions of important geologic terms are included in Section E of the Technical Appendix.

Other sources of background data pertaining to this Element are listed below:

- The 1973 Seismic Safety Element.
- Report of Seismic Hazard for the City of San Fernando, Los Angeles County, California (Woodward-McNeill & Associates)
- Report on Damage to Water Wells Reservoirs and Water Distribution System of the City of San Fernando caused by the San Fernando Earthquake of February, 1971 (Public Works Department, 1972).
- Pacoima Dam Evacuation Contingency Plan (1985).

Findings

1. The active San Fernando fault zone is located within a portion of the City. It is a northwest trending fault zone that dips steeply towards the north and passes through the City at its northern corner. Moreover, it has been zoned as an "active fault" on the California Division of Mines and Geology maps for fault hazard zones.
2. The potentially active Verdugo fault is situated at the southern corner of the City. This fault is identified primarily by means of a groundwater barrier and it has no known surface expression.
3. The most severe ground shaking would be related to a nearby earthquake on the San Fernando or Santa Susana fault zones.
4. The relatively level terrain within the City eliminates the possibility of ground failure related to slope instability and landslides.

5. Liquefaction, a temporary loss of strength in saturated sandy soil due to ground shaking, is not a hazard due to the low groundwater table. The one exception consists of an area in the southwestern portion of the City.

6. There is no potential for tsunamis or seiches. These terms refer to waves created in bodies of water due to seismic activity.

7. The City has not been subjected to significant subsidence or uplift during its history. However, there was some tectonic uplift during the San Fernando Earthquake in 1971. Subsidence may be defined as the downward movement of a relatively large area due to the withdrawal of subsurface water and/or petroleum. Conversely, uplift is the upward movement of a relatively large area due to the injection of water or petroleum and/or tectonic forces. The maximum uplift within the City is approximately five feet near its northern corner.

8. Nearly all of the soil materials in the City are or can be rendered suitable for development.

9. Portions of the City of San Fernando would be subject to inundation should water breach the Pacoima Dam.

10. The potential for spills of hazardous materials is associated primarily with truck tanker and truck trailer traffic through the City.

11. Industrial accidents could also result in the spillage of chemicals on City streets.

12. The Los Angeles City Fire Department provides fire protection to the City of San Fernando. Three stations respond to fire calls and each provides emergency medical services.

Conclusions

1. The City will probably experience ground shaking from earthquake activity associated with the active fault systems denoted earlier. Fault hazard zones are shown in Exhibit VIII-1. The maximum credible magnitude of 6.5 could produce a peak ground acceleration of approximately 0.35 gravity. For comparison, the maximum credible magnitude of 8.25 on the San Andreas fault zone could produce a ground acceleration at the City of approximately 0.23 gravity. The difference in acceleration values is related to the greater distance to the San Andreas fault.

2. There may be fault movement and related ground rupture along the San Fernando and Verdugo fault zones as well as associated hazards to building in and near the fault zones.

3. A high level of fire service is provided by Los Angeles City Fire Stations 75, 98 and 91.

4. Seismic compaction of soils would occur in the alluvial deposit areas of looser materials.

5. There may be ground settlements and failures in areas susceptible to liquefaction and compaction due to earthquake ground shaking. These areas would most likely be very limited.

6. The Pacoima Dam and the Lopez Dam are considered stable and safe. The possibility of dam failure is very remote.

7. Truck traffic is confined primarily to industrial areas of the City. The City has experienced only one spill associated with the transport of hazardous materials and has experienced no industrial fires involving toxic substances.

ISSUES AND OPPORTUNITIES

This section identifies safety related issues and opportunities affecting the City. Specific areas of geologic hazard and other safety hazards that present planning constraints are identified in this section. Planning opportunities to improve community safety are also identified. Background and research data are presented in Section E of the Technical Appendix.

Issues

1. There is potential for seismic hazards associated with ground rupture along earthquake faults and ground shaking from regional seismic activity.

2. Seismic activity may result in subsidence and uplift within the City.

3. In the southwestern portion of the City, there is potential for liquefaction to a water table depth of 40 feet.

4. Portions of the City would be subject to inundation should a failure occur at the Pacoima Dam.

Opportunities

1. Supplemental studies on the site specific features of geology, seismicity and structural engineering should be required for large or complex buildings and/or critical facilities in order to determine if and what criteria in addition to the Uniform Building Code are necessary for protection of public health and safety.

2. All structures must conform to the Uniform Building Code.

3. There should be continued groundwater control by the water districts to minimize the potential for subsidence and uplift. Infrastructure facilities should be maintained continually by the City.

4. The City adopted a Hazardous Materials Operational Response Plan in 1984. This Plan, which is on file at the Planning Department, guides City departments and personnel in the proper handling of a hazardous material accident.

5. The City adopted a Pacoima Dam Evacuation Contingency Plan in 1985. The Plan established procedures for the efficient evacuation of all persons from potential inundation areas. A copy of the Plan is on file at the Planning Department.

6. Building should be controlled within and near the San Fernando Fault Zone by means of the Alquist - Priolo Special Studies for Fault Hazards. These studies require detailed geologic investigations for sites located within the fault hazards zone to determine the presence of any faults and/or fault branches that may be active in order to preclude construction on an active fault trace. The special studies are required for all proposed building in the San Fernando fault zone. The Verdugo fault involves a secondary zone where similar studies should be required for all critical and high rise or complex building as a precautionary measure.

7. In 1983, the City adopted an Emergency Plan to ensure the most effective and economical use of all resources for the maximum benefit and protection of the civilian population in time of emergency. The City Emergency Plan is on file at the Planning Department.

8. Fire Station 75 is staffed by 36 persons, including emergency medical technicians. Station 98 is staffed by 36 persons and Station 91 is staffed by 18 persons. Both Stations 91 and 98 provide paramedic services and all stations have an ambulance, in addition to fire suppression equipment.

GOALS AND OBJECTIVES

The following goals and objectives are recommended for purposes of protecting the public health and safety. They are based on the background data found in Section E of the Technical Appendix, the identified issues and opportunities and legislative requirements for safety elements.

Goals

1. To protect the citizens of the City of San Fernando from injury or loss of life due to the occurrence of any natural disaster.

2. To preserve life and property in the event of an emergency by providing a basis for the conduct and coordination of operations and the management of critical resources during emergencies.

3. To establish responsibilities and actions required to meet the City's obligation of protecting the lives and health of the population from spillages of hazardous materials.

4. To provide a safe and healthful environment for the San Fernando community.

Objectives

1. To identify the relationship between land use and geologic hazards and to identify any areas where development should be restricted or otherwise controlled due to hazardous geologic conditions.

2. To provide for the rapid deployment of an effective traffic control force in potential inundation areas.

3. To define responsibilities and tasks of each participating agency regarding emergency response.

4. To provide a basis for incorporating into the City emergency organization non-governmental agencies and organizations having resources necessary to meet foreseeable emergency requirements.

IMPLEMENTATION MEASURES

The policies and action programs that will be implemented in the future to protect public health and safety are described below. In several instances, the implementation measures reflect the practices of the City enacted in this area during the recent years.

Policies

1. It is recommended that persons requesting building permits be referred to the General Plan map to make them aware of seismic hazard areas.

2. The City's Emergency Response Plan should be reviewed periodically and updated as necessary.

Action Programs

The City is actively implementing a number of programs to minimize the impacts associated with geologic conditions, fires and hazardous materials accidents.

1. The City shall continue to enforce the seismic requirements of the Uniform Building Code. The criteria includes standards for resistance to total lateral seismic forces, setbacks, framing and the reinforcement of masonry or concrete.

2. Supplemental geologic studies shall be required regarding site specific features for critical and large buildings to determine if criteria in addition to the Uniform Building Code will be necessary.

3. The City will continue regular maintenance of infrastructure facilities to minimize the potential for uplift.

4. The Los Angeles Fire Department will continue its Fire Prevention Program which includes annual inspection of all residential, commercial and industrial structures.

5. The City shall continue to enforce the Pacoima Dam Evacuation Contingency Plan. Implementing agencies consist of the Los Angeles County Flood Control District, the Los Angeles County Sheriff's Department, the Los Angeles Police Department and the San Fernando Police Department.

6. The City shall respond to hazardous materials spills in the manner outlined in the Hazardous Materials Operational Response Plan. Implementing agencies consist of the San Fernando Police Department, the San Fernando Office of Emergency Services, the Los Angeles City Fire Department, the San Fernando Water and Public Works Departments and the Air Pollution Control Office.

7. The City will continue to implement its Emergency Plan which is operative at the authorization of the Director of Emergency Services.

8. The City has adopted designated truck routes which restrict the transport of hazardous materials to certain major arterials.

IX.
NOISE ELEMENT

INTRODUCTION AND BACKGROUND

Introduction

Existing and future development areas of San Fernando will be affected by the noise environment. The purpose of the Noise Element is to provide information on current and future noise levels in the City. In largely undeveloped areas, this information is used to identify the most suitable locations for various land uses, especially those that are particularly sensitive to noise impacts. In more built-out areas, the noise element provides a general plan basis for the enforcement of noise associated standards and codes and thereby protect the health and well-being of the persons living and working in San Fernando.

Background

A Noise Element has been a requirement of the general plan since 1971. In 1975, amendments to the legislation were made and the Office of Noise Control, Department of Health Services, issued a set of Noise Element Guidelines. Amendments addressing

the content of the Noise Element were adopted by the State legislature in 1985. Section 65302(f) of the California Government Code requires:

> "A noise element which shall identify and appraise noise problems in the community. The noise element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels...."

Current and projected noise levels are required for several sources such as highways and freeways; local streets and primary arterials; railroad operations; airport operations; local industrial plants; and other ground stationary noise sources.

FINDINGS AND CONCLUSIONS

Noise contour maps and tables have been prepared to determine current and future ambient noise levels at various points throughout the City. The noise levels are expressed in terms of "community noise equivalent level" (CNEL). This is a 24-hour measurement with noises occurring in the evening and early morning hours weighted higher than daytime noises. An explanation of noise terminology is contained in the Technical Appendix. The major findings and conclusions pertaining to community noise are presented in the following list:

1. Vehicular traffic along I-5, I-405, I-210 and State Route 118 generally impacts the City of San Fernando. Existing ambient traffic noise contours are shown in Exhibit IX-1.

2. Schools, hospitals, rest homes and residential neighborhoods are the most noise sensitive land uses in the City.

3. Approximately five trains a day pass through the City of San Fernando.

4. The nearest airport is the Los Angeles County owned Whiteman Airport, located approximately 1' miles south of San Fernando. This airport is utilized by small private planes.

ISSUES AND OPPORTUNITIES

On the basis of the data included in the Technical Appendix and the legislative requirements, several issues and opportunities were identified.

Issues

1. Because the City is surrounded by freeways, noise generated by vehicular traffic is the most significant noise source affecting San Fernando.

2. Currently, noise levels exceeding 65 dB CNEL occur primarily south of First Street. In the northern portion of the City, higher noise levels occur adjacent to Glenoaks Boulevard, Fourth Street, Maclay Avenue and Brand Boulevard.

3. Increases in vehicular traffic noise will result from infill development in the City and other regional traffic passing through San Fernando. Current and future CNEL contour distances from roadway centerlines are presented in the Noise Impact Tables of Section F in the Technical Appendix).

4. Future traffic noise, based on year 2005 traffic projections will result in ambient noise levels of 65-70 dB CNEL throughout most of San Fernando.

Opportunities

1. Through the use of the noise impact contour maps and the Noise Impact Tables presented in Section F of the Technical Appendix, areas where site specific acoustical analysis should be required can be identified readily.

2. Since new construction must comply with California Administrative Code Title 25 structural sound control requirements, there will be a reduction of potential noise impact problems.

3. Enforcement of the noise related standards and codes will reduce periodic intrusive noises.

GOALS AND OBJECTIVES

The goals and objectives contained in this section of the Noise Element provide a framework for future efforts toward achieving a quiet and healthful community environment.

Goals

1. To minimize noise impacts to the people who live and work in San Fernando.

2. To control noise in San Fernando for the protection of the health and well being of its current and future citizens.

3. To maintain or reduce noise levels in noise sensitive areas.

Objectives

1. To reduce transportation noise by imposing traffic restrictions where necessary.

2. To identify potential land use conflicts and to determine where acoustical analysis and mitigation studies will be necessary through the periodic use of the noise contour maps and noise impact tables.

3. To incorporate noise control techniques, as appropriate, in housing rehabilitation programs.

4. To require project applicants to reduce or buffer noise generated by a proposed development if it would otherwise create an unsatisfactory noise environment for adjacent properties.

IMPLEMENTATION MEASURES

The Noise Element of the San Fernando General Plan establishes not only goals and objectives to control or abate noise but also somewhat more specific implementation measures to mitigate problems. The implementation measures include a series of policies by which to judge future development proposals and regulatory tools to facilitate the implementation of a program to reduce noise in the City of San Fernando.

Policies

1. Implement strict enforcement of the noise standards in the Motor Vehicle Code as well as other State and Federal legislation pertaining to transportation related noise.

2. Noise referral zones for areas projected to exceed 75 dB should be established. Development projects located within these zones should be examined for noise impact. Where potential

noise incompatibility is determined to exist, action should be taken to eliminate or mitigate possible incompatibilities.

3. When preparing the City of San Fernando Noise Ordinance, the City should utilize, as appropriate, the Model Noise Ordinances of the State of California and United States Environment Protection Agency.

Action Programs

1. A Noise Ordinance will be adopted by the City.

2. Noise contour maps and noise contour tables have been developed (refer to Section F of the Technical Appendix).

3. Noise Referral Zones should be considered. Based on future noise projections, as shown in Exhibit IX-11, the City could establish an overlay zone called the "Noise Referral Zone" for indoor uses.

4. The City could identify all residential areas near the State freeways which need remedial acoustical protection. Estimates would be made on the lineal feet of acoustical wall needed to provide noise attenuation. The State and/or County would then be requested to provide the remedial correction.

5. Under Chapter 1.4, Section 126, of the Street and Highways Code, educational facilities should be measured by the State to evaluate compliance with the 50 dBA interior noise standard. The number of schools corrected per year by the State would be used as a measure of the process in achieving noise compatibility.

6. Recent studies have shown that the most objectionable feature of traffic noise is noise produced by vehicles equipped with illegal or faulty exhaust systems. In addition, "hot rod" vehicles are often operated so that tires squeal and excessively loud exhaust noise is produced.

There exist a number of Statewide vehicle noise regulations that can be enforced by local authorities as well as the California Highway Patrol. Specifically, Sections 23130, 23130.5, 27151, and 38275 of the California Vehicle Code, as well as excessive speed laws may be applied to curtail this problem. Both the California Highway Patrol and the Office of Noise Control (through local health departments) are available to aid local authorities in code enforcement and training.

The following paragraphs explain the nature and purpose of a "noise referral zone." The Noise Referral Zone could be defined as any area within the 65 dB CNEL contours. This level is selected because of its relationship with indoor noise levels resulting from intruding outdoor noise. Basically, any structure housing noise sensitive uses: e.g., office, residential, lodging, etc. -- could be required to provide a quiet environment. In areas above 65 dB CNEL, building design becomes important in achieving proper indoor noise levels even though outdoor noise environments are in compliance with the recommended levels for the land use.

The Noise Referral Zone concept is in support of the recommended Federal EPA "Levels Document" and the State of California Noise Insulation Standards. The State requires that interior noise levels resulting from the intrusion of exterior noise be limited to not more than 45 dB CNEL for all attached dwelling units and transient lodging facilities, i.e., hotels, motels, townhouses, condominiums, apartments, duplexes and so on. Most cities are also following this lead and are requiring this noise limitation for single family detached dwellings.

The amount of noise that is appropriate or tolerable for various types of non-residential indoor uses has been the subject of considerable study by architects, acoustical engineers, scientists, and psychologists. Noise levels for commercial uses are averaged over a 12 hour period (Leg 12) from 7:00 a.m. to 7:00 p.m. Maximum acceptable levels are listed below:

Land Uses	Interior Level, Leg12, dBA (7 am to 7 pm)
Private Offices	45
General Offices, Reception, Clerical, etc.	50
Bank Lobby, Retail Stores, Restaurant, Typing Pool, etc.	55
Other Areas for Manufacturing, Assembly, Text, Warehousing, etc.	65

To reduce noise impacts to the people that live and work in San Fernando, the recommended noise limitations for both interior and exterior uses should be met. The

City should require all projects occurring within the Noise Referral Zone (or within a suspected high noise environment) to meet the interior and exterior standards of the Noise Element through proper acoustical engineering as provided for in the State Noise Insulation Standards (Title 25 of California Administrative Code). Notification would be provided to prospective developers by the Planning Department that a condition of issuance of permits would be compliance with noise standards by design of an acoustical engineer. No building permits would be issued without approval of City staff of the acoustical report/design. This removes financial burden from the City and places it upon users.

INTERNAL CONSISTENCY

By law, the findings and recommendations of the Noise Element are tied to the Land Use Element. Section 65302(f) of the Governmental Code states:

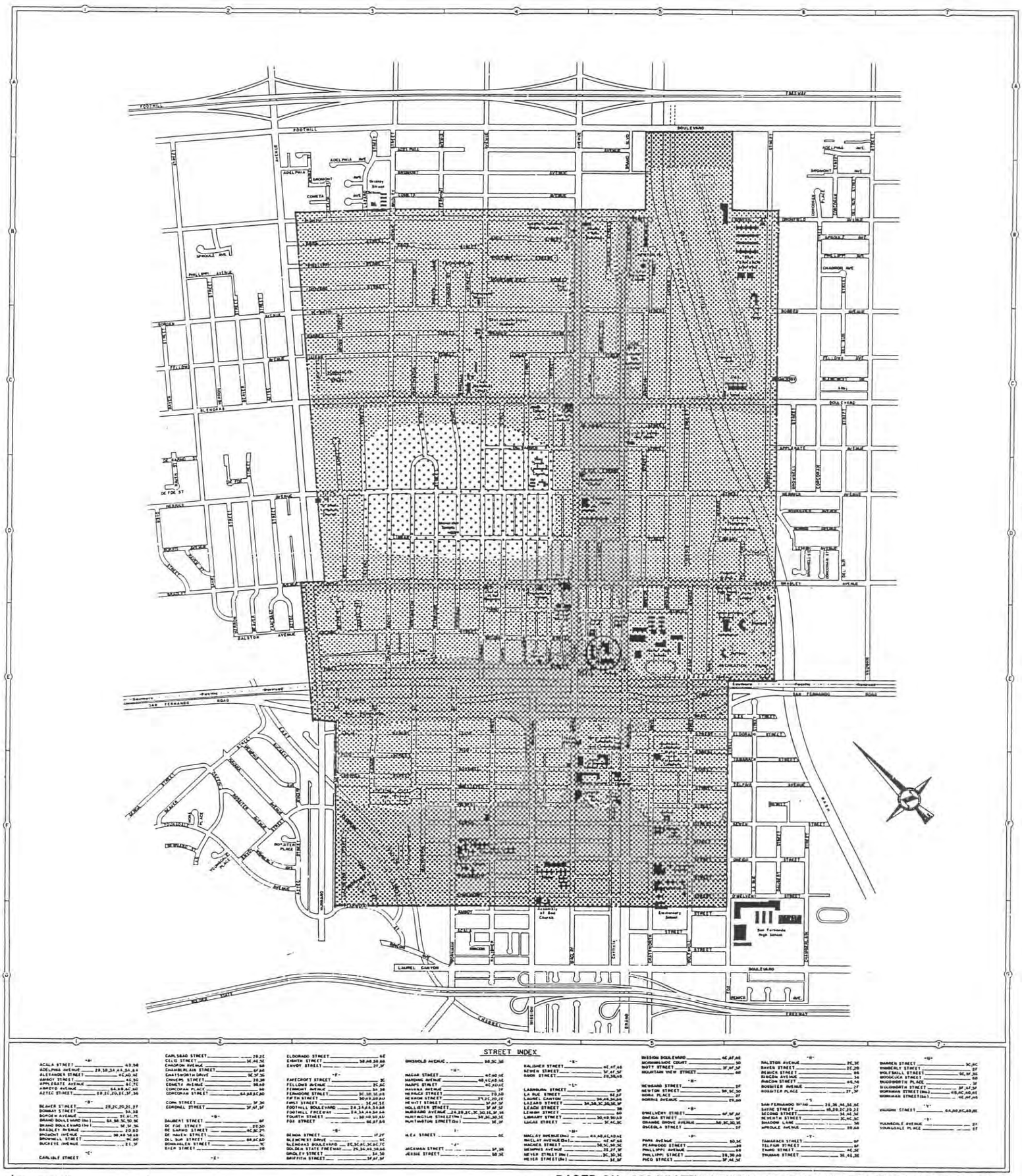
> "The noise contours shall be used as a guide for establishing a pattern of land uses in the Land Use Element that minimizes the exposure of the community residents to excessive noise.

"THE MISSION CITY"

SAN FERNANDO

CALIFORNIA

INCORPORATED AUGUST 31, 1911



58 dB CNEL–60 dB CNEL

60 dB CNEL–65 dB CNEL

OVER 65 dB CNEL

BASED ON 1988 TRAFFIC COUNTS –CITY OF SAN FERNANDO NOISE ELEMENT

Current Noise Contours
SAN FERNANDO GENERAL PLAN

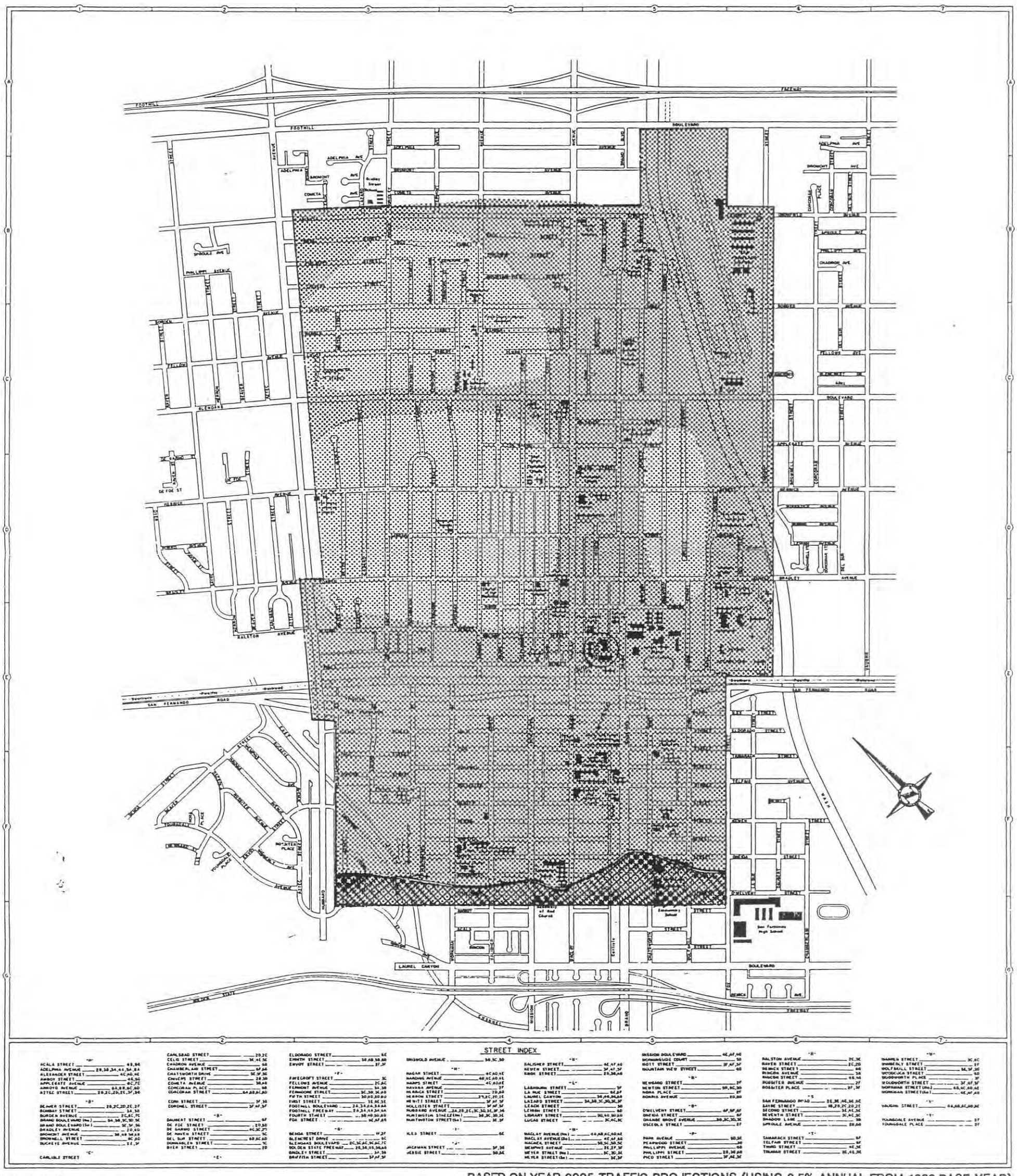
EXHIBIT IX-I

"THE MISSION CITY"

SAN FERNANDO

CALIFORNIA

INCORPORATED AUGUST 31, 1911



BASED ON YEAR 2005 TRAFFIC PROJECTIONS (USING 2.5% ANNUAL FROM 1983 BASE YEAR)

62.5 dB CNEL–65 dB CNEL

65 dB CNEL –70 dB CNEL

OVER 70 dB CNEL

Future Noise Contours
SAN FERNANDO GENERAL PLAN

EXHIBIT IX–II

RESOLUTION NO. 6307

A RESOLUTION OF THE CITY COUNCIL
OF THE CITY OF SAN FERNANDO
AMENDING GENERAL PLAN AMENDMENT
GPA 1993-003 TO INCORPORATE
A MASTER BIKEWAY PLAN
INTO THE CIRCULATION ELEMENT
(GENERAL PLAN AMENDMENT NO. GPA 1993-003)

WHEREAS, the City Council identified the need for a citywide bikeway plan to encourage bicycle commuting throughout the city, and requested the Planning Commission review the Bikeway Master Plan for the establishment of bikeways and bicycle facilities; and

WHEREAS, development of a bikeway system and bicycle facilities encourages bicycle commuting as an alternative mode of transportation in compliance with state and local mandates for cleaner air and trip reduction measures; and

WHEREAS, compliance with state and local mandates requires incorporation of the Bikeway Master Plan into the general circulation element; and

WHEREAS, on December 7, 1993, the Planning Commission, following a duly noticed public hearing, at which evidence, both oral and written, was presented to and considered by said Commission, recommended to the Council that the General Plan Amendment GPA 1993-003 be amended to incorporate a Bikeway Master Plan into the general circulation element as set forth in Planning Commission Resolution No. 1097 ; and

WHEREAS, on December 20, 1993, the City Council held a duly noticed hearing to consider whether to amend GPA 1993-003. Evidence, both oral and written, was duly presented to and considered by the Council as said hearing.

THE CITY COUNCIL OF THE CITY OF SAN FERNANDO HEREBY FINDS, RESOLVES AND ORDERS AS FOLLOWS:

SECTION 1: Although no convenient bikeways currently exist throughout the City, a Class I bikeway is planned to be built along the Metrolink Corridor within the City limits.

SECTION 2: Applications for matching fund grants through programs such as the Bicycle Lane Accounts program require incorporation of a Bikeway Master Plan into the City's general circulation element. These programs offer funds to jurisdictions wanting to develop bicycle programs to encourage bicycle commuting as an alternative mode of transportation.

SECTION 3: State and local air quality regulations recommend jurisdictions implement trip reduction measures to reduce automobile emissions, a major source of air pollution in Southern California. Bikeway routes and bicyclist facilities outlined in the Bikeway Master Plan were drafted with the intention to comply with these regulations.

SECTION 4: Pursuant to CEQA Guidelines Section 15063, an Initial Study has been prepared for this project. After reviewing the Initial Study, the proposed Negative Declaration, and all comments received during the public review process, the City Council has determined that the project will not have a significant impact upon the environment. As a result of its review of the aforementioned documents, the City Council hereby approves the Negative Declaration and authorizes the Community Development Director to issue a Notice of Determination pursuant to CEQA Guidelines Section 15075.

Pursuant to Title 14, California Code of Regulations, Section 753.5(c) (1), the City Council has determined that, after considering the record as a whole, there is no evidence that the proposed project will have the potential for any adverse affect on wildlife resources or the habitat upon which the wildlife depends. Furthermore, on the basis of substantial evidence, the City Council hereby determines that any presumption of adverse impact has adequately been rebutted, and therefore, pursuant to Fish and Game Code Section 711.2 and Title 14, California Code of Regulations Section 753.5(a)(3), the project is not required to pay Fish and Game Department filing fees.

SECTION 5: The City Council therefore approves the general plan amendment GPA 1993-03 incorporating the Bikeway Master Plan into the General Circulation Element, as described in Exhibit "A" attached hereto and made a part hereof.

SECTION 6: The City Clerk shall endorse the amended general plan GPA 1993-03 incorporating the Bikeway Master Plan Circulation Element

PASSED, APPROVED AND ADOPTED this 20th day of December, 1993

MAYOR

CITY CLERK

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss
CITY OF SAN FERNANDO)

I, MARY STRENN, City Clerk of the City of San Fernando, do hereby certify that the foregoing Resolution No. 6307 was duly adopted by the City council and signed by the Mayor of said City as a meeting held on the 20th day of December, 1993; and that the same was passed by the following vote, to wit:

AYES: Acuna, Hernandez, Chacon, Ojeda, Wysbeek - 5

NOES: None - 0

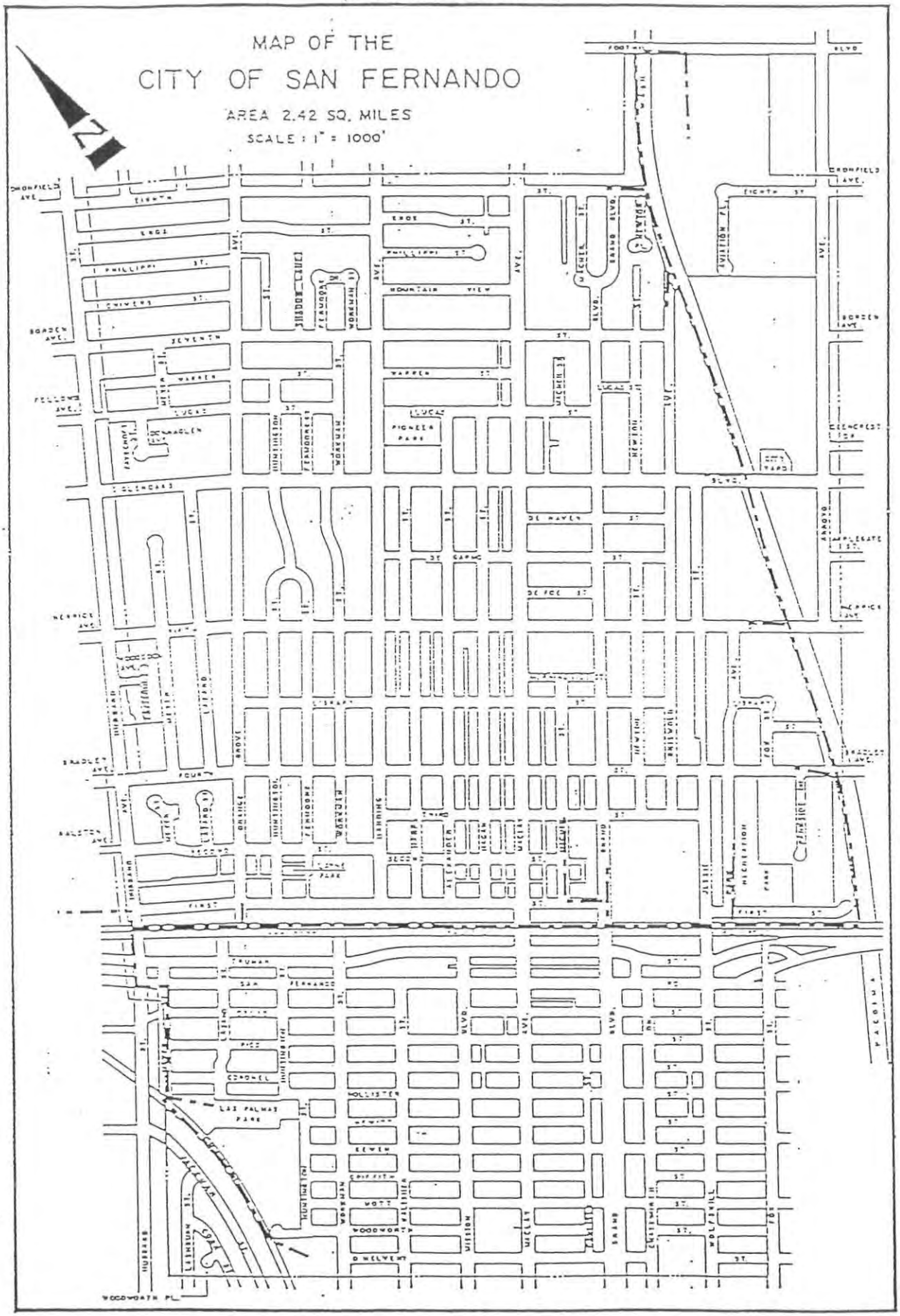
ABSENT: None - 0

ABSTAIN: None - 0

CITY CLERK

CC-224.PW

EXHIBIT A
(GPA 1993-03)



SAN FERNANDO BIKEWAY

EXHIBIT 23

Recreation and Open Space Element

INTRODUCTION

With its dramatic physical setting comprised of hilltops and mountains, surrounded by the bay and ocean, with nature woven through the landscape, San Francisco has an intrinsic connection with its environment. The opportunity the City provides to move outside and connect with nature has drawn countless thousands here over time, and that draw continues today.

As our City grows, we must not lose sight of these very qualities. If San Francisco is to continue to offer its residents, visitors, and workers a vibrant, civic, livable environment connected with the wonders of the natural world, we need a framework that ensures a world-class open space system. The goal of the City's Recreation and Open Space Element is to continue the City's legacy of fine parks and recreational opportunities, and guide the City's future decisions so they improve that open space system for the benefit of everyone.

Why Is Recreation and Open Space Important?

Recreation and open space are critical components of any community's quality of life; for San Franciscans they are defining elements of the City itself. The City's open space system provides places for recreation, activity and engagement, for peace and enjoyment, and for freedom and relief from the built world. It serves the social and environmental health of the City, providing a sustainable environment. Among its benefits:

- **Open space and recreation activities improve resident's physical and mental health.** Open spaces and recreational facilities offer a wide range of health related benefits. They provide an opportunity for residents and visitors to exercise, give residents access to sunshine, nature and fresh air, and even encourage people to walk or bike from place to place. They can have a significant impact on people's stress levels and overall mental health, particularly in urban areas like San Francisco, and can be proven to be actual preventative measures that impact positively on health care and health care costs. Physical recreation reduces obesity and risk of cardiovascular disease, diabetes and other health ailments. Public open spaces, whether playgrounds, picnic fields or even just engaging streets, can help build community by giving neighbors a realm in which to get to know each other, and giving children a safe place to play.
- **Open space promotes environmental sustainability.** Natural habitat provides sanctuary for wildlife species ranging from mammals, birds and insects to plants; trees and other types of vegetation provided in open space networks can reduce air pollution; and wetlands can filter contaminants. The trails and streets of an open space network can also aid in reducing greenhouse gases, by providing alternative transportation routes and promoting bicycling and walking.
- **Open space and recreation activities can help to address environmental justice across a community.** Public recreation provides accessible and low cost opportunities to all San Franciscans, regardless of income level. High rates of childhood obesity and illness often correspond to fewer acres of usable open space. Provision of open space in areas with high concentrations of density, poverty, youth or seniors can redress equity issues. A clear example is how local food production increases access to fresh local produce and provides an opportunity for communities to connect with nature.
- **Open space provides tangible economic benefit.** Numerous studies have quantified the dollars that parks and tree plantings bring back to a city, by making the area more attractive for investment, by attracting and expanding local businesses, by increasing tourism and by enhancing property values. The Trust for Public Lands' study, The Economic Benefits of Parks & Open Space, cited testimony that our own Golden Gate Park has been shown to increase the value of nearby property to the tune of $5-$10 million additional dollars annually.

How Are We Doing in Providing Recreation and Open Space?

By any measure, San Francisco is performing well against its urban counterparts. San Francisco has well over 3,400 acres of recreation and open space owned and managed by the Recreation and Park Department (RPD). It also contains over 250 acres of open space owned and managed by the State of California, and another 1600 acres of federally-owned open space. These publicly-owned open spaces make up almost 20% of the City's total land area. The quantity of usable open space increases even more when one includes the other spaces owned by city agencies, college campuses, schoolyards open during non-school hours, urban plazas or other publicly accessible outdoor spaces throughout the City, by another 560 acres. This puts San Francisco among the top five cities in the country in terms of parkland per resident. All of these open spaces are shown in *Map 1: Existing Open Space*.

MAP 1 - Existing Open Space

The 2004 Recreation Assessment was the culmination of a nine-month planning effort and process to evaluate the recreation needs of residents and to ensure the future direction of recreation within the SFRPD. The assessment pieced together critical issues, challenges and opportunities. It was the first such report developed solely for recreation in SFRPD's history. The Recreation Assessment identified where the SFRPD should focus its energies and resources as it applies to the Recreation Division, continuing the legacy of high quality recreation facilities and program services for the citizens of San Francisco. SFRPD should regularly assess its recreation component as required in the Charter. See *Map 2* for a map of existing Recreation Facilities.

MAP 2 - Existing Recreation Facilities

San Francisco values its recreation and open spaces. In 1974, San Francisco voters passed Proposition J, which directs a percentage of property taxes towards the City's Open Space Fund, to acquire new parks and open space. We spend more than any other urban area per resident on our parks, according to a 2008 report by the Trust for Public Lands, at an average of almost $200 per resident. But more revenue is needed as land costs increase and as we move to meet the challenges of providing space and recreation opportunities for a growing population.

How Do We Define Recreation and Open Space?

Recreation and open space are critical components of any city, and by necessity have to come in different forms and experiences. Open space provides the 'breathing room' in a dense urban environment and promotes opportunities to engage in outdoor activities, access nature, enjoy scenic views, and experience our City's many ecosystems. Recreation includes activities that happen within open space both at outdoor or indoor facilities, the key elements being that the activity is beneficial by way of being fun, stimulating, refreshing, or relaxing in some form, either physical, mental, or the combination of the two. Active recreation involves physical activity while passive recreation usually involves sitting or lying down. Active recreation refers to a mix of uses in a neighborhood park that includes the following facilities types: athletic fields, buildings or structures for recreational activities, concessions, community gardens, courses or sport courts, children's play areas, dog play areas, or bike paths. A passive recreation area refers to a mix of uses in a park, undeveloped land or minimally improved lands which can include the following: landscaped areas, natural areas, ornamental gardens, non-landscaped greenspaces, stairways, decorative fountains, picnic areas, and water bodies without recreational staffing.

San Francisco's definition of recreation and open space system includes a variety of types of spaces, including traditional spaces and facilities for recreation such as:

- **Recreation Centers:** The City operates 25 multi-use recreation centers, providing playground and sports opportunities, as well as programming for youth, adults and seniors.
- **Playgrounds:** Children's playgrounds including play structures for toddler and older children.
- **Playing fields:** Including baseball courts, soccer fields, basketball and tennis courts, as well as children's and toddlers' playgrounds.
- **Unprogrammed or Unstructured Open areas:** Grassy, landscaped, or even paved open areas provide opportunities for unstructured time away from the dense urban environment.
- **Trails and Natural Areas:** Including 1,100 acres of natural lands, protecting the plant and animal habitats of these unique landscapes for residents and visitors to enjoy, trail systems, and other planted green areas.
- **Cultural Arts and Recreation Centers:** The Recreation and Parks Department offers a variety of classes, community event spaces, and cultural activities such as: art camps, dance and theater classes, programs on music and poetry for all ages.
- **Sports and Athletics:** The City's robust system of sports programs and facilities includes several citywide sports facilities, such as Kezar Complex in Golden Gate Park and Crocker Amazon Park Playground Sports Facility.

The recreation and open space system also includes spaces that supplement traditional parks in the City such as:

Community Gardens: Opportunities for residents to grow produce and flowers in their neighborhoods.

- **Living Streets, and alleys, plazas or parklets:** These are components of the public right-of-way that have been improved to provide a gathering space and enhance the pedestrian experience.

- **Privately-owned Public Open Spaces (POPOS):** Spaces owned by private development that are accessible to the public. POPOS come in a variety of forms including plazas, rooftop terraces, Greenhouse, and sun terraces, and include landscaping and public seating for the enjoyment of the public usually in dense neighborhoods.
- **Piers and wharves:** These are waterfront open spaces that provide shoreline access along the Bay edge. The Port provides public access along the perimeter of many of its piers as well as on individual public Piers such as Pier 7 and 14 as well as others.

Lastly, the system also includes spaces unique to San Francisco, such as such as Coit Tower, Union Square, Stern Grove, Palace of Fine Arts, and lesser known amenities like Camp Mather that offers outdoor camping experiences.

Guiding Principles for Open Space and Recreation

San Francisco provides a significant amount of open space already for its residents, particularly given its small land area, its hilly topography, and its density, all of which challenge open space development. But we can do better, particularly in the better utilization, maintenance and design of our open spaces. The policies of the General Plan are intended to improve these aspects of our recreation and open space system. A holistic recreation and open space system encompasses the full range of spaces within our definition of open space, as well as the necessary experiences that are integral to San Francisco's unique identity. The Recreation and Open Space Element follows these guiding principles to ensure such holistic system:

1. INTEGRATED & MULTIFUNCTIONAL. A major theme developed from the outreach process was the concept of "making the most of what we have": utilizing and improving the expansive recreation and open space system the City already provides. An integrated and multi-functional open space network would respond to a variety of needs for recreation and open space, better utilizing the existing resources. Such needs range from refreshing from daily pressures of life to exercising and active sports, from appreciating the beauty of nature to maintaining natural habitats and wildlife, and from enjoying play time for kids and adults to housing civic and cultural events.

2. SENSE OF PLACE. San Francisco is a regional epicenter for ecological, economic, and cultural diversity. Open spaces should aim to build on our City's intrinsic qualities, both natural and cultural, and to reflect the values we place on cultural diversity and biodiversity. Furthermore, they should create a network that inspires a deep connection to place.

3. EQUITY & ACCESSIBILITY. Open space and recreational programs should be equitably distributed. They should provide access for all residents, workers and visitors, and work towards a democratic network that includes all neighborhoods.

4. CONNECTIVITY. San Francisco's network of open spaces should be wholly connected. The open space system should facilitate non-motorized movement, link diverse neighborhoods, be easy to navigate and understand and, where feasible, enhance habitat through connectivity.

5. HEALTH & SAFETY. Open space should increase the City's capacity to be a safe and healthy place to live. Its design should promote social interaction, wellness, and a healthy lifestyle by providing opportunities for physical, cultural and social activities, and a connection to nature.

6. ECOLOGICAL FUNCTION & INTEGRITY. With environmental sustainability as a driving theme, the quantity and quality of natural systems in the City should be preserved and expanded, by promoting aquatic and terrestrial biodiversity, by designing for watershed health, and by implementing environmental, ecological and conservation-minded strategies.

7. SUSTAINING STEWARDSHIP. San Francisco's community members should be actively engaged as participants in its future. Policies should work towards shared, continued stewardship that increases the tangible link between community members and their open space network. Partnerships between public agencies, private business, and community based non-profits, and individual members of the community to foster pride, purpose and community should continue to be developed.

Related Plans and Agency Programs

The Recreation and Open Space Element, along with its related components that make up the City's overall Open Space Framework, aims to provide the elements needed to strive towards San Francisco's goal of a comprehensive open space network: a broad vision, a policy context, and a tangible task list for moving forward. The City also maintains several policy documents, plans and programs that provide direction about specific open space and recreational components, or to certain parts of the City. These include:

Street Park Program

Street Parks is a partnership between San Francisco Parks Alliance and the San Francisco Department of Public Works (DPW) to support the development and maintenance of community-managed open spaces on DPW owned properties, such as streets, stairways, sidewalks, median strips, traffic circles, and vacant lots. Improvements can range from sidewalk landscaping to median plantings to creation of mini-parks in unpaved street right-of-ways and in traffic circles. The program provides technical support on how to accomplish such projects, organizing seminars to assist in building a budget, and can provide matching funds.

Better Streets/Public Realm Planning

The City's Better Streets Plan, adopted in 2010, states that the City's rights-of-way should be "attractive, safe and useable public open space corridors with generous landscaping, lighting and greenery", providers of habitat for urban wildlife, and that they should invite multiple uses, including recreation. The Better Streets Plan provides a set of standards, guidelines, and implementation strategies to govern how the City designs, builds, and maintains its pedestrian environment. A number of public realm planning efforts implementing the principles of the Better Streets Plan are underway.

Community and Area Plans

A number of neighborhood-based planning efforts have been completed or are underway throughout the City. Each neighborhood plan seeks to increase the livability of several of San Francisco's urban neighborhoods by tapping the benefits of growth as a way to build more balanced neighborhoods. Most include capital improvement plans that draw from and build upon the policies of this Element to address a range of neighborhood needs including recreation, open space, and an improved public realm.

Waterfront Plan

The Port of San Francisco's Waterfront Plan (originally referred to as the Waterfront Land Use Plan) was initially adopted by the Port Commission in 1997, with an updated version adopted in 2023, defining acceptable uses, policies and land use information applicable to all properties under the Commission's jurisdiction. The Waterfront Plan defines locations for new public-private partnership projects coordinated with major public open space, park and recreation areas, maritime, and historic preservation improvements along the waterfront.

Office of Community Investment and Infrastructure, (Former Redevelopment Agency), Open Space Planning

The Office of Community Investment and Infrastructure, which is the successor agency to the Redevelopment Agency, created a significant amount of open space in its project areas, with more in the planning stages. New parks have been developed at Golden Gateway, in the Western Addition, Yerba Buena Center, Bayview Hunter's Point, Rincon Point - South Beach, Mission Bay, and Transbay. These spaces are currently being managed by the Office of Community Investment and Infrastructure and a number of different city agencies.

Golden Gate National Recreation Area (GGNRA) Planning Efforts

The GGNRA encompasses a number of open space and parklands throughout Marin, San Mateo and San Francisco, including Alcatraz Island, Crissy Field, the Presidio and the majority of the City's public beaches. A major planning process was completed by the SPUR for Ocean Beach to examine ways to manage coastal processes that drive erosion, ensure the future of critical infrastructure, protect natural resources, and activate and enhance the beach to best serve the local and regional populations.

Significant Natural Resource Area Management Plan

The San Francisco Recreation and Parks Department (SFRPD) has developed a Significant Natural Resource Areas Management Plan (SNRAMP) to address the restoration and management of the remaining elements of San Francisco's original ecosystem. The SNRAMP is implemented by the Natural Areas Program, a division in the Recreation and Park Department, and its goal is to restore and enhance remnant natural areas of the City, while also developing and supporting community-based stewardship of these areas. The program also includes a number of volunteer opportunities to engage students, businesses, groups, and individuals in the stewardship of San Francisco's natural lands.

Association of Bay Area Governments Bay Trail Plan and Bay Area Water Trail Plan

The Bay Trail Plan, adopted in 1989, includes a nine-county , 400 mile regional hiking and bicycling trail around the perimeter of San Francisco and San Pablo Bays. The Plan was prepared by the Association of Bay Area Governments pursuant to Senate Bill 100, which mandated that the Bay Trail:

- Provide connections to existing park and recreation facilities,
- Create links to existing and proposed transportation facilities; and,
- Avoid adverse effects on environmentally sensitive areas.

The San Francisco Bay Area Water Plan, adopted in 2005, was developed to create a network of launch and landing sites, or "trail heads". Such network would allow people in human-powered boats and beachable sail craft to enjoy the historic, scenic and environmental richness of San Francisco Bay through continuous, multiple-day and single-day trips on the Bay. The trail will promote safe and responsible use of the Bay, while protecting and increasing appreciation of its environmental resources through education and coordinated, and strategic access to the Bay.

San Francisco Blue Greenway Planning and Design Guidelines

The Blue Greenway Planning and Design Guidelines (draft released in 2011) catalog the open space network along San Francisco's Southeastern Waterfront, identify future open space opportunities; designate roadway designs for streets that link the open spaces, and prioritize improvements between neighborhood connections to the waterfront system of open spaces. In addition, it establishes design guidelines for signage and site furnishings along the entire length, identifies funding for Port projects and outlines a process for continued interagency coordination.

The Climate Action Plan (CAP)

The 2021 San Francisco Climate Action Plan sets forth a set of actionable and measurable strategies that not only charts a pathway to achieve net-zero greenhouse gas (GHG) emissions, but also works toward addressing racial and social equity, public health, economic recovery, resilience, and the provision of safe and affordable housing to all. Integral to these strategies is improving San Francisco's parks, natural open spaces, and rights-of-way. The Plan includes several strategies addressing Healthy Ecosystems, including: restore and enhance parks, natural lands, and open spaces; maximize trees throughout the public realm; and increase greening and integration of local biodiversity into the built environment. The CAP provides specific targets and milestone, calls for ongoing monitoring to ensure critical measurement of progress, and allows for adjustments based on changing conditions.

San Francisco Recreation and Parks Department Project Standards and Design Guidelines

The Project Standards and Design Guidelines were created to ensure a well maintained and actively used park system that supports the long-term health of people, plants, and animals. Recognizing that management practices have impacts beyond park boundaries, SFRPD developed the Standards and Guidelines to adapt to and preserve local systems through sustainable design of open spaces and facilities, and maintenance procedures. These practices include the use of proven sustainable materials and technologies.

OBJECTIVES AND POLICIES

OBJECTIVE 1

ENSURE A WELL-MAINTAINED, HIGHLY UTILIZED, AND INTEGRATED OPEN SPACE SYSTEM

The City's goal is to make the very most of the open space assets that San Francisco's robust system already provides. Well-maintained, highly utilized, and integrated open spaces are hallmarks of a unified and connected open space system with diverse programming, numerous amenities, and regular maintenance. Offering a diverse range of active and passive recreational opportunities in the City's current recreation and open spaces would help better utilize existing resources and encourage access for diverse users and activities.

POLICY 1.1
Encourage the dynamic and flexible use of existing open spaces and promote a variety of recreation and open space uses, where appropriate.

San Francisco has a variety of high-quality open spaces, where diverse types of users can engage in a myriad of activities—children can play, seniors can linger on benches and socialize, people can exercise and enjoy nature, and families can gather for a picnic. San Francisco's open spaces vary in their form and function: from smaller local green streets, pocket parks, plazas, and community gardens; to neighborhood parks, playgrounds, sports fields, and recreation centers; to large regional-serving parks such as Golden Gate Park and special destinations such as Camp Mather. To ensure vibrant parks and open spaces the City should deploy a diverse range of opportunities, including the following options:

- Provide recreational opportunities, both active and passive, that respond to user demographics and emerging recreational needs.
- Include innovative community-driven uses such as food production, education, and improved streetscaping.
- Design open spaces that include both active programming and passive uses in tranquil spaces.
- Provide programming for healthy and active lifestyles.
- Add user amenities such as concessions that cater to and attract visitors.
- Expand opportunities for temporary uses such as festivals, art, performances, and farmers markets.
- Allow active engagement with natural areas through public access trails, wildlife observation, birding, and educational displays and programs.
- Increase cultural programming and activities based on neighborhood need and interest.
- Provide spaces and structures that

Some of the City's open spaces and recreational facilities are underutilized and need additional programming and activation to address community interests and needs. These underutilized spaces offer a tremendous opportunity because the space is already owned and operated by the City. Such locations would in most cases require minimal renovation to take full advantage of the space. These open spaces and recreational facilities should be redesigned or re-programmed to better serve the needs of the surrounding neighborhood,

while ensuring a flexible design to adapt to changing neighborhood needs over time. Some types of public spaces that have traditionally been overlooked can offer additional opportunities for innovative and community-driven strategies for activation – wide sidewalks and traffic medians can be considered for community gardens, and parking lots and other spaces can support temporary festivals and farmers markets. There also are events large and small, such as fairs, concerts, and sporting events, that occur annually or on a recurring basis in parks and open spaces throughout the City. These events are often well-attended and enjoyed by many residents and visitors. In some cases the draw of these events provides the first exposure for many people to the City's diverse parks and open spaces. The City should continue to evaluate how these events impact the open space itself and on the surrounding neighborhoods.

POLICY 1.2
Prioritize renovation in highly-utilized open spaces and recreational facilities and in high needs areas.

Many of the City's open space and recreational facilities support a high intensity of uses. These spaces clearly provide a welcome respite for residents and visitors, but they are often so heavily utilized that more frequent maintenance is necessary to keep up with their heavy usage. The City should perform user studies and collect usage data to assess which of the existing recreation and open spaces are the most highly used so that those spaces may be targeted for renovation and improvement. Renovation of resources also should be prioritized in "high needs areas," defined as areas with high population densities, high concentrations of seniors and youth, and lower income populations, that are located outside of existing park service areas(See *Map 7: High Needs Areas: Priority Renovation & Acquisition Areas* and Policy 2.1).

POLICY 1.3
Preserve existing open space by restricting its conversion to other uses and limiting encroachment from other uses, assuring no loss of quantity or quality of open space.

The shortage of vacant sites and the intensity of development in San Francisco produce pressures on the City's public open spaces, sometimes putting spaces at risk of conversion to uses not serving the public purpose of respite and recreation. These same factors generate considerable public demand for access to open spaces. It is essential that the City protect its public open spaces from conversion to other uses, which threatens the overall integrity of the open space network.

Outdoor space in parks and playgrounds should not be diminished except in very unique cases. Yet, despite general agreement on the need to preserve public open space, developments may indeed be proposed on public land designated as open space. It is anticipated that the most persuasive arguments in favor of development will be based on the "public value" of the proposed development. The public value will differ among proposals, and a determination of this projected value as compared the potential open space benefit will be difficult and must be subject to rigorous public scrutiny. In order to assist in this determination when proposals for new development occur, the following provisions should be applied:

1. Proposals for Non-recreational Uses on Recreation and Park Department Land:

Decisions related to non-recreational uses on RPD land shall conform to the San Francisco Charter Section 4.113. The Charter requires a vote of the electors for park property to be sold or leased for non-recreational purposes or to build any structure for non-recreational purposes on park property. The Charter also notes that the Recreation and Parks Commission, with the approval of the Board of Supervisors, may use subsurface space for parking or other uses that would not be detrimental to the original park purpose.

2. Proposals for Permanent New or Expanded Recreational and Cultural Buildings, and Supporting Facilities on Recreation and Park Department Land:

A properly balanced recreation system combines both indoor and outdoor spaces and programs. Indoor recreational facilities are as important as outdoor space in a well-integrated park system. New indoor recreation facilities may be necessary to respond to local community needs, changing demographics of many San Francisco neighborhoods, and shifting maintenance requirements. Additionally, amenities that serve users of recreational facilities and open spaces – such as bicycle rental stands, cafes, and kiosks – can help provide services that enable and attract more people to visit and use underutilized open spaces and spend more time there. Culture is also an important aspect of community recreation; cultural facilities such as libraries or community spaces can support and enhance the existing park system. Proposals for such facilities or uses should be carefully evaluated to ensure the proposed location is optimal and appropriate. Decision-making bodies should consider the following criteria in making their determinations on such proposals:

- Facility directly serves and improves the existing open space by supporting better utilization of space while continuing to provide public access and respond to the needs of the local community.
- Facility is limited in size. The size will vary by open space, but the size shall be limited to the smallest footprint appropriate and feasible for the proposed use, taking into account the intensity of use, expected participants and spectators, as well as other relevant factors.
- Facility incurs limited impacts on the existing open space (because of a preponderance of nearby outdoor open space or other factor), or the projected public benefits outweigh the impacts.
- A clear rationale exists for siting the facility, articulating the advantages of the proposed site compared to reasonable alternatives.

Aloss of open space resulting from approval of the proposed facility generally should be offset with replacement open space of equal or higher quality. This new open space can be provided through a variety of ways, such as the removal of existing non-utilized structures, the acquisition of new space, or rearrangement of existing recreational and open space uses to better integrate these uses and the proposed facility. Maintenance facilities, restrooms, and other park-supporting facilities owned and operated by the Recreation and Park Department that are necessary for the maintenance of parks are exempt from these requirements.

3. New and Expanded Facilities in Non-RPD Open Spaces:

Many of the City's current and potential open space sites are under the jurisdiction of public agencies other than the Recreation and Park Department ("RPD") - including the Port of San Francisco (the Port), the SFPUC, the Office of Community Investment & Infrastructure, and the Department of Public Works. These spaces include parkland, shoreline access, reservoirs, grounds of public institutions, streets, alleys, and undeveloped street rights-of-way, and are shown in *Map 3: Existing and Proposed Open Space*. In some cases, these non-RPD-owned sites are intended for public uses other than recreation and the site's role as open space is secondary to the primary use. Yet their role as open space is important, as they supplement playgrounds and parks and are a major visual asset.

New facilities related to that primary use, or expansions of various types of supporting facilities may be requested. These proposed facilities may be necessary to perform the public function of the particular land-owning agency. Decision-making bodies should analyze all of the following criteria in making their determinations on such proposals:

- Facility is necessary to provide the public service or operations of the agency holding the site in question.
- A clear rationale exists for siting the facility, articulating the advantages of the proposed site compared to reasonable alternatives.
- Facility incurs limited impacts on the existing open space (because of a preponderance of nearby outdoor open space or other factor), or the projected benefits outweigh the impacts.

Upon approval, the city may request the sponsoring agency to meet certain design criteria and performance standards that ensure conformity with the General Plan.

MAP 3 - Existing and Proposed Open Space

Removing non-recreational uses

In keeping with the overall policy goal of limiting encroachments, the City should also pursue eliminating non-recreational uses in its public open spaces. In the past, parks and playgrounds have been used as sites for public facilities such as fire and police stations, sewer plants and schools. Undoubtedly, the public need for them was great at the time of their construction and many are still essential. But as non-recreational facilities such as these require maintenance, the City is faced with the decision to renovate them or to relocate them altogether.

Where it is possible to provide services elsewhere, the City should demolish the facility so as to return the site to open space use. If the facility can be successfully converted to recreational use, then reuse could be an alternative to demolition. The City should not, however, permit the reuse of such facilities for other non-recreational purposes. The same policy should apply to the reuse of obsolete recreational facilities.

Temporary Structures

Temporary structures are often needed for different events, and in the case of natural disasters, our parks serve as temporary evacuation space. Therefore, all temporary structures (i.e. all structures that do not have in-ground footing attached to the structure) in compliance with the City's permit process are exempt from the above requirements. Use of such structures beyond their original intent, however, would be subject to the criteria explained earlier in this policy.

POLICY 1.4
Maintain and repair recreational facilities and open spaces to modern maintenance standards.

Maintaining open spaces and recreational facilities at a high level of quality will help ensure that they are well-utilized and enjoyed. In order to maintain this goal, the City should continue to employ well-trained staff, such as gardeners, arborists, electricians, plumbers and other tradespeople to maintain our open space system and recreational facilities.

However, maintaining the City's existing recreation and open space system in a good condition continues to be a challenge due to intensive use, facility age, and a high number of sites. The City has diminishing resources devoted to general maintenance and upkeep. The city, especially for private and supplemental spaces, should continue to explore creative partnerships to meet maintenance goals of parks and open spaces, including those within the jurisdiction of other agencies, such as the Port or National Park Service. Where feasible and in keeping with the City's goal of providing well-maintained spaces the City should continue to seek alternative maintenance

methods, such as working with non-profit stewards, or developing alternative maintenance agreements. Similarly, where open space is maintained by entities other than the City, such as the National Park Service, the City should advocate for ongoing maintenance of such facilities, particularly when such facilities fall into disrepair and become unusable.

The Recreation and Parks Department owns a significant portion of the City's open space system. With over 220 parks and 3000 acres of parkland, RPD requires significant resources to keep the system in good to excellent condition. However, even as RPD continues to seek additional funding sources to address these needs, maintenance continues to be a problem due to rising costs and limitations on staffing and equipment.

RPD now evaluates parks on a quarterly basis and in addition the City Controller's Office provides an annual report on the state of the City's parks. Further, RPD uses a facility lifecycle management database to prioritize the RPD's deferred maintenance needs. The reports have helped direct RPD management and City resources to address maintenance needs. The City should continue to analyze maintenance needs by using these reports and other sources as data from users throughout the recreation and open space system to ensure the maintenance standards are met and funding is adequate.

POLICY 1.5
Prioritize the better utilization of McLaren Park, Ocean Beach, the Southeastern Waterfront and other underutilized significant open spaces.

Some of the City's large signature spaces offer a special opportunity to provide multifunctional open spaces that serve a diverse set of users. In particular:

McLaren Park

McLaren Park is a citywide resource due to its large size, varied landscape, and the specialized activities and programs located within the park. At the same time, it is located in an area of the City with one of the highest concentration of children, youth, seniors, and low-income households. McLaren Park should offer uses which satisfy the recreation needs of adjacent neighborhoods as well as meeting the needs of the city. The McLaren Park Master Plan was originally written in 1983, updated in 1996, and most recently updated with recommendations in the 2010 McLaren Park Needs Assessment and published the McLaren Park Vision Plan in 2018. The City should ensure that the objectives and priorities of the Master Plan provide effective guidance for the needs of the park today.

Development of the park should capitalize on the site's natural conditions, including topography, existing native vegetation, and views, in compliance with RPD guidelines. New plantings should be added to provide habitats and windbreaks, to define sub-areas of the park, and to provide colorful and attractive visual accents. Plant species should be hardy, wind- and fire-resistant, and provide for and enhance wildlife habitats.

In an effort to increase park use, the City should continue promoting events that attract visitors to the Park. For example, Jerry Garcia Day, an annual festival held in honor of the local musician, draws thousands of visitors to the park. Revenues generated from such events could fund maintenance of and improvements to recreation facilities and open space.

The City should consider a number of improvements to McLaren Park. Existing traffic conditions should be examined to reduce conflicts between vehicles and park users. The City should investigate the feasibility of improving the existing right of way in the park to allow for safe pedestrian, vehicular and bike access where appropriate and converting those areas to recreational use. The existing trail system should be retained and improved by completing missing linkages. Any new development should build on the existing infrastructure including roads and parking areas, the irrigation system and drainage structures, and lighting and electrical installations. Infrastructure that is damaged should be replaced within the existing network, channel or path. New recreation areas should serve active, as well as passive, non-organized recreation needs, that respond to a wide spectrum of park users.

Ocean Beach

Ocean Beach offers a vast, unbroken expanse of natural open space that is one of the longest urban beaches in the country. The area historically served the growing San Francisco population with the Sutro Baths, the Cliff House, the Fleishhaker Pool, and an amusement park, but now suffers from erosion and a lack of amenities. At the same time, Ocean Beach is annually visited by as many as three million people for activities such as walking, picnicking, sunbathing, jogging, dog walking, surfing, fishing, and simply enjoying the natural beauty.

Ocean Beach faces significant obstacles to fulfilling its potential as a great public space at the city's edge. First, critical components of the wastewater infrastructure are located near the beach, with some elements that are threatened by erosion. Coastal management to protect infrastructure, ecological resources, and public access is a complex challenge. The erosion is likely to worsen as climate-related sea level rise accelerates. In addition, Ocean Beach is administered by a host of Federal, State, and Local agencies, including the National Park Service[1], the SF Recreation and Park Department, the San Francisco Public Utilities Commission, and the State Coastal Commission.

A non-binding Master Plan for Ocean Beach has been developed by a project team led by San Francisco Planning and Urban Research (SPUR) and incorporating input from an interagency Steering Committee, Planning Advisory Committee (PAC), Technical Advisors and the general public. The plan addresses the complex challenges faced at the coastline, including severe erosion, jurisdictional issues, a

diverse array of beach users and points of view, and the looming challenge of climate-induced sea level rise. It presents recommendations for the coastline and how it should be managed and protected for the stretch from the Cliff House to Fort Funston, spanning roadway changes, bike and pedestrian connectivity, technical interventions, and ecological restoration.

To help address the issues described above, the SFPUC, in partnership with other agencies, is implementing the Ocean Beach Climate Change Adaptation Project for the southernmost portion of the beach and surroundings. The Adaptation Project builds upon several previous efforts including the Coastal Protection Measures and Management Strategy for South Ocean Beach (2015) and the Ocean Beach Open Space Landscape Design (2017). Project elements include, but are not limited to, managed retreat, structural protection, access and recreation improvements, and beach nourishment.

1. Most of the beach is GGNRA property.

Southeastern Waterfront/The Blue Greenway

The Blue Greenway is a project to improve and expand the public open space network along the City's central and southern waterfront from China Basin Channel to the San Francisco County Line. Collectively, the Blue Greenway is intended to provide opportunities for much-needed open space that is easily accessible for exercise and recreation, including bicycle and pedestrian access, recreational uses in the water, (e.g. kayaking), access to historical resources, and enjoyment of art as well as waterfront public access from nearby neighborhoods. The plan realizes objectives set forth in the Association of Bay Area Government's (ABAG) Bay Trail Plan and the Bay Area Water Trail Plan. High priority should be given to the project's completion as it will provide a much-needed open space system that is easily accessible for exercise, recreation and enjoyment of art and open space in the City's southern and central corridor. (See *Map 8: Blue Greenway* and Policy 2.4)

POLICY 1.6
Support the continued improvement of Golden Gate Park while preserving the beauty of its landscape.

Golden Gate Park is San Francisco's largest and one of its most important parks, with over 1,000 acres of open space and an estimated number of users topping 13 million annually. The park offers immeasurable opportunities to meet the needs of neighborhood, citywide and regional residents, and visitors from national and international destinations. The landscape design and natural legacy of Golden Gate Park are some of the many features that draw people to this park, and they would benefit from additional investment in restoration efforts. Many recently renovated and new facilities in the park, including the Conservatory of Flowers, the DeYoung museum, and the new California Academy of Sciences, have made the park increasingly popular. After ten years of community input, the City completed a 1998 Master Plan, a comprehensive plan that laid out landscaping, circulation, recreation facilities, buildings and monuments, utilities and infrastructure, maintenance, as well as funding for this signature open space. This Master Plan provides guidelines for continued improvements.

1. **Assess the Master Plan:** Many of the proposals in the Plan have been completed, while some remain unfinished. Golden Gate Park is one of the City's most important resources and a detailed assessment of the Master Plan should be completed to determine if the goals for the Master Plan have been implemented. In the long-term, the City should work with the community to determine if this Master Plan should be updated.

2. **Improve pedestrian access to Golden Gate Park:** Current pedestrian access around and to Golden Gate Park is highly limited, with sidewalks entirely lacking along one side of Lincoln Avenue, and limited formal pedestrian access points into the park. The City should consider a long-term goal of improving pedestrian access into the park and along its edges and discouraging entering the park on improvised trail entrances, which harms the flora in the Park. In response to the Master Plan's recommendation for a comprehensive signage system, signage standards were developed and many new signs have been added to the Park.

3. **Discourage automobile traffic:** The increasing popularity of the Park has also brought an increase in users. The City should continue to pursue alternative transportation to and within the park and examine both incentives for alternative transportation and disincentives for automobile traffic. The City should study potential options for improving the pedestrian experience, including considering roadway improvements and redesign(such as the cross-park tunnel that is incorporated in the Doyle Drive project at the Presidio) to improve safety and enhance views.

POLICY 1.7
Support public art as an essential component of open space design.

Art plays a critical role in both activating spaces and indicating to passersby that the space is public. The public requirement for art, originally passed in 1969, established the importance of monumental art integrated within public projects. This ordinance, currently titled the Art for Enrichment program, requires two percent of the construction cost of civic projects, including buildings, transportation projects, and new parks to be spent on public art for civic projects.[2] In 1985, the Downtown Plan required certain private projects to spend one percent of the project's worth on the provision of public art. This requirement was expanded to other areas the city in a new Ordinance in 2012.[3] In order to promote art in public and open spaces, the City should continue to evaluate the possibility of expanding

this requirement to other areas in the City. These projects vary greatly in their style and substance, from murals to monuments, but they have in common the ability for the public to access them. When parks or open spaces are renovated or new spaces are built, public art should be placed where it's both visible and appropriate given the parkland or open space.

2. For additional detail, See San Francisco Administrative Code, Section 3.19.

3. For additional detail, See San Francisco Planning Code, Section 4.29.

POLICY 1.8
Support urban agriculture and local food security through development of policies and programs that encourage food production throughout San Francisco.

The benefits of urban agriculture include increased access to healthy fresh food, a closer connection between residents and their food system, and opportunities for community-building and beautification. The growing movement to increase urban agriculture should be supported on both public land and on private spaces where possible. Currently, a huge and unmet demand for more community garden space exists in the City. Urban gardens should be permitted and promoted in public open spaces. To promote this goal, the Mayor's 2009 Executive Directive on Healthy and Sustainable Food encourages food production within the City and requires departments to identify public land for food production. City practices should support the work of organizations promoting urban agriculture, and explore ways to increase their access in new housing developments, existing publicly managed housing developments, and other public lands. The City should continue to make it a priority to find additional public spaces to meet this need. The City's Administrative Code also calls for comprehensive programs, policies, and strategies to generally enhance and increase urban agriculture uses. The City should also incentivize creation of community agriculture on private sites, such as private yards and building rooftops. Activities that allow distribution of locally grown food, such as farmers markets, Community-Supported Agriculture (CSA) distribution sites, or even direct sales of local and large-scale urban agriculture, should be considered a valuable part of activating underutilized public and private open spaces.

POLICY 1.9
Preserve sunlight in public open spaces.

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.

Properties under the jurisdiction of the Recreation and Park Department or designated for acquisition are protected by a voter-approved Planning Code amendment. It restricts the construction of any structure exceeding forty feet in height that would cast a shadow that is adverse to the use of the park from between one hour after sunrise to one hour before sunset, unless it is determined that the impact on the use of the space would be insignificant. In determining whether a new shadow cast by a development is adverse to the use of a particular property, the City considers several quantitative and qualitative criteria, including the size of the park property, the amount of existing shadow, and the timing, size, location, and duration of the new shadow and the public good served by the building.

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.

POLICY 1.10
Ensure that open space is safe and secure for the City's entire population.

Safety and security in the City's open spaces is essential to allow San Franciscans to enjoy their community open spaces. Improving the design of an open space through design treatments can reduce the fear of crime and the actual level of crime. Design treatments can include:

- Providing clear sightlines, where appropriate.
- Designing the street/open space interface to encourage permeability and access.
- Ensuring adequate and appropriate lighting.
- Better utilizing parks and open space to increase park visitors and encourage "eyes on the park."

POLICY 1.11
Encourage private recreational facilities on private land that provide a community benefit, particularly to low and moderate-income residents.

Outdoor space is not the only medium for physical activity. San Franciscans use indoor recreation spaces for activities like swimming, tennis, basketball, ping-pong, yoga, and general fitness and group classes. Private recreational sources, such as clubs and gyms, offer residents spaces to participate in such activities. In permitting new development, San Francisco should continue to encourage space for physical activity, including private recreational facilities in building projects to supplement those provided by the City.

Some private and non-profit recreational facilities act in a quasi-public manner. These may provide free or low-cost community access, supplementing existing City programs in underserved communities for active education, sports and recreational activities. Examples include the YMCA, Boys and Girls Clubs, and other community-based organizations. These types of facilities should be supported when they serve San Francisco residents, and, if removed, the loss of recreational space they provide should be considered.

For-profit recreational facilities can offer similar educational and recreational benefits, provided the participant can pay. Examples include country and tennis clubs, yoga studios, and private gyms. These facilities should receive support, based on the level at which they can demonstrate they are meeting underserved low and moderate income need. Such facilities should be encouraged to offer neighborhood discount or “community class” rates to improve access for community members that are not able to afford full rates. The City should also look for opportunities to partner with such private organizations, to provide benefits to the public at a lower cost.

POLICY 1.12
Preserve historic and culturally significant landscapes, sites, structures, buildings and objects.

Historic resources are an important element of our park system. The value of these resources should be preserved and celebrated because they provide an important link to the significant events, people, places or design that they represent.

POLICY 1.13
Preserve and protect character-defining features of historic resources in City parks, when it is necessary to make alterations to accommodate new needs or uses.

The City should identify, evaluate, and preserve historic and cultural resources in City parks. Prior to any project that involves the alteration or replacement of any of these resources, the City should conduct a comprehensive survey and analysis to identify resources and associated character-defining features within the vicinity of the proposed project. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize the resource should generally be avoided. The replacement of historic and cultural resources and features should be avoided if possible.

OBJECTIVE 2

INCREASE RECREATION AND OPEN SPACE TO MEET THE LONG-TERM NEEDS OF THE CITY AND BAY REGION

In an urban area, the most critical factor in the provision of open space is its distribution. All types of open space activity - from sports fields to playgrounds - should be accessible to and within walking distance of every resident of the City. Walking distance, however, ranges depending on the type of activity and the resident. A half mile is commonly accepted as a distance that can be comfortably walked in 10 minutes, and as a distance most people are willing to walk to access community uses.[4] For most recreational activities, including active ones such as hiking, biking and sports activities; or for passive ones, like picnicking, this walking distance is acceptable. However, for activities that involve small children, such as a playground, one-quarter mile (a five minute walk) is more appropriate. Using these walking distances, and taking into account topography and other barriers, the City’s open space is generally well distributed, as illustrated in *Map 4: Walkability*.

4. Regional Plan Association (1997) Building Transit-Friendly Communities A Design and Development Strategy

MAP 4 - Walkability

However, some parts of the City are still deficient in certain types of open space. The eastern side of the City has a lack of large open spaces. While certain areas are planned and zoned for Production, Distribution, and repair (PDR) uses and for maritime industries, other areas were recently rezoned to support additional residential development. The future population increase in these areas and throughout the City (See *Map 6: Areas of Potential Additional Population Growth, 2040*) will exacerbate current open space deficiencies.

Many parts of the City also lack playground space. Sports fields are well-distributed; however, capacity is limited and the demand for their use is often greater than what can be provided in neighborhood spaces.

Even in neighborhoods that have open spaces within walking distance, higher density and lower income populations may mean demand in these areas exceeds the capacity of local open spaces. As these communities continue to grow, open space improvements and acquisition are needed to maintain access to this limited resource. This objective, and the policies that follow, are aimed at addressing these deficiencies through new or improved open space provision.

POLICY 2.1
Prioritize acquisition of open space in high needs areas.

Throughout the country, safe, green open spaces are in short supply in dense communities, where low-income and minority populations tend to be concentrated, as well as large numbers of children and seniors. In the more densely populated, older areas of San Francisco, people often have less mobility and fewer financial resources to seek recreation outside of their neighborhood. People in less dense parts of the City may enjoy use of private yards and patios, while residents in denser neighborhoods may not have that option. Finally, studies have found that the need for a park as a restorative "oasis" is most critical in dense urban areas.

Priority for acquisition of new space to address open space inequities should be given to high need areas, defined as places where there is low access to open space (illustrated in *Map 4: Walkability*),a conglomeration of high density, high percentages of children, youth, seniors, and low income households (illustrated in *Map 5: Population Density, Household Income, Concentration of Children and Youth, Concentration of Seniors*), and in which the most growth is projected to occur between now and 2040 (illustrated in *Map 6: Areas of Potential Additional Population Growth, 2040*).[5] Future areas with adopted master plans or Redevelopment plans, such as Mission Bay, Park Merced, Hunters Point Shipyard/ Candlestick, and Treasure Island (See *Map 4D: Walkability: Proposed Open Spaces in Large Plan Areas*) have identified site specific open spaces and recreational facilities, along with funding and implementation strategies for those parks and recreation facilities. These proposed site-specific parks and open spaces would support the planned population growth and therefore these proposed parks are incorporated into the analysis as existing park spaces. Layering all of these factors results in *Map 7: High Needs Areas: Priority Acquisition & Renovation Areas*. This map and analysis should be updated periodically using updated decennial US Census data.

5. The Planning Department Land Use Allocation distributes projected housing and employment growth as determined by the Association of Bay Area Governments to 981 Traffic Analysis Zones (TAZ). These zones vary in size, from a block around downtown to several blocks in more outlying areas. The allocation of TAZ-specific growth is based on the current development pipeline (development projects under construction, approved or under review) and an estimate of additional development potential for each TAZ.

MAP 5 - Population Density, Household Income, Concentration of Children and Youth, Concentration of Seniors

MAP 6 - Areas of Potential Additional Population Growth (2040)

MAP 7 - High Needs Areas: Priority Acquisition & Renovation Areas

Recreation and Parks Department maintains an Acquisition Policy, as required by the City Charter (Section 16.107) and the Park Code (Section 13.02), aimed at facilitating acquisition of open space in high needs areas. The Acquisition Policy provides guidance to promote equitable recreational and open space opportunities through several criteria: location in High Needs Areas, available funding sources that may be leveraged, inter-jurisdictional cooperation, and community support. In order to maintain new acquisitions, the policy also acknowledges the need to identify and leverage resources for continued maintenance and operational support.

New acquisitions should continue to consider the composition of current and projected neighborhood populations. There are both demographic and cultural differences in how people use parks: preschoolers, school age children, teenagers, adults, and senior citizens have distinct open space needs that should be accommodated, that may also vary according to social and economic groups. Design of new spaces should rely on the specific needs and values of its user communities, by using a participatory community design process.

While open space acquisition should not be limited by the City's inability to maintain additional parkland, the City should recognize that acquisition will require an on-going commitment of additional resources for maintenance. In appropriate cases, the City should acquire the property and develop low cost maintenance techniques and programs for open space that are not used for intensive recreation, or should hold the land vacant until development and maintenance funds are available.

POLICY 2.2
Provide and promote a balanced recreation system which offers a variety of high quality recreational opportunities for all San Franciscans.

The City's goal is to ensure that all San Franciscans are within a reasonable walk from an open space with a range of active and passive recreational opportunities. To ensure the highest quality of recreational opportunities for its residents, the City must be able to respond to changing demographics, neighborhood demand, and emerging recreational trends as it plans for new or expanded recreation and open space. The recreation system should provide an equitable distribution of facilities and services and consistent hours of operation. It should also provide sufficient opportunities for populations who are frequent users of open space, such as seniors and children.

POLICY 2.3
Provide recreational programs that are responsive to community needs and changing demographics.

In 2010, SFRPD implemented a new recreation system that focuses on flexibility and responsiveness to changes within communities by providing appropriate programming based on community interest and demand. To stay up-to-date with current needs and interests, RPD routinely surveys their recreation program users. The results provide RPD with information to ensure that programs and services meet the existing needs of neighborhood residents and are on the cutting edge of emerging trends.

RPD also works with the Department of Children, Youth, and Their Families (DCYF) on their Community Needs Assessment, conducted every two years. RPD participates in the assessment as a service provider, and relies on this report to update its recreation programming in coordination with other surveys and assessments. RPD and the City should continue to provide innovative recreational programs that respond to changing community needs.

POLICY 2.4
Support the development of signature public open spaces along the shoreline.

The Pacific Ocean, San Francisco Bay, and their respective shorelines are important natural resources in San Francisco. They offer opportunities for water-oriented recreation, passive recreation, views, and habitat. Most of the property adjacent to the thirty-two mile shoreline is in under public ownership. Maintaining public access to the waterfront is integral to San Francisco's identity and creating continuous open spaces along the ocean and bay is one of the City's long-term goals. Much of the waterfront is already accessible to the public, through parks ranging from Fort Funston, Ocean Beach, the Presidio and Fort Mason to the urban waterfront of the Embarcadero, and numerous open spaces along the Piers to Candlestick Point State Recreation Area.

These open space opportunities should be enhanced and expanded by focusing on the development of several signature open spaces that draw people from their immediate neighborhoods and beyond. Key focus opportunities for developing new or enhanced signature open spaces on the waterfront are listed below by geographic area, and are identified in *Map 8: Blue Greenway*. Additionally, connecting these open spaces to the surrounding neighborhoods and throughout the City and region is an important goal and is discussed further in Policy 3.2.

MAP 8 - Blue Greenway

Northeastern Shoreline

Significant progress has been made in opening and improving the city's northern shorelines. With the opening of Crissy Field in the Golden Gate National Recreation Area and the retention of much of the open space in the Presidio as publicly-accessible open space, this area has transformed itself into a regional destination. Long-term, maximizing the recreational opportunities of other shoreline areas should be considered and inter-governmental and other partnerships should be pursued to further develop these opportunities. At the same time, existing facilities should be maintained at a level good repair to assure their ongoing usefulness.

In addition, a major opportunity exists to create an expanded, multi-park open space at the juncture of Market Street and The Embarcadero. The existing open spaces of Embarcadero Promenade, Justin Herman Plaza, and Sue Bierman (formerly Ferry) Park provide a wealth of untapped opportunity, which can be connected to function as a coherent link from downtown to the Ferry Building and the waterfront, holding several linked yet distinct activity and recreation spaces. Additionally, the Port has opened the Northeast Wharf at Pier 27, which includes a three acre plaza in front of a new Cruise Terminal at the base of Telegraph Hill, and a series of linked open spaces in the heart of Fisherman's Wharf.

Western Shoreline

The western shoreline has the advantage that it is already a long-stretch of natural and publicly-accessible open space. Ocean Beach is a national treasure and should be improved to acknowledge the significance of vast, unbroken expanse of beach in the City.

A non-binding Ocean Beach Master Plan has been developed by SPUR (a San Francisco non-profit supporting planning and good government in the Bay Area) in close coordination with responsible agencies. The Plan includes recommendations to improve and restore conditions at Ocean Beach by adapting proactively to the changing coastline. The western shoreline also connects to Lake Merced, providing opportunities for enhanced access to the waterfront and recreational opportunities. The SFPUC is undertaking several efforts, including implementing the Ocean Beach Climate Change Adaptation Project, to improve access to the watershed lands in this area. If additional space becomes available, this space should provide improved connections from the neighborhood to the waterfront.

Southeastern Waterfront

The continued development of Mission Bay, the passage of the Eastern Neighborhoods plans (Mission, East SoMa, Showplace Square/Potrero Hill, and Central Waterfront Area Plans), the approved developments at Mission Rock, Pier 70, the Potrero Power Station, India Basin, and the proposed Candlestick Point and Hunters Point Shipyard developments will bring growth, which will require increased access and open spaces throughout the Southeast. Most of these plans are accompanied by specific open space strategies for parkland along the waterfront, where active water-oriented uses such as shoreline fishing, swimming, and boating should be promoted. The 2018 Central Waterfront: Dogpatch Public Realm Plan includes additional, more specific recommendations for the Central Waterfront-Dogpatch Public Realm Plan area.

BLUE GREENWAY

The Blue Greenway is a project to improve and expand the public open space network along the City's central and southern waterfront, from the China Basin Channel to the San Francisco County Line (see *Map 8: Blue Greenway*). It provides a new vision of how parks and public spaces can be created to complement and connect with existing open spaces in this industrial mixed-use area along the Bay waterfront. The Blue Greenway seeks to both provide opportunities for much-needed open space that is easily accessible for exercise and recreation, including bicycle and pedestrian access, recreational uses in the water (e.g. kayaking and swimming), access to historical resources, and enjoyment of art, as well as improve waterfront public access from nearby neighborhoods. These goals realize objectives set forth in the Association of Bay Area Governments (ABAG) San Francisco Bay Trail Plan and Bay Area Water Trail for southeast San Francisco.

The following Blue Greenway projects should be given high priority as the neighborhoods along the Bay waterfront – which are already deficient in open space – continue to grow in population. These projects correspond with identified high needs areas. Some are longer-term, large-scale projects that will require public funding:

- **China Basin Shoreline Park:** This existing approximately two-acre park will be expanded as a part of the development of the Port's Sea Wall Lot 337 project and will be the northern gateway of the Blue Greenway.
- **Mission Bay Park System:** This 41-acre park system will include a large scale, bayfront park between the China Basin Shoreline Park and Pier 70, with an important Blue Greenway segment. These open space opportunities and projects are incorporated into the Office of Community Investment and Infrastructure's Mission Bay Redevelopment project.
- **Crane Cove Park:** This approximately seven-acre shoreline park within the Port's Pier 70 development area include construction of an aquatic center and interpretive educational information regarding the City's deeply rooted maritime history. In addition to Crane Cove Park, the Pier 70 site presents opportunities for a variety of other open spaces, all of which must be consistent with the industrial maritime character and setting of the site.
- **Pier 70 Development Project:** The waterfront development site is approximately 28 acres, which includes approximately nine acres of open space, including approximately four acres of open spaces along the waterfront that will incorporate historic shipbuilding infrastructure.
- **Potrero Power Station Development Project:** This approximately 23-acre parcel is the former site of the Potrero Power Plant, which is now planned for a major multi-phase mixed use development that will include significant amount of residential, office, laboratory, and other supportive uses. A major feature of the development is its 6.9 acres of waterfront and inland open space that will be coordinated with the adjacent Pier 70 multi-phase mixed-use development, as it provides an opportunity to extend waterfront access through the pier to Warm Water Cove.
- **Warm Water Cove:** This isolated park has the opportunity to be improved and expanded by up to three acres to provide access to the City's Eastern shoreline and to provide recreational opportunities to the growing population. The 2018 Central Waterfront-Dogpatch Public Realm Plan includes concept designs for this site to guide future expansion and enhancements.
- **Islais Creek Improvements:** This project may consist of shoreline improvements, including rebuilding dilapidated wharves, removing ghost piles, and providing for open space system linkages to expand public access and recreational water use of Islais Creek. In August 2021, the City and the Port published the Islais Creek Southeast Mobility Adaptation Strategy (ICSMAS), which examined the Creek and its surrounding neighborhood's flood hazard risks and identified a comprehensive suite of possible adaptation pathways to protect the area and its key public assets from flooding and permanent inundation.
- **India Basin:** The recently closed Hunters Point Power Plant and adjacent shoreline properties offers the opportunity to bring much-needed recreational space to the center of the City's southeast neighborhoods, helping address the health and environmental impacts of the plant's operations. Relatedly, RPD in embarking on a major redesign and enlargement of the India Basin Shoreline Park and India Basin Open Space that will, among other aspects, expand the area of the parks by incorporating new property at 900 Innes Avenue. The proposed India Basin multi-phase development, approved in 2018, will also contribute significant new open space area. Taken together, the new and improved open spaces from the Power Plant Site through India Basin and into the Shipyard are expected to create a network of diverse open spaces for the Bayview community and the City at large.

- **The former Hunters Point Shipyard, Candlestick Park and Candlestick State Recreation Area:** These areas form the southern terminus of the Blue Greenway. These open space opportunities and projects are incorporated into the Office of Community Investment and Infrastructure's Candlestick and Hunters Point Shipyard redevelopment project.

The City, including the SFRPD, the Port of San Francisco, and Office of Community Investment and Infrastructure, should continue ongoing planning efforts to improve connections and address any gaps amongst the various waterfront open spaces to create a linked system of parks that is consistent with the Blue Greenway planning efforts. In addition to signature open spaces, the City should consider new waterfront open space improvements that serve a non-recreational purpose, including climate change adaptive infrastructure. Current projections by the Pacific Institute predict that global warming may cause the ocean to rise as much as five and a half feet along California's coastline in the next 100 years, impacting many areas of the San Francisco Bay, including the shoreline areas, much of Mission Bay and adjacent portions of SoMa. Inclusion and restoration of open space, particularly tidal wetlands, can act as a natural buffer and play a key role in adapting to sea level rise. Wetlands can protect shorelines from storm surges while assisting in reducing carbon levels through sequestration, so wetland restoration and habitat enhancements should be considered for inclusion in all waterfront open spaces. While many of these areas are already developed, and therefore not appropriate for open space development at this time, ecosystem-based management principles and retrofits should be considered wherever possible to ensure that shoreline retreat and flood protection are considered as measures to assist in adapting to projected sea level rise.

POLICY 2.5
Encourage the development of region-serving open spaces in opportunity areas: Treasure Island, Yerba Buena Island, Candlestick and Hunters Point Shipyard.

Several large, underutilized sites within the City offer not only the opportunity for new mixed use development to meet the City's housing needs, but the chance to create new, large scale region-serving open spaces.

- **Treasure Island**, the former naval base just off the City's northeastern shoreline, is planned to reserve over 60% of its land area for open uses, ranging from parks and ball fields, to organic farms, to wetlands and tidal marsh. Combined with open spaces on contiguous **Yerba Buena Island**, its 290 acres of proposed open space will be planted with a diverse and healthy range of plants which will help offset the city's greenhouse gas emissions. As a part of the planning for the redevelopment of Treasure Island, a Habitat Management Plan was prepared to assure the protection and restoration of wildlife habitat and biodiversity on the adjacent Yerba Buena Island. It is critical that the final designs of open space on these two islands, taken together, provide not only a range of playgrounds and recreational areas to meet the new residents' activity needs, but also offer strong, permanent protections for their wetlands and natural habitat. Agriculture and biodiversity components of this Management Plan should be developed to serve as educational and cultural amenities for the City and the region.

- **Hunters Point Shipyard and Candlestick Point** are currently undergoing a transformation into a vibrant, urban neighborhood and livable green community. Candlestick Point currently consists of the 49ers stadium, parking lot and the Candlestick Point State Recreation Area, of which only about half is improved. Hunters Point Shipyard consists of a decommissioned Naval Shipyard currently undergoing remediation with very limited public access. Plans for the two areas call for a well-connected, full breadth of complimentary uses. A major feature of the project is the robust open space program including upwards of 325 acres of open space, roughly 220 acres of which is being developed at the Hunters Point Shipyard. While the plans call for some reconfiguration of the existing Candlestick Point State Recreation Area (CPSRA) as provided for by SB 792, the reconfiguration will help assure the full realization of currently underutilized portions of the State park. The waterfront open spaces within this project will be the southern section of the Blue Greenway.

Taken together, the new open spaces will enable a continuous Bay Trail along this southeastern portion of the City, and provide a wide range of shoreline-oriented recreational opportunities that could include boat launches, fishing piers, restored wetlands, picnic areas, and food services. The new open space system should be designed in coordination with the proposed adjacent new urban neighborhoods and improve connectivity to the Bayview community, greater San Francisco, and the rest of the region.

POLICY 2.6
Support the development of civic-serving open spaces.

San Francisco is a civic city— celebrations, rallies, gatherings and protests take place almost weekly; political speeches, music, performances in the open air are also common occurrences. Our identity is defined as much by expressions of our social and cultural goals as it is by our physical landscape. These regular events in San Francisco emphasize the role of our City as a regional stage where like minds can gather and deliberate.

San Francisco needs civic spaces which can accommodate these activities – weekly events like farmer's markets, annual events such as the Pride Celebration, and special events such as broadcasting presidential inaugurations. As the City grows, these spaces need to accommodate ever-larger crowds of people and different types of functions – from simple gatherings to technical showcases and wired events. The main opportunities to unify and bolster City landmarks and activity centers are focused around three major open spaces:

- **Civic Center:** Our existing Civic Center, surrounded by City Hall, the Main Library, the Asian Art Museum, and other civic spaces, hosts many of the activities described above. The Civic Center is part of the Civic Center Historic District with National, State, and Local designations. Civic Center's design, however, limits its capacity and functionality, with activities often spilling into less optimal public spaces such as nearby streets. The nearby UN Plaza provides additional activity space that is used for weekly farmers and craft markets, but the two spaces are generally underused outside of scheduled activities and are separated by a virtual parking lot along Fulton Street between Hyde and Larkin Streets. A series of connected open spaces, along a "Civic Center axis" from Market Street to City Hall, could be created with the development of a pedestrian mall along Fulton Street between the Main Library and Asian Art Museum, and with corresponding activity improvements to increase the usability of the Civic Center and UN Plazas. The Civic Center Public Realm Plan provides a blueprint for realizing these goals.

- **Embarcadero Open Spaces:** At the other end of Market Street, the numerous yet underutilized open spaces along the Embarcadero – Embarcadero Plaza, Justin Herman Plaza, and Sue Bierman Park- offer a glaring opportunity for synthesis into the City's gateway civic open space. Inspiration can be found in Millennium and Grant Parks in Chicago. Just as they serve as Chicago's front door, San Francisco needs a civic space for large outdoor events – a place where arrivals can be greeted by the vibrancy of the City, and where its citizens can gather for moments of great joy or great mourning. A series of linked outdoor "rooms" would enable the reconnection of Market Street to the Ferry Building, enhance visual connections to the Bay, activate public space edges with uses that draw people to inhabit and use the space, and create a series of distinct activity spaces for civic and news events, large gatherings, and performance space.

- **Market Street:** Market Street, San Francisco's premier street and most important destination, is more than the city's primary corridor for Downtown movement; it also acts as a civic and cultural center where people can gather to see, learn and participate in our city's vibrant life. The Better Market Street initiative is currently underway to enhance public life along Market Street with a memorable and active identity; more diverse range of social, cultural, and economic activities; and with more gathering spaces to visit, promenade and linger. These changes will complement the transit and bicycling improvements that are also an integral part of Better Market Street

- **Hallidie Plaza:** Hallidie Plaza is a prominent San Francisco public space. Many more people visit Hallidie Plaza every day than any other plaza in San Francisco because of its proximity to shopping, hotels, and theatres. Despite these attractive qualities, Hallidie Plaza has never met its potential to be a world-renowned space where residents and visitors alike come to meet. The multi-level design fractures the plaza, making it impossible to create a place at street-level that can accommodate any sort of meeting space. The Better Market Street Project included preliminary designs for Hallidie to suggest different directions the City could go. Further, there were several conceptual designs developed in the early 2000s that highlighted preferred elements for the plaza, but no definitive design. These should be used as the basis for a design competition, hosted by the Planning Department.

  Given the financial constraints San Francisco will continue to experience for the foreseeable future and the anticipated cost of fixing Hallidie Plaza, there will need to be a public-private partnership that brings philanthropic funding to match City contributions. Building the partnerships necessary to support the refurbishment of Hallidie Plaza should remain a high priority for the City so that the space can become a destination with iconic value to both San Franciscans and our many national and international visitors.

POLICY 2.7
Expand partnerships among open space agencies, transit agencies, private sector and nonprofit institutions to acquire and develop new open space, and maintain, improve, and manage existing open spaces.

Public agencies and private organizations and individuals are working to maintain open space in the Bay Area. These bodies include the Federal Government, the State of California, local governments, several sub-regional open space agencies, as well as public nonprofit organizations and private landholders. Preserving a regional open space system is beyond the scope of the seventy-odd local governments in the nine-county Bay Area. Valuable open spaces cross city and county lines and individual municipalities have neither the regulatory powers nor the funds to retain them. Preservation of such spaces will depend upon regional action.

The City should facilitate efforts of existing agencies and organizations working toward regional open space goals. The City should encourage and work with these groups to secure additional land for open space retention and management, and to maintain existing open space areas in their current undeveloped open space status. The City should also support use of selected areas of open space lands within its jurisdiction for appropriate recreational uses.

POLICY 2.8
Consider repurposing underutilized City-owned properties as open space and recreational facilities.

All major metropolitan areas face challenges in providing sufficient open space due to lack of available land. While vacant or underutilized sites may be found, they are in high demand for private commercial or residential development, driving competitive land prices which are often too expensive for public acquisition. In order to meet the City's need for new open spaces in these high needs areas, the City should creatively look at the resources it already has – sites already in public ownership.

Surplus Sites: Occasionally public agencies find some land surplus to their current and projected needs. When public land becomes surplus to one public use, San Francisco's Surplus Property Ordinance, passed in May 2004, requires the city's surplus property be considered for affordable housing. Some such parcels are not feasible for housing because of their size or shape. When surplus land is already zoned for open space, open space should take priority over other public uses, including housing. When other surplus land becomes available for review as open space, the City should evaluate its suitability as a park site based on suitability criteria described in Policy 2.1 and in RPD's Acquisition Policy while considering other public benefits the land could provide. If the analysis finds the property necessary for open space usage, the City should consider if and how to transfer the property to the Recreation and Park Department under the procedures determined in SFRPD's Acquisition Policy for jurisdictional transfers.

Publicly Owned Sites: The City should evaluate all publicly-owned sites in high needs areas (see summary *Map 7: High Needs Areas: Priority Renovation & Acquisition Areas*) to determine their feasibility for full or partial park site usage. Some of these sites may be underutilized and therefore available for purchase or swap—these should be reviewed for potential transfer to or purchase by RPD. Other sites may be currently utilized for valuable public purposes, but could offer opportunities for joint use. For example, public parking lots that are underutilized on weekends could serve as active recreational spaces during off-business hours, and could even be improved with reinforced turf systems that create greened parking areas. Public buildings could be evaluated for their potential to provide active roof space, which could be creatively developed as green spaces accessible to the public during certain hours.

The opportunity to create open spaces on neglected or overlooked city owned parcels should be explored, particularly in high needs areas – such designs could repurpose existing infrastructure in unique and exciting ways. For example, the award-winning Gas Works Park in Seattle is built on a former coal plant site. More recently in New York City, an abandoned elevated rail track was redesigned as the High Line park, a wildly successful public space that drew over two million visitors in its first year and earned several design excellence awards. The City should consider the innovative reuse of abandoned, vacant or excess city owned land of all shapes and sizes.

Public Rights Of Way: As described in Policy 3.1 below, numerous streets, alleys, schoolyards, and other rights of way offer potential for cooperative recreational use. City departments and State agencies, such as the Municipal Transportation Agency and Caltrans, own and operate spaces that could be better utilized to serve as open spaces throughout the city. Spaces under freeways could serve as skate parks and bicycle paths, while city-owned parking lots could be developed as open space.

POLICY 2.9
Address physical and bureaucratic barriers to opening schoolyards as community open space during non-school hours.

During school hours, schoolyards provide students with a space to learn, socialize, exercise and play. They also often provide the greatest expanse of open space available in their immediate neighborhood. But if the neighborhood cannot tap into that resource when the school day is over, the schoolyard becomes a lost opportunity for half its life. Opening these spaces for use during these times could provide much needed additional space in areas that are currently deficient in open space. This could prove mutually beneficial in that it could provide additional revenue for the school district and large new open spaces for residents without the high costs of acquiring new spaces.

In 2008, the San Francisco Unified School District (SFUSD) and the City launched a pilot program which opened eleven school yards to neighborhoods during weekend hours. This program has been successful in increasing community access to recreational space without any corresponding significant damage to school property. The program has continued to expand, to 21 schools in total, and offers many benefits to participating schools, such as open space improvements, grants to support physical education, gardening activities during the school day, and an activity fund to provide weekend activities open to the public. Schools receive maintenance, programming, and surveillance support from San Francisco Department of Public Works, San Francisco Recreation & Parks Department, and the San Francisco Police Department.

The City should consider ways to better market the availability of these spaces through multi-language signage and events in the space. Continued efforts to add greening to schoolyards would provide benefits to students as well as the neighborhood. As the program continues to expand, additional funding may be needed to address staffing, programming, and operational needs that come along with any joint use project. In addition, based on lessons learned from joint-use agreements thus far, the city should review and further codify the structure of its joint-use agreements to ensure consistency and ease of implementation.

The lessons from this pilot project could also be applied to other public or quasi-public sites. For example, as a next step the City could look at small branch libraries or child care centers as opportunities for increasing public access. The City should also approach private schools throughout the City and attempt to gain their support for such a program on their properties. Other cities have successfully established mutually beneficial joint use or development agreements that opened the privately-owned open space to the public. Private schools could use this vehicle as a way to be "good neighbors" that contribute to neighborhood needs, similar to private recreational facilities offering neighborhood discounts. Where liability is an issue, the City should look to equitably share liability with private entities or among multiple agencies.

POLICY 2.10
Improve access to and level of activity provided at San Francisco reservoirs.

The San Francisco Public Utilities Commission (SFPUC) owns and manages a significant amount of open space lands in San Francisco, as well as sites in Alameda, Santa Clara and San Mateo Counties. These lands are managed as watershed lands and serve as the city's major water source; in some cases these sites also serve as open spaces with scenic easements, and have recreational features such as playgrounds, walking paths, seating areas and even golf courses. The SFPUC has recently expanded uses on its lands to include sustainable agriculture and composting.

Because of the SFPUC's mission to protect public health and safety by ensuring water quality and the filtration capability of the existing system, these sites need to be carefully managed, and in some cases large-scale public recreational use is not possible given such constraints. However, increased public access to portions of its watershed lands with high recreational value is still possible, particularly on certain opportunity sites where the water quality would not be threatened.

Several of the SFPUC's treatment, tank or station sites may offer the potential to yield limited right-of-ways connecting proposed trails or greenways discussed elsewhere in this Element. Such connections, however, must be limited to pedestrian crossings, and made with consideration of safety of the underlying substructure and whether there is risk of potential degradation.

Future leases and lease renewals on watershed lands should be consistent with protection of existing natural values. Watershed lands should be managed to limit potential fire and erosion hazards. Access should be consistent with the legal rights of existing tenants, and with the intent of existing scenic and recreational easements.

The SFPUC should seek to increase public access to and enjoyment of surplus sites by seeking funding for site improvements, better access, and the ability to address safety issues at existing and potential open space properties.

In the case of reservoir lands outside of the City and County of San Francisco, the SFPUC has several long-standing agreements for the recreational, educational and agricultural use of its lands. These agreements have gone through extensive public processes and any change to the agreements would involve additional outreach and review. Some examples of successful joint-use of SFPUC lands include: Sawyer Camp Trail, one of the most popular trails in San Mateo County, which is located inside the Peninsula watershed and passes by the reservoir; and the Sunol Water Temple AgPark, an urban farm located on SFPUC land in Alameda County.

MAP 9 - School Yards & SFPUC Sites With Open Space Potential

POLICY 2.11
Assure that privately developed residential open spaces are usable, beautiful, and environmentally sustainable.

In order to improve living conditions in each residential building and the quality of environment in San Francisco as a whole, the City should continue to require that all new residential development provide outdoor open space. Current San Francisco Planning code requires a minimum amount of open space and this minimum must be maintained. However, open spaces should not only meet a minimum size requirement but should also be usable, quality recreational opportunities directly outside residents' front door, and they should also supplement any public open space that is provided nearby.

In single-family districts, rear yards are required and these yards provide much-needed open space for use by residents, natural habitat value, as well as stormwater management benefits. In most multi-family zoning districts, a minimum of 60-125 square feet per unit is required. In some areas such as Downtown, Chinatown, and high-density residential zoning districts, minimum open space requirements can dip as low as 36 square feet per unit. This requirement is too low, especially for areas that correspond with the high needs areas in *Map 7*. Comprehensive planning in these areas should consider if the requirements should be increased or how open space needs can be met with alternative methods.

In multi-unit developments, providing required open space as common space has many benefits. It provides a collective place for residents to gather, allowing residents to get to know their neighbors and fostering a sense of community. It also provides larger areas for explorative play for children, something small balconies and private spaces usually cannot provide. Finally, it can be more space-efficient than providing numerous smaller spaces, especially if placed on rooftops or adjacent to common entry points where space for access is already required. Common open spaces can expand these benefits to the broader neighborhood as well, if they are publicly accessible during safe times of the day, such as daylight hours, or if they contribute to scenery by being visible from the street. Therefore, open space requirements should include incentives to promote the provision of common open space, and publicly accessible common open space in particular.

The value of private open spaces rests largely on their design. Open spaces should be designed to relate to the type of development they support; while lower density districts may typically include ground level or rear yard gardens, higher density residential development can include not only rear yards or common courtyards at grade level, but also balcony, terrace and rooftop open space. Whatever type of open space is provided, it should be usable with landscaped areas that add greenery. Elements such as playground equipment, lawns, and gardens should be considered as well, based on the expected resident population of the project. Appropriate minimum amounts of open space and guidelines should be developed to codify these recommendations.

Open space in the downtown urban core is already very limited, and continued development will make meeting these higher requirements both more challenging and more necessary in order to maintain livability. Rooftop open spaces can provide a promising way to meet this challenge. Aside from the environmental benefits of roof greening – reduction of stormwater runoff, improvement in air quality, and reduction in energy used for building heating and cooling – green roofs can help to meet a number of the City's open space goals, from recreational enjoyment, to aesthetic improvement and greening of urban landscapes, to increased local food production and increased biodiversity. To enable quality roof space that provides these benefits, roofs should be constructed with load bearing capacity that can accommodate minimum soil depths for planting, or should at minimum support expected person occupancy and potted plantings. Design considerations also include safety, how the space overlooks neighboring properties, and where access can be provided.

POLICY 2.12
Expand the Privately-owned Public Open Spaces (POPOS) requirement to new mixed–use development areas and ensure that spaces are truly accessible, functional and activated.

In denser neighborhoods of the City, Privately-owned Public Open Spaces (POPOS) are a critical strategy to promote livability and provide much-needed spaces for relaxation, enjoyment of greenery, and socializing with others.

POPOS have been provided in a wide range of forms including outdoor seating with landscaping, to beautiful rooftop terraces, or indoor atriums. The quality of these spaces varies greatly, with some of them providing true oases with trees and planters and ample seating; while others are dark, tucked-away spaces that are accessible in name only. While this type of space can never replace true public open space, these spaces should be accessible to the public and should provide features to create a functional and pleasant open space. The City should deploy a variety of tools to educate the public of the existence of POPOS, especially in cases where such spaces are tucked away from the sidewalks—located on the building's rooftops or on the back of the building. The City should enforce all violations by existing POPOS, ensuring that they meet the conditions they were required to meet when the development was approved. The City should also reevaluate the guidelines provided in the Downtown Plan for required features of each type of POPOS, including seating, access to public restrooms, landscaping, and ecological functionality, to determine how to improve these open spaces. Additionally, the City should consider ways of allowing increased activation of the space and provide quality bicycle connections to these spaces.

POPOS have traditionally served the denser downtown core, a result of policies adopted in the 1980s mandating that new large commercial developments provide publicly-accessible open space. These policies should be evaluated to determine how POPOS requirements can be strengthened and expanded citywide. For instance, fee requirements could be extended to all types of development projects of a certain size (not just commercial uses) and provide an in-lieu fee option, as is the case in the Transit Center District Area Plan. Similarly, the Eastern Neighborhoods plan allows developers to satisfy some portion of private open space requirements by providing publicly accessible open spaces. Moving forward, POPOS requirements should ensure that such open spaces are designed and maintained to accommodate and attract a diverse range of users.

OBJECTIVE 3

IMPROVE ACCESS AND CONNECTIVITY TO OPEN SPACE

San Francisco is a dense, built-out city, where it may be difficult and expensive to acquire new land for parks and open spaces. Even though acquisition remains an important means to improve open space access, San Francisco's street network provides an untapped opportunity to supplement the city's open space system and link the network of open spaces. The street network, which makes up 25% percent of the City's total land area, is a valuable public space asset that can incorporate many types of open spaces, such as pocket parks, play streets, trails, and walkable streets and bike routes. These systems can connect residents to larger parks and open spaces and serve as restorative green spaces in their own right, places where residents can interact with urban nature on their doorstep. This system should be clearly legible, and include signage to guide pedestrians to and through the larger open space system.

POLICY 3.1
Creatively develop existing publicly-owned right-of-ways and streets into open space.

San Francisco's right-of-ways offer a variety of opportunities for developing open spaces. Streets can supplement traditional open spaces with standard streetscaping improvements such as bulb-outs, crosswalk improvements, tree planting, and pedestrian lighting. More extensive traffic calming on expanded or existing wide sidewalks can create additional pocket parks, sitting areas, and opportunities for sustainable plantings, community gardens, stormwater treatment, and other landscape elements.

Green Connections

Green Connections are special streets and paths that connect people to parks, open spaces, and the waterfront, while enhancing the ecology of the street environment. By increasing greening in the right-of-way with street trees, sidewalk gardens, and other landscaped areas, these streets will become sustainable corridors that enhance mobility, green neighborhood streets, and improve pedestrian and bicycle access to community amenities and recreational opportunities.

Living Alleys

The City's network of alleyways– small-scale, quieter streets that primarily serve vehicles needing access to adjacent properties—can provide vibrant open spaces, especially in dense neighborhoods. Some alleys, such as Belden Place in the financial district, are currently closed to traffic and provide an intimate atmosphere where patrons of adjacent restaurants can enjoy outside dining amidst a bustling urban environment. Other alleys, such as Maiden Lane, are closed during certain times of the day, serving adjacent businesses during the day, but allowing deliveries during the evening hours. Still other alleys, such as Linden Alley, are open to traffic, but carefully designed to ensure that drivers proceed slowly and with caution. These alleys are designed with seating, landscaping, and pedestrian-scale lighting to create useable and attractive open spaces. All three alley types should be considered and encouraged.

In some residential neighborhoods in the City, such as Visitacion Valley, Mission Terrace, Crocker Amazon and Bayview Hunters Point, there are narrow, unpaved alleyways that originally provided service vehicle access before paved roads were built. These abandoned and overgrown spaces can provide much-needed spaces that supplement the traditional open space, potentially providing walking and biking paths, or seating, landscaping, and lighting appropriate to the area. Using the City's Better Streets Plan, the design for the different types of alleys can be implemented. The City should study different neighborhood needs and determine a priority plan for creating living alleys in areas most in need of these improvements.

Living Streets

Living Streets are wider streets where sidewalks are expanded into excess right-of-way to accommodate formal open spaces or linear parks. Wide streets that have excess right-of-way provide an opportunity to develop living streets, especially where dense residential developments are being built. Many of these areas are deficient in open space, and the streets should be designed with places for relaxation, recreation, and neighborhood gatherings.

Enhancing Existing Parkways

Parkways are streets with broad, well-landscaped medians and sidewalks that provide recreational paths while moving bikes and vehicles. These streets function not only as transportation corridors, but also as linear parks, creating a green network. This green space can often be effectively used for pedestrian and open space functions, by providing multi-use trails, seating, and open spaces. They can also perform ecological functions, including stormwater runoff retention and infiltration and creating habitat. Two of the existing parkways, Park Presidio Boulevard and Sunset Boulevard, offer a major opportunity to enhance the north-south connections from Golden Gate Park. These streets already provide ample trails and open space, but are in need of overall care, improved crossings, and enhancement. By utilizing the existing open spaces offered by these parkways, the City is focusing on how to make the most of what we have. The City should develop a specific design program to address the enhancement of these two parkways.

Temporary and Permanent Street Closures

The City's Sunday Streets program – which was modeled on a 25-year program in Bogota, Colombia – has been a huge success. The proposal began in 2008 with the idea to close one street to cars on Sunday mornings so people can get out and be active in a car-free space. The program has since expanded to offer more opportunities for temporary public gathering spaces. Additionally, City agencies' collaborative effort to transform excess pavement into public spaces is on-going and several projects are being initiated around the city. This concept of temporary or even permanent street closures in the City presents a great opportunity to take advantage of existing street rights-of-way to create space for people to walk or ride their bike.

See *Map 3: Existing and Proposed Open Space* for more information on existing and proposed green street concepts.

POLICY 3.2
Establish and Implement a network of Green Connections that increases access to parks, open spaces, and the waterfront.

Despite San Francisco's many open space assets, park accessibility can be a challenge, particularly for those on bike or foot. For decades, streets have been built to maximize car volume and speed, resulting in roads with fast-moving traffic, inadequate pedestrian and bicycle facilities, and other barriers can that make it difficult and unpleasant for people to walk, bike and use other forms of active transportation.

In recent years, San Francisco has made great strides in retrofitting streets with pedestrian and bicycle improvements that make it easier to access parks, schools and other neighborhood destinations. Green Connections builds on this work, envisioning a 115-mile network of safe, functional, and attractive streets connecting people to parks, open spaces, and the waterfront. Green Connections is designed to meet three goals:

- Public Health: Increase park access
- Sustainability: Enhance urban ecology
- Livability: Support neighborhood stewardship and placemaking

Routes on the Green Connections network should significantly calm traffic, prioritize pedestrian and bicycle travel, enhance urban ecology and ecoliteracy, include beautification and artwork, and provide opportunities to gather and play. Routes will also be designed to be consistent with the Better Streets Plan, which creates a unified set of standards, guidelines, and implementation strategies to govern how the City designs, builds, and maintains its pedestrian environment to ensure streets contribute to a gracious public realm.

Green Connections will not create a new City program, rather, it calls for coordinating existing initiatives such as traffic calming and stormwater management, with the goal of creating a cohesive network of improved neighborhood walking and bicycling routes over the next twenty years. The scale of the network creates opportunities to coordinate with city projects and private development. Additionally, community members and neighborhood groups will play an important role in the Network's implementation and stewardship.

See *Map 10: Green Connections Network*.

MAP 10 - Green Connections Network

POLICY 3.3

Develop and enhance the City's recreational trail system, linking to the regional hiking and biking trail system and considering restoring historic water courses to improve stormwater management.

San Francisco currently has an extensive network of trails that provide local opportunities for walking and biking and link to regional trails and open spaces throughout the Bay Area. These trails surround the Bay, parallel the ocean, extend through parks and neighborhoods and connect existing open spaces. Many of these trails have gaps and lack adequate signage. The City should prioritize filling these gaps and increasing awareness of the trails through updated signage. New trails are also envisioned to provide additional hiking and biking opportunities and important wildlife corridors. The City should also work with Daly City and San Mateo County to encourage better links to San Bruno Mountain and trails to the south.

New trails throughout the city could consider historic water courses to incorporate stormwater management, provide trail connections, or restore aquatic and riparian habitats or wildlife corridors. These trails should provide better ways to move people through increased hiking and biking opportunities. Some adopted Area Plans, such as the Glen Park Area Plan, have identified such opportunities.

MAP 11 - San Francisco Bay Trail

Continuous Waterfront Trail

The trails along the waterfront are administered by many different jurisdictions including regional, city, and federal agencies. However, visitors do not necessarily distinguish between these jurisdictions, and want a continuous, usable trail system along the waterfront. The City should improve trail signage to ensure users are provided clear routes and destinations and work to fill any gaps in the proposed trails and in the connections between them where it does not impede on water dependent commerce.

Bay Trail

The Bay Trail is a regional trail developed by the Association of Bay Area Governments (ABAG) that is proposed to surround the entire San Francisco Bay. In San Francisco, this trail would extend from the Golden Gate Bridge along the bay to the Central Waterfront neighborhood, where the trail is being built inland along Illinois Street through Pier 70 (which, along with the Power Plant site, will eventually provide opportunities for waterfront access). The Bay Trail will eventually continue around the Bay through Hunters Point Shipyard and down to San Mateo. (See *Map 11: San Francisco Bay Trail*.) The gaps are shown in *Map 11* and the City should prioritize closing these gaps to ensure a complete Bay Trail. Closing the Bay Trail gaps would also help in the development of the Blue Greenway, a continuous corridor that links the existing and proposed open spaces through the Bay Trail and the San Francisco Water Trail. The City's Blue Greenway project intends to complete San Francisco's southeast section of the Bay Trail and that portion of the Bay Area Water Trail, described below.

Coastal Trail

The California Coastal Trail is a network of trails for walkers, bikers, equestrians, wheelchair riders, and others along the entire 1,200 miles of the California coast. Through San Francisco the 10.5 mile trail connects many scenic and tourist attractions along the coastline, including the Golden Gate Bridge, the Presidio, Ocean Beach and Fort Funston. While the current trail is relatively complete, prioritizing improvements such as signage and fixing small gaps would ensure that the trail is accessible and visible for its entire route.

Bay Area Water Trail

The State Coastal Conservancy is leading the implementation of the San Francisco Bay Area Water Trail Plan (Water Trail Plan), a new regional access project. The Water Trail is a network of access sites (or "trailheads") that will enable people using non-motorized, small boats or other beachable sailcraft—such as kayaks, canoes, dragon boats, stand-up paddle and windsurf boards—to safely enjoy single and multiple-day trips around San Francisco Bay. This regional trail enhances Bay Area communities' connections to the Bay for water recreation activities, and creates new linkages to existing shoreline open space and other regional trails, such as the Bay Trail. The Water Trail will include educational, stewardship, and outreach components.

The Bay Area Ridge Trail

The Bay Area Ridge Trail is a multi-use trail that links the hills and ridges of the nine counties of the Bay Area. It will be approximately 550 miles in length when completed. Most of the 13.5-mile portion of the trail in San Francisco was completed in 1992 and is in the process of being reevaluated by the Bay Area Ridge Trail Council, with the goal of improving its route, signage and connections to other city and regional trails. The City should work with the Council and the community in this rerouting effort, especially one that takes users through parks and makes connections to other trails, such as the Bay Trail, the Coastal Trail, and the proposed new cross-town corridor described below. The City should also assist the Ridge Trail Council in its efforts to improve signage along the route. *See Map 12: Regional Trails*.

MAP 12 - Regional Trails

New Cross-Town Corridor

A proposed corridor would connect wildlife habitats and allow hikers an urban wildlife trail experience through some of the City's most diverse natural areas. The corridor would begin in the Presidio, travel through Golden Gate Park, stop at Twin Peaks and Mt. Sutro, wind through Glen Park Canyon, then McLaren Park, and finally reach the San Francisco Bay in Candlestick Point Recreation Area. While the exact route of this proposed new corridor has yet to be determined, it could include an extension to connect with Lake Merced and opportunities to daylight historic creeks in an enhanced green corridor. The City should work with pertinent Federal, State, and local agencies along with the community to develop this new corridor.

POLICY 3.4
Encourage non-auto modes of transportation – transit, bicycle and pedestrian access—to and from open spaces while reducing automobile traffic and parking in public open spaces.

San Francisco's transit first policy, adopted by the Board of Supervisors as Section 8A.115 in the San Francisco Charter, emphasizes the importance of providing and prioritizing transportation via transit, walking, and bicycling for all trips in the city including to parks and open spaces. Non-auto transportation is especially important because many of the City's large parks are located far from dense population centers and high needs areas. While the City's extensive network of transit allows users to access all of the City's parks, crossing the City, especially on a weekend, can often entail multiple transfers and long waits because of less frequent service. The City should consider increased and/or express local bus service to major open space amenities particularly from high needs areas. The City should also explore the idea of a "Green Transit Program," a bus that delivers riders from the City's high needs areas to large parks. This service should be affordable and allow families an easy way to access the City's large open spaces. Additionally, the City should improve transit access to regional open spaces outside of San Francisco such as Marine Headlands, Mount Tam, Pacifica beaches, and the San Bruno Mountains.

Bicycle routes that serve to get riders to and around our open spaces also provide a key component of the city's non-auto transportation network. Many of the improvements in the City's Bicycle Plan address the need to connect people to open spaces. The City should prioritize bicycle improvements that provide both a connection to the City's open spaces and serve as the most heavily utilized routes. For example, the improvements suggested along the panhandle would improve access to the Panhandle and Golden Gate Park as well as facilitate this route as a commuter corridor for bicyclists. The City should also work to provide bicycle parking at entrances to park facilities and throughout large open spaces to promote increased bicycle usage. In August 2013, the Bay Area BikeShare was launched with 34 San Francisco locations. The City should consider expanding those locations to serve major parks and open spaces, like Golden Gate Park, that are on the City's bike network.

Heavy or fast traffic in and around public open spaces endangers pedestrians, limits access to open space, endangers plant and animal life and makes the open space less enjoyable to be in. Excessive parking spoils the user experience and untimed parking encourages non-park users to park, restricting availability of spaces for park visitors and residents alike. The following methods of reducing traffic in and around public open space are consistent with the urban design and transportation elements of the General Plan and should be applied where possible:

- Consider eliminating some roadway cut-throughs and ensure new roads are necessary for park access, not only as through-ways.
- Increase traffic calming on roads. Reduce the capacity of roads in public open spaces to encourage slower travel and provide safer routes for pedestrian and bicycle travel.
- Establish strict speed limits. Monitor speeds throughout the parks and ensure that strict speed limits are enforced.
- Study and implement, where appropriate, timed parking that supports typical-length visits to a park, but discourages all-day parking during the week.

POLICY 3.5
Ensure that, where feasible, recreational facilities and open spaces are physically accessible, especially for those with limited mobility.

The City should ensure that recreational facilities and public open spaces are accessible to all San Franciscans, including persons with special recreational needs, where feasible. For example, the hilly topography of the City makes providing some paths ADA accessible difficult to achieve. People with special needs may include seniors, children (particularly the very young), and people with disabilities. In order to achieve this policy, park and recreation facilities should be planned and programmed for people with special recreational needs in mind. The following criteria should be followed when developing or renovating any new space:

- All parks and open spaces should comply with applicable requirements of the Americans with Disabilities Act and the California Building Code.
- The City should utilize the US Access Board's recreation facilities and outdoor area accessibility guidelines as a best practice for design and construction.
- The City should also ensure that routes to and from the open spaces are accessible. For example, the route from the public transit stop to the park should be fully accessible.

POLICY 3.6
Maintain, restore, expand and fund the urban forest.

Trees and understory plantings in city parks, developed public open spaces, city streets and private property collectively form the urban forest. The urban forest contributes substantially to our quality of life and to the ecological functioning of our city. Trees and landscaping soften the urban environment, provide habitat, improve air quality, absorb carbon and mitigate stormwater runoff. Given these benefits, trees are an essential piece of the City's infrastructure. The urban forest requires consistent maintenance, funding and long-term planning to ensure its health and growth over time.

The SFRPD plants and maintains a variety of landscaping, including approximately 131,000 trees in city parks and other SFRPD open spaces. The Department of Public Works, Bureau of Urban Forestry (BUF) has permit jurisdiction over 105,000 trees and landscaping in the public right-of-way and provides maintenance along designated streets. Finally, property owners maintain trees within their property line as well as street trees and landscaping along their street frontage on streets not maintained by BUF.

The Planning Department, in collaboration with the Department of Public Works, has created a plan to promote San Francisco's urban forest with a focus on street trees. The Urban Forest Plan – Phase 1: Street Trees (2014), adopted here by reference, identifies policies and strategies to proactively manage, grow and protect the City's street tree population. A corresponding planning effort is needed, focused on policies and recommendations pertaining to trees in parks and open spaces. The Urban Forest Plan - Phase 2: Trees in Parks & Open Spaces should be funded and carried out. Many of the city's trees and understory plantings in our parks have reached maturity and are in a state of degradation. A thorough tree replanting strategy in parks and open spaces that addresses not only hazardous trees, but also develops a comprehensive replanting strategy that includes a system-wide prioritization framework, should be pursued. In addition, a third phase of urban forestry planning (Urban Forest Plan - Phase 3: Buildings and Private Property)should be completed to present recommendations for trees and landscaping on private property as well as on building (i.e. living architecture, green roofs and walls). The completion of all three planning phases will produce a holistic vision for the City's urban forest.

Urban forestry planning in San Francisco requires a Citywide Street Tree Inventory and Parks Tree Assessment to gather the data needed to achieve a higher level of tree management and care. The Citywide Tree Inventory should include geographic location, tree species, size, age, and disease classes, and other related information for trees within the public right-of-way. A Parks Tree Assessment should evaluate the condition and needs of trees under SFRPD's maintenance purview. Upon completion of these studies, property owners should be encouraged to plant trees and landscaping fronting their property consistent with the City's Urban Forest Plan and DPW's tree and landscaping planting guidelines. Additionally, the City should seek long-term funding sources to maintain and expand the urban forest on streets and parks. Codes relating to planting and maintaining street trees and landscaping in public spaces, parks, along public right-of-ways and within private property should be rigorously enforced to in order to maximize the extent, health, and longevity of the City's urban forest.

OBJECTIVE 4

PROTECT AND ENHANCE THE BIODIVERSITY, HABITAT VALUE, AND ECOLOGICAL INTEGRITY OF OPEN SPACES AND ENCOURAGE SUSTAINABLE PRACTICES IN THE DESIGN AND MANAGEMENT OF OUR OPEN SPACE SYSTEM

San Francisco is a heavily urbanized city, which nonetheless has a rich variety of plant and animal communities. Among these are coastal scrub, grassland, oak woodlands, marsh, and stream-side habitats and their associated wildlife. Some of these habitats hold species found nowhere outside of the Bay Area. The City also has significant landscaped areas, such as conifer plantings in Golden

Gate Park. By providing food and shelter for migratory and resident birds, butterflies, and insects they too play a major role in supporting San Francisco's biodiversity. Biodiversity includes the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur. Maintaining biodiversity requires genetic diversity, species diversity, and habitat diversity. San Francisco can be a leader in creating new and more sustainable open spaces by ensuring that all open spaces, including new and renovated park spaces, are developed in a way that enhances and works with local biodiversity.

POLICY 4.1
Preserve, protect and restore local biodiversity.

San Francisco's ecological communities include freshwater and tidal wetlands, riparian areas, grasslands, coastal prairies, oak woodlands, coastal scrub, dunes, rock outcroppings and our designed landscapes. Some of these areas serve as habitat for unique species including many rare and endangered species, such as the red-legged frog, snowy plover, and mission blue butterfly. Yet San Francisco continues to lose species diversity due to isolation and fragmentation of habitats and invasive species.

Parks and open spaces in San Francisco include both native and non-native species, both of which can contribute to local biodiversity. The City should employ appropriate management practices to maintain a healthy and resilient ecosystem which preserves and protects plant and wildlife habitat, especially rare species which are the primary contributors to local biodiversity.

Restoring some ecosystems would also help enhance local biodiversity. Wetlands and riparian areas, for example, provide habitat, biological benefits, and resource-efficient methods for treating storm water runoff in addition to serving recreational uses. However, many of San Francisco's wetlands have been buried by development and little of the original wetlands have survived in San Francisco. A number of restoration projects have recently been completed or are underway, including projects at Crissy Field, Heron's Head, Pier 94, Mountain Lake and Lake Merced. The City should continue to support the monitoring and restoration of these wetlands.

The long-term vision for the City should also include conserving and restoring hydrological resources, including riparian communities, seeps, springs, creeks, ponds, and lakes; and exploring the feasibility of day lighting creeks that are completely or partially buried, for example Islais Creek, Yosemite Creek and Mission Creek. In order to ensure the preservation and restoration of our local biodiversity, the City should increase awareness of the benefits of all ecological communities as well as how the public should and should not interact with these areas.

POLICY 4.2
Establish a coordinated management approach for designation and protection of natural areas and watershed lands.

San Francisco's natural areas are the undeveloped remnants of the historical landscape which contain rich and diverse plant and animal communities. Following the adoption of the 1986 Recreation and Open Space Element, the SFRPD exacted policies to develop a Natural Areas Program to manage the 530 acres of parks and portions of parks that constitute natural areas. The mission of the program is to restore and enhance remnant natural areas and to develop and support community-based stewardship of these areas. Policies governing access and appropriate use and enjoyment of protected natural areas should ensure that the natural resource values are not diminished or negatively affected by public use.

In addition to the SFRPD-owned land, there are a number of natural areas under the jurisdiction of other city, state and federal agencies and in private ownership. The long-term ownership and management of these lands is uncertain because these properties are not under rules and restrictions that would prevent them from being sold and/or developed. The City should ensure that a comprehensive inventory of all natural areas owned by city agencies other than the Recreation and Park Department and by private landholders is developed, in order to preserve the City's biodiversity and natural areas more holistically. This inventory should include promoting habitat corridors among open spaces and natural areas. The following criteria should be used to determine what constitutes a significant natural resource area worthy of protection:

- The site is undeveloped and relatively undisturbed, and is a remnant of the original natural landscape and either supports a significant, diverse, or unusual indigenous plant or wildlife habitat, or contains rare geological formations, or riparian zones.
- The site contains rare, threatened, or endangered species, as identified by the U.S. Fish and Wildlife Service or California Department of Fish and Wildlife, or contains habitat that has recently supported and is likely again to support rare, threatened, or endangered species.
- The site is adjacent to another protected natural resource area and, if protected from development, the two areas together would support a larger or more diverse natural habitat.

Given constraints on the City's financial resources, public acquisition for all natural areas that are in private ownership may not be an option. However, if such an area is at risk of loss through development, the site should be examined as a candidate for open space acquisition. Relative importance of the site as a natural area should also be assessed. If the area is not to be publicly acquired, the Planning Commission may require any development that is approved on the site to preserve the most important portions of the area, if found feasible and consistent with the Planning Code.

Once the significant natural resources outside the jurisdiction of RPD are identified, the City should develop a management plan for these natural areas. Many of the properties are currently managed by the City, State or Federal agencies whose mission is not consistent with the preservation of natural areas. In these cases, consideration should be given to joint management through a conservation district or a governmental entity that controls the management of these areas.

POLICY 4.3
Integrate the protection and restoration of local biodiversity into open space construction, renovation, management and maintenance.

The City should work to protect and enhance biodiversity throughout the parks and open space system. When parks and open spaces are renovated and new spaces are planned or acquired the City should work to ensure that these spaces are environmentally sustainable, from construction to management. New buildings and park features should protect and help restore local biodiversity. Appropriate criteria should be applied to different open spaces depending on the sensitivity of the habitat, the proposed uses, and the amount of space the new or renovated project will provide. However, certain key requirements, which the City is currently working on, will be applied to all new and renovated open spaces:

- **Soil conservation.** In order to conserve and to use local soil, a cut fill balance will be maintained where feasible to minimize the need to transport soil to or from the project site.
- **Native and drought-tolerant plants.** The City is working to replace invasive and water-intensive species and species of minimal habitat value with species that fit better with San Francisco's natural environment. Just as the City restores degraded areas with local native plants for wildlife habitat and biodiversity in natural areas, habitat and biodiversity should be considered along with traditional landscaping objectives of aesthetics and cultural value throughout our park system and in the streetscape. Drought-tolerant non-native plants can also contribute to the thriving of local biodiversity and meet many of these overall goals. To provide native and drought-tolerant plants, the City should continue to work with private entities and City agencies to encourage native and drought-tolerant plant nurseries.
- **Lighting.** Park lighting should be environmentally efficient and provide safety and security to park users, while being as limited as possible in order to protect wildlife in natural areas from the impacts of light pollution.
- **Habitat and Wildlife.** Where appropriate, utilize materials and design spaces, facilities and buildings in a manner that provides habitat for local and migrating wildlife.
- **Construction and Siting.** Utilize green building practices, local materials, services and supplies; site new structures in locations that minimize disruption of the natural environment; and mitigate impacts during constructions phases.
- **Waste Management.** The City should continue to enforce the no feeding of wildlife provision of the Park Code and manage recreational facilities to minimize wildlife access to human garbage.
- **Stormwater Management.** The City should continue to creatively solve for the management of stormwater runoff in our dense urban landscape. Managing the city's stormwater runoff in an environmentally-sensitive manner, such as using bioswales or through creek restoration could provide an increasingly biodiverse habitat.

POLICY 4.4
Include environmentally sustainable practices in construction, renovation, management and maintenance of open space and recreation facilities.

The City has been working to develop more sustainable practices in the development or renovation of their park and recreational facilities. Below are a number of programs that highlight efforts throughout the City.

- **Water conservation, recycling/reuse, and stormwater mitigation.** The SFPUC has developed a recycled water program with the North San Mateo County Sanitation District to use recycled water for three golf courses: Lake Merced Golf Club, Olympic Club, and San Francisco Golf Club. The SFPUC is also working on a treatment facility for recycled water on the city's west side. One of the primary uses of this recycled water would be to irrigate parks and open spaces in City property such as Golden Gate Park. The Recreation and Parks Department is the biggest user of water in the city, with an annual total usage of 691 million gallons of water. It is therefore critical to conserve potable water and promote alternative water resources such as recycled water and stormwater capture, especially for uses such as irrigation. Expanding the use of recycled water and considering other innovative treatments to capture and reuse stormwater runoff are being pursued by the SFPUC, the Recreation and Park Department, and the Office Community Investment and Infrastructure. Impervious surfaces are being limited or retrofitted to utilize pervious surfaces and innovative methods for capturing and reusing storm water, such as cisterns. Support for these efforts should continue, as they offer an easy and effective solution to water conservation and to potential water shortages caused by drought, earthquakes, or decline in the snow pack.

- **Energy production and efficiency.** The City's open spaces could serve as a source of energy for the City. For example, new or renovated buildings could utilize solar panels or other alternative energy sources. The SFRPD has also been a leader in the City in trying to reduce their energy usage. The goal is to realign the records so that meters are tied to park names and building names in order to have greater control of energy reduction measures. Currently, meter numbers are tied to physical addresses only with multiple meters and multiple addresses in one property.

- **Composting and Mulching.** The City has had a composting program since 1996. SFRPD is one of the leading partners and one of the biggest producers of green waste in the City. The recycling of this waste is used not only in city parks and in community gardens throughout the City, but is provided to farms and households for use in their private gardens.

- **Integrated Pest Management.** The City of San Francisco follows the award-winning Integrated Pest Management ordinance. The law requires that when the City is managing unwanted insects, rodents, birds, weeds, or other organisms for buildings & landscapes that the City follow a series of requirements including: how integrated pest management (IPM) is implemented, limitations on pesticide products, exemptions to the Reduced Risk Pesticide List (that may be used as a last resort), posting and notification for pesticide treatments, recordkeeping and data requirements, and accountability. The program must be followed by all city agencies and any city agency that leases land from the city.

- **Historic Preservation.** Appropriate repair and retrofitting of existing historic resources is an inherently sustainable strategy and ensures that the character and integrity of significant historic resources is maintained. Adaptive reuse, such as for new programming, accessibility, life and safety, and systems upgrades, is a strategy that can be used to conserve materials, minimize impacts to the environment, promote a sense of place, and improve livability.

OBJECTIVE 5

ENGAGE COMMUNITIES IN THE STEWARDSHIP OF THEIR RECREATION PROGRAMS AND OPEN SPACES

Residents can be a major asset in addressing open space needs, providing oversight, maintenance and stewardship. They can be instrumental in ensuring that recreation and open space activities are rooted in local needs and can offer a community-based solution to public sector gaps, particularly in times of budget constraints.

POLICY 5.1
Engage communities in the design, programming and improvement of their local open spaces, and in the development of recreational programs.

The most successful public spaces are those that respond to the needs of their users. Statistics, maps and figures can only go so far in determining a community's need – they can explain proximity to open space, they can describe type of open spaces that are missing (hiking trails, sports fields, playgrounds, access to and from open water, etc.), but they cannot identify the components of open space design which will most reflect their user community.

Open space designs and improvement plans, recreational programs, partnerships for new concessions, and other park additions should always include community participation. The level and intensity of community outreach and engagement may differ based on project type, ranging from written notifications, to community meetings and workshops, to design charrettes. Outreach and engagement efforts should start at the initial project stage, which provides the opportunity to learn about the local community's recreation and open space needs, and continue throughout the project. The City should strive to actively engage community members throughout the process by using a variety of community engagement tools.

A diversity of recreation programs is typically needed to serve the recreation needs and interests of San Franciscans. The City should consider many tools and criteria when developing recreation programs. Some useful tools include but are not limited to:

1. the City Survey from the Controller's Office, which provides an overview of park usage, park quality, and park programming from residents;
2. intercept surveys, which provides observational park usage;
3. user surveys from recreation programming participants;
4. facility-based input to provide neighborhood feedback on recreation programming; and,
5. emerging technologies that survey existing and potential park users including residents, workers, and visitors.

Connecting with and engaging the community will expand opportunities to honor community heritage, facilitate participation in broader arts and cultural activities, and ensure that facilities and programs are appropriate for park users and reflect community character.

Community representation can be continued as the park evolves by including plans that promote volunteer projects derived from the interest and abilities of the community, under the direction of park staff.

POLICY 5.2
Increase awareness of the City's open space system.

San Francisco's open spaces offer residents, visitors and workers many opportunities for recreating and relaxing. The enormous variety of spaces offers a range of options for the user, from a small plaza where downtown workers sit to enjoy their lunch, to large parks where hikers can walk through a redwood grove, to the numerous classes and programs offered by the Recreation and Park Department for families.

The City should coordinate efforts to increase awareness of all City-owned open spaces and promote an increased use and activation of underutilized spaces, which are often underused simply because people are unaware of all the amenities offered. The Recreation and Park Department should continue to enhance its presence on the internet, social media, and emerging technology. All City agencies owning public open spaces should also use emerging technologies to increase awareness of public open spaces. Ideally, the City should create a holistic platform that includes information (hours of operation, permitted activities, community stewardship opportunities, etc.) on all publicly-owned parks and open spaces regardless of the owning agency.

Open spaces also provide an opportunity to increase public understanding of and appreciation for San Francisco's unique natural heritage. Larger open spaces, such as natural areas and parks, as well as smaller landscaped areas, such as POPOS and street parks, may present opportunities to build awareness and understanding of ecology and the natural world through design elements such as demonstration gardens, educational signage, and interpretive artwork. The City should continue to explore creative partnerships with community groups, educational institutions, and cultural organizations to expand environmental education programs and provide opportunities for community-based stewardship and conservation. Such programs should target youth and high-needs areas in particular.

POLICY 5.3
Facilitate the development of community-initiated or supported open spaces.

Publicly-owned and managed open spaces, such as those managed by the SFRPD, are only one component of the City's open space network. Informal, community-organized open spaces, such as community gardens, green opportunities on street corners or along undeveloped street right-of-ways, and opportunities on private or underutilized (vacant) property, provide great opportunities for recreation and open space.

Community organizing around engaged urban revitalization, such as the creation of parks and open space, can have tangible social benefits too. It fosters a sense of responsibility, and encourages residents to take initiative in affecting their own environment. Creation of a community space can support the coming together of a neighborhood, facilitating social interactions and further increasing participation in future planning efforts.

The City should look for opportunities to expand the development of street parks, urban plazas, community gardens, improved streets, and shared school playfields (as described in Objective 3). An evaluation of public property potential, vacant and underutilized properties, and even private property where agreements with owners could be facilitated, would aid in identifying open space opportunities. While gaining access to private property is often a challenge, as owners may want to preserve development potential in the future, it may be possible to structure conditions that allow for temporary use as open space. A formal authorization agreement between the property owner, City, and community could regulate limited-term public use, allowing vacant private properties to serve as a positive community asset without detriment to existing or future building rights.

The City should support community-initiated efforts both administratively and financially by promoting and expanding programs like the Community Challenge Grants and Community Opportunity Fund. The City should also broaden communities' awareness of ways to develop or improve their own neighborhood spaces, the need for open space, and opportunities for them to respond to such needs. Education programs, which can be held in schools, within nonprofit programs, or even as seminars at neighborhood organizations, allow residents to tap into strategies for designating, financing and developing urban open space.

Various nonprofit organizations already provide technical assistance and support, broadening knowledge about what communities can do; organizing seminars, which aid community groups in understanding how to get a project started; providing planting lists and advice on their websites; and holding volunteer days to help implement work. Communities may also have physical needs for maintenance support and tools. Tool lending libraries that assist park volunteers in cleanups, landscape improvements, and community tree plantings, all help support the development of open space and should be supported.

POLICY 5.4
Reduce governmental barriers to community-initiated recreation and open space efforts.

The high cost of permitting requirements, combined with the time to complete them, can be a significant disincentive to community efforts. Recognizing this, San Francisco's street regulating agencies have streamlined permitting processes for street landscaping and reduced fee requirements. However, significant hurdles still exist to creating major changes to properties or to the public right-of-way. Because of the potential for conflicts with parking, traffic, transit, and adjacent uses, it is difficult to streamline major improvement processes. Yet, Portland has established a model ordinance, the "Intersection Repair" ordinance, which was intended to facilitate neighborhood improvements to streets, including major interventions like developing public gathering places in a street intersection. The City should study how to improve the delivery of public street improvements, and examine the lessons from places like Portland to examine what aspects can be facilitated.

Liability is another barrier. In San Francisco, improvements that convert private property to publicly accessible, or even private improvements to public property, typically require that the party contributing the improvements indemnify the City of all liability, which can bring the additional financial burden of insurance. The City needs to make a concerted effort to limit such liability concerns, and balance good public policy with legal caution. In particular, the City should pursue legislation to address the issue of public liability in situations of joint use or joint development of public properties, so that the liability may be equitably shared by multiple agencies (such as the agreement between the SFUSD and the Recreation and Park Department to allow public access to some schoolyards).

POLICY 5.5
Encourage and foster stewardship of open spaces through well-run, active volunteer programs.

Individual participation in stewardship of public open spaces brings obvious improvements to our parks – greener plantings, better maintenance, and an overall feeling of ownership which can deter destructive behavior. Stewardship activities also provide benefits for the individuals by encouraging appreciation of the space, stimulating more outdoor activity, and promoting long-term civic engagement.

The SFRPD has a wide-ranging volunteer program which creates opportunities to participate in gardening and ecological restoration projects, recreational programming, park planning, and fundraising. The program also fosters group sponsorship through weekly, ongoing work parties that provide ongoing stewardship of a park or area.

The Department of Public Works runs a number of parallel programs, such as Adopt A Street, Streets Park Program, and the Community Clean Team, to facilitate neighborhood stewardship efforts on San Francisco's streets, parks and schools.

The Port has also developed successful partnerships with organizations (like Literacy for Environmental Justice to assist with maintenance and education at Heron's Head Park), and Kayaks Unlimited (for stewardship of Islais Landing).

But more resources are necessary to realize the full potential of volunteer programs, expanding the breadth and depth of volunteer opportunities as well as overall participation rates. The City should work to expand these partnerships for stewardship of parks and open spaces, and could help coordinate all volunteer opportunities – whether City or nonprofit sponsored – into an online, easy-to-access calendar, or create a volunteer database with up-to-date schedules and opportunities. The City should also explore ways to share ongoing maintenance of parks and open spaces with individual stewardship organizations or through inter-departmental coordination.

OBJECTIVE 6

SECURE LONG-TERM RESOURCES AND MANAGEMENT FOR OPEN SPACE ACQUISITION, AND RENOVATION, OPERATIONS, AND MAINTENANCE OF RECREATIONAL FACILITIES AND OPEN SPACE

Securing resources for the maintenance and renovation of existing open spaces and providing funding for the acquisition of new open spaces has been a challenge for the City. The City must recognize the costs associated with open space maintenance, renovation, and acquisition and ensure that their funding mechanisms address these major expenditures.

POLICY 6.1
Pursue and develop innovative long-term funding mechanisms for maintenance, operation, renovation and acquisition of open space and recreation.

One of the key goals of this Plan is to ensure that the policies and programs have adequate resources and that a consistent source of funding for operations and maintenance is secured. The City has the responsibility to provide necessary funding for well-maintained recreational facilities and open space. To overcome the challenge of the City's diminishing resources and increasing costs and in order to meet existing funding challenges, the City should pursue different innovative financing mechanisms.. These strategies should help the City realize the monetary benefits provided by parks and open space and invest those benefits into the park system. The City should continue to pursue sustainable mechanisms to overcome the funding challenges. Below is a list of different mechanisms commonly used in cities as public finance strategies for parks and open spaces. Many of these funding strategies have been already used in San Francisco. The City should evaluate these mechanisms and their effectiveness on an on-going basis.

- **General Obligation bonds:** RPD has been using general obligation bonds as a long-term capital planning strategy. These bonds focus on the basic, critical needs of the park system, reducing earthquake safety risks and renovating rundown parks, pools, recreation centers, and playgrounds. In order to ensure that each bond efficiently addresses the needs of communities, RPD should continue to assess the results of each bond and their cost-efficiency in order to enhance the structure, process, and efficiency of future bonds.

- **Public-private partnerships:** The City has used public private partnerships since the park system was founded. Support from private entities and individuals can enable the park system to provide services and recreation opportunities to San Franciscans. The City is continuing to develop public-private partnerships to increase open space amenities and funding opportunities. Such facilities can range from mobile food vendors to larger concessions operating in park facilities. Such opportunities can provide a

reliable source of funding for park improvements and maintenance, while ensuring that they benefit park users, address their needs and concerns, and protect the public interest. Responsible agencies should develop these opportunities through an appropriate outreach and engagement process as outlined in Objective 5. Additionally, these agreements should:

  - Maintain and enhance public access to recreation and park services; and
  - Maintain transparency and accountability to the public; and
  - Support the park or open space through financial and/or physical improvements

- **Grants:** Granting agencies such as federal and state agencies and foundations provide innumerable financial help and support to the city. The city agencies should continue to proactively pursue grant opportunities.
- **Local Fundraising:** The City's vast network for park groups and active community organizations provide a wealth of knowledge and resources that can help support the city's open spaces. The City Budget should prioritize adequate resources and consistent funding source for operating and maintaining open space.
- **Citywide Impact Fees to Fund Recreation Facilities and Open Space.** Development impact fees are fees the City charges developers in connection with approval of a development project for the purpose of defraying all or a portion of new public facility needs related to the development. These fees can be used to acquire and develop new recreational facilities and open spaces and for capital improvements to existing open spaces. Development impact fees that provide revenue for recreation and open space are in effect in a number of City neighborhoods, but not citywide. The City has developed an initial nexus study to demonstrate the impact of new development on open space.
- **Park Improvement Districts.** An innovative approach, similar to the Community Benefits District (CBD) used in many of San Francisco's neighborhood commercial districts, is a Park Improvement District. A Park Improvement District is a public-private partnership in which businesses and/or residents in a defined area elect to pay an additional tax in order to fund improvements and maintenance for the park. The parks are maintained by the City, but this additional funding provides supplemental funds to cover needed improvements and maintenance overseen by a neighborhood-elected board of directors. This concept could be piloted to determine its effectiveness.
- **Voluntary Contributions.** Many cities provide the option to voluntarily contribute a small amount of money specifically earmarked for open space. Such a contribution option would be added to residents' utility bills to fund improvements to open space.
- **Tax Revenue Options.** In some cities, decision makers have pursued the option of an additional tax contribution earmarked for open space, usually via an additional property tax on residential and/or commercial owners. The creation of a new tax requires a two-thirds majority vote by the electorate and provides a consistent source of funding. The money can be used for acquisition, maintenance, or capital improvements.
- **Community Facilities Districts.** In Mission Bay and Hunters Point Shipyard, Community Facilities Districts (or CFD), or special tax districts, will be used to help fund the on-going maintenance of the new open space facilities. The South Beach area also has a CFD that helps fund the maintenance of some small public plazas.

RPD and other public agencies responsible for recreation and open space in the City should continue analyzing how such funding options could be applied in San Francisco for recreation and open space maintenance, operations, renovation and acquisitions.

2014 Recreation & Open Space Element adopted by the Board of Supervisors Ordinance 0153-14 on 07/15/2014.

Amendments by Board of Supervisors Ordinance 0023-15 adopted on 02/10/2015.

Amendments by Board of Supervisors Ordinance 0020-17 adopted on 01/31/2017.

Amendments by Board of Supervisors Ordinance 0019-17 adopted on 01/31/2017.

Amendments by Board of Supervisors Ordinance 0274-18 adopted on 11/13/2018.

Amendments by Board of Supervisors Ordinance 0064-20 adopted on 04/21/2020.

Amendments by Board of Supervisors Ordinance 0143-20 adopted on 08/18/2020.

Amendments by Board of Supervisors Ordinance 0155-23 adopted on 07/25/2023.

EXHIBIT 24

Safety & Resilience Element

NOTE: This **2022 Safety and Resilience Element** was adopted by the San Francisco Board of Supervisors on December 13, 2022. This Element update replaces the previous 2012 Community Safety Element.

INTRODUCTION

Purpose

The purpose of the Safety & Resilience Element is to facilitate safety from hazards, achieve racial and social equity, and strengthen community resilience. It provides a comprehensive set of policies for minimizing San Francisco's contribution to climate change (or "the climate crisis") and ensuring local resilience to multiple hazards. The policies here seek to protect the people and assets in San Francisco from loss of life, injury, property loss, environmental damage, and social and economic disruption from natural or technological disasters. The City has a profound obligation to protect communities and areas that face higher vulnerability to disasters.

The Safety & Resilience Element focuses on all hazards: natural and human-made. There is a strong foundation addressing seismic hazards, as earthquakes are the greatest risk to life and property in San Francisco due to the San Andreas and Hayward Faults. There are numerous other hazards prone to occur in San Francisco, such as flooding and poor air quality. Additionally, there are human-made hazards that pose threats to the City's health and welfare and must be considered alongside natural hazards for mitigation, preparedness, response, and recovery, such as pandemic and release of hazardous materials. Due to the climate crisis, hazards are occurring more frequently, intensely, and simultaneously. The Safety & Resilience Element aims to address the complexity and severity of all hazards.

The Safety & Resilience Element names Environmental Justice Communities as areas in San Francisco disproportionately experiencing environmental burdens. Environmental Justice Communities, and others, tend to experience hazards more frequently and more intensely as compared to the City as a whole, and they take longer to recover. The Environmental Justice Communities Map identifies communities based on exposure to environmental pollution and other social vulnerabilities, which are often low-income communities and communities of color. Similarly, the Safety & Resilience Element names the American Indian community, the Black community, and other communities of color who are disproportionately experiencing racial and social inequities. The policies also name vulnerable communities with heightened risk and increased sensitivity to potential harms than the City average. The Safety & Resilience Element seeks to eliminate disparities and burdens related to all hazards and the climate crisis for all San Franciscans, starting with Environmental Justice Communities and other vulnerable people. When named, the Safety & Resilience Element is indicating the geographic areas (Environmental Justice Communities) and/or dispersed communities (American Indian community, the Black community, and other communities of color, and other vulnerable communities) in the City where policies should begin and target their work. In doing so, the Safety & Resilience Element offers policies to achieve racial and social equity, through actions and other systemic changes that amend past injustices and enable proactive, community-led solutions for the future.

In brief, the Safety & Resilience Element is organized into six goals to achieve racial and social equity, environmental justice, and climate resilience.

1. **All People Live in Safe & Healthy Communities:** To ensure equitable safety, San Francisco must remedy past injustices and eliminate environmental burdens for all San Franciscans, starting with those experienced by Environmental Justice Communities.
2. **Multi-Benefit Climate and Hazard Resilience:** Pursue multi-hazard risk reduction strategies and maximize community benefits along the way to becoming a net-zero emissions City by 2040.
3. **Hazard Mitigation:** The City must reduce the likelihood, scale, and severity of impacts from all disasters to the economy; the built and natural environment; and all communities, starting with reducing such impacts in Environmental Justice Communities.
4. **Emergency Preparedness:** Ensure San Francisco residents, workers, and visitors have the knowledge, capacity, and government support needed to be safe in the face of disasters.
5. **Response:** Provide San Francisco residents, workers, and visitors with the essential support and services needed immediately following a disaster for life safety and functional recovery.
6. **Recovery and Reconstruction:** Rebuild San Francisco's built, natural, and social assets and communities towards a more equitable and resilient future.

Implementation

The Safety & Resilience Element establishes policies to guide the City's actions in preparation for, response to, and recovery from a major disaster. As a policy document, the Safety & Resilience Element guides city decision making and actions, such as funding programs and regulating development. Implementation of the Safety & Resilience Element is carried out through numerous City plans and programs, as well as actions by the private sector and development.

Notably, there are multi-agency efforts to coordinate climate mitigation and adaptation and ensure San Francisco becomes more resilient to the threats of the climate crisis. Mayor London N. Breed officially launched ClimateSF in 2021, led by the Mayor's Office and the Office of Resilience and Capital Planning, Planning Department, Department of the Environment, Port of San Francisco, and the San Francisco Public Utilities Commission. ClimateSF establishes goals for collective action on climate resilience planning, policy, and guidance across the City. This coordination supports a central focus on racial and social equity, healthy communities, just transition, connection to nature, and innovation. Through ClimateSF, major components of the Safety & Resilience Element are implemented.

RELATIONSHIP TO CITY-LED ACTION PLANS AND PROGRAMS

The Safety & Resilience Element contains broader policies to reduce impacts that will need to be carried out by the City. The City maintains three principal implementation plans that provide more immediate directions, specific strategies, and measurable objectives for monitoring and evaluation: the Hazards and Climate Resilience Plan, Climate Action Plan, and Emergency Response Plan. These plans work in partnership with the Safety & Resilience Element and are incorporated by reference here. A fourth plan, a Recovery Plan, is planned to be produced by the City to facilitate healthy and equitable recovery after disaster.

- The *Hazards and Climate Resilience Plan* (HCR), led by the Office of Resilience and Capital Planning and adopted by the Board of Supervisors, is a climate adaptation plan that responds to all hazards. The HCR serves as the City's local hazard mitigation plan for disasters, adopted by the Federal Emergency Management Agency (FEMA). It is the City's blueprint to understand and prepare for the impacts of natural hazards and climate change on our people and our assets.
- The *Climate Action Plan* (CAP), released by the Mayor and Department of the Environment, was originally developed to reduce the City's greenhouse gas emissions. Achieving net-zero greenhouse gas (GHG) emissions by 2040 is still a plan driver; the plan now acknowledges the interwoven social and racial inequities of the climate crisis. Accordingly, the CAP advances measurable strategies to achieve net-zero emissions while addressing racial and social equity, public health, a just economy, and community resilience.
- The *Emergency Response Plan* (ERP), led by the Department of Emergency Management, provides an immediate action plan to coordinate response to disaster. It includes an overview of the emergency management system, detailed and restricted information for the Emergency Command Center, and a set of functional and hazard-specific details. The COVID-19 Phases I and II After Action Report outlined the strengths of the City's plans and suggested further updates to enhance the City's Emergency Response Plan. The suggested improvements include increasing community equity, improving the City's Disaster Service Worker program, and providing further clarity and streamlining to both the organization of response services and procurement of emergency supplies.
- A *Recovery Plan* is planned to be produced by the Office of Resilience and Capital Planning. The City needs an advance planning document to guide long-term recovery and reconstruction post-disaster for all hazards that the City faces. A recovery plan can support rebuilding the City in a way that is more equitable and resilient to future disaster, based on the latest citywide goals and values, community needs, and approaches for building back better.

There are many other plans and programs throughout the City that support the Safety & Resilience Element, such as the Community Action Plan for Seismic Safety, the Neighborhood Empowerment Network, the Neighborhood Emergency Response Team, and the Lifelines Council. In addition to City-led actions, the Safety & Resilience Element relies upon the private sector, community-based organizations, and a range of additional stakeholders to support full and robust implementation of these policies.

GOALS, OBJECTIVES & POLICIES

Goal 1. All People Live In Safe & Healthy Communities

All stages of hazard management—mitigation, preparedness, response, recovery and reconstruction—are too important and too big a task for City agencies to take on their own. It would also be ineffective and may cause further harm to do so in a vacuum, without the involvement of the people most affected by hazards. Residentsand community members themselves must play a central role in decision-making.

The planning process must develop an education-based involvement opportunities that supports community leadership development. Planning efforts should not only identify, but actively engage, the varied interests of the community. These processes should include holistic information around hazards and impacts; contribute to the vision for the City's future per the General Plan and community outreach and engagement; and support the achievement of racial and social equity. As possible, identify responsible agencies, institutions, and other partners responsible for implementing strategies for safety and resilience.

The City should also help to develop community skillsets pre-disaster, on both an individual and neighborhood level, to empower community members to meaningfully participate in a post-disaster reconstruction planning process, work effectively together to identify and prioritize community needs, and work collaboratively with the City to communicate these needs and ensure that they are met. Programs such as the Neighborhood Empowerment Network (NEN) help to build community capacity and develop these essential skills before disaster strikes, so that everyone can participate effectively in the reconstruction process after the disaster.

OBJECTIVE 1.1.

JUST EMPOWERMENT. SUPPORT THE GROWTH OF COMMUNITY NETWORKS TO EMPOWER ALL PEOPLE.

POLICY 1.1.1.
Engage the community in the planning process.

Knowledge about geologic risks in the Bay Area is substantial, but always evolving. The City needs to keep informed, through the professional contacts of its staff, and through State and federal agencies like CalEMA and the United States Geological Survey, about advances in the field. New information will be shared with the public and decision-makers.

Similarly, new techniques are continually developing in the seismic design of structures, and new data is emerging about the actual seismic performance of previously retrofitted buildings. The risks of damage to life and property can be reduced by these improved engineering practices. The City should continue to support the institutions, professional organizations and individuals who carry out research in structural safety. Special attention should also be paid to support and seek out research that identifies innovative and low-cost retrofit concepts. Once the City sets new acceptable safety levels, this research should support the engineering requirements to meet safety levels.

POLICY 1.1.2.
During climate mitigation activities, prioritize investment and resources in Environmental Justice Communities, especially through existing community-based efforts.

During climate mitigation activities, the goal is to support the City become a net-zero emissions City by 2040 by reducing the amount and rate of greenhouse gas emissions. For many mitigation approaches, such as utilizing low-carbon transportation modes and electrifying buildings, it takes investment and resources to make these shifts in behavior at the individual and community level. Environmental Justice Communities and other vulnerable people should benefit from targeted investment and resources to make these changes. By prioritizing investment and resources into these communities, financial responsibility for climate action is shifted away from the people most adversely impacted by the climate crises. During project design and planning, specify how the scope, outreach, implementation, and budget serves the needs of these communities to mitigate their contributions to greenhouse gas emissions. In addition to reducing the amount and rate of greenhouse gas emissions, there can be additional community benefits in public health, local businesses, and quality of life. There can be opportunities to partner with existing community-based organizations and neighborhood-level efforts to effectively reach Environmental Justice Communities and other vulnerable people.

POLICY 1.1.3.
During emergency preparedness activities, inform all individuals about the risks, vulnerabilities, and consequences of their neighborhood and communities from all hazards through culturally competent and equitable communications.

Everyone should be equipped with the public awareness of how all hazards may affect the City, the potential impact on their lives, and what to do to exercise their resilience. The City must support widespread, current, and actionable public awareness activities for robust emergency preparedness. With greater awareness, the less likelihood of loss of life and harm and the more likelihood that people are safe and able to bounce back after disaster. As hazards are felt disproportionately across the City, it is vital that this information be made in culturally competent methods and equitably distributed to communities that are hard to reach, such as linguistically isolated

communities and communities across the digital divide. As part of racial and social equity assessments and vulnerability and consequences assessments, the City can support a centralized repository of hazards information, directories to resources and training, and accessible, neighborhood-level information. The City can support conducting research and training materials, distribution across culturally competent and mass communications streams, and identify resources that can activate readily in the event of a disaster.

POLICY 1.1.4.
Establish a network of staff supporting the Equity Officer to advocate and advise on equitable response, recovery, and reconstruction activities during and after a disaster.

In the Incident Command System (ICS) of the Emergency Operations Center (EOC), there is an Equity Officer responsible for incorporating equity, inclusion, and community needs into emergency response. The Equity Officer is built into the emergency response structure that will help reach all parts of the City in the event of a disaster. Based on lessons learned from the COVID-19 After Action Report for Phase I and Phase II, there is a strong need and opportunity to establish a network of staff during emergency response that have built trust with communities and neighborhoods.

This network of staff can serve as experts of neighborhood-specific and potentially block-level conditions, liaisons to community-based organizations and other stakeholders, and trusted messengers to vulnerable people. The staff should represent and work strongly with the American Indian, Black, and other communities of color and other vulnerable people. During all EOC activations, this network would coordinate to equitably implement response, recovery, and reconstruction activities. This network may have memorandums of understanding with key agencies and community stakeholders to support their integration into emergency management best practices.

POLICY 1.1.5.
During response activities, the City should partner with non-governmental entities to respond to hazard impacts in Environmental Justice Communities.

Partnerships with non-governmental entities can be critical to respond to the widespread impacts of a disaster. In the immediate aftermath of a disaster, these partnerships will facilitate the “all hands on deck” response to prevent further loss of life and ensure the City recovers more equitably and resiliently.

By laying the groundwork necessary for strong public-private partnerships in advance—by establishing relationships with universities, corporations, and foundations—the City can put itself in a strong position to receive support outside of regional, state, and federal aid, which could be critical if disaster is widespread and government resources must be extended. The City can activate public-private partnerships and partnerships with community-based organizations as a strong tool in revitalization after a community disaster.

Relationships with corporate entities, particularly those with local ties, can lead to financial and other support in reconstruction and restoration efforts. Relationships with community-based organizations and other neighborhood-level efforts can lead to increased outreach to people who are in need of support. Their local knowledge can support distribution of resources and programs, identify neighborhood-level or block-level challenges, and serve as trusted messengers of key information.

POLICY 1.1.6.
During recovery and reconstruction activities, rebuild in ways that remedy safety and resilience injustices in Environmental Justice Communities.

The City’s response efforts can be made stronger with robust partnership with its neighborhoods. Neighborhoods can be a driving force in recovery efforts. Residents, leaders, and community members understand the lived experiences and priorities of their neighbors, and they have more personal motivation to ensure projects and programs are carried out successfully. Often a lynchpin for rebuilding, preexisting community efforts and community-based organizations can readily provide a strong local force to extend the reach of government-provided recovery and reconstruction.

In recognition of neighborhoods’ critical role in recovery, the City should work to increase the capacity of neighborhoods and neighborhood groups. The City currently maintains a number of programs, such as Neighborhood Emergency Response Team (NERT) and the Neighborhood Empowerment Network (NEN), that empower community members and community-based efforts to participate in climate mitigation and disaster recovery efforts.

These programs should be viewed as part of developing a framework of efforts to prepare communities in advance of a disaster. This framework should encompass community outreach and the provision of information; emergency preparedness exercises such as mapping and planning; and other problem-solving activities to tackle the range of potential hazards. By building the capacity of neighborhoods pre-disaster, neighborhoods are more capable to support post-disaster decision-making around issues such as land use, transportation, and economic development.

The City should expand opportunities for community members to organize at a neighborhood- or block-level to facilitate strong social ties that serve in resilient recovery and reconstruction activities. Identify incentives to convene, share resources and tools, and identify community-level leadership development.

OBJECTIVE 1.2.

CONTINUOUS ASSESSMENT AND EVOLUTION. ACT BASED UPON BEST PRACTICES AND CONTINUOUSLY IMPROVE THE KNOWLEDGE BASE TO REMEDY PAST INJUSTICES AND ELIMINATE DISPARITIES.

POLICY 1.2.1.
In all stages of safety and resilience, prioritize the needs of people most impacted by the adverse impacts of hazards.

People are the most precious part of cities. As hazards occur, the adverse impacts are felt unevenly throughout the City. There are people who have higher vulnerability to hazard consequences and take longer to recover. Due to systemic inequities, there are people who are more likely to experience a hazard first and worst, and take longer to recover, than the City overall.

In order to support Environmental Justice Communities and other vulnerable people, the City must identify and prioritize the needs of people most impacted by hazards in all safety and resilience efforts. The City must increase baseline understanding of disproportionate inequities (causes), impacts (effects), and opportunities to increase safety and resilience (solutions). The City must continuously update this understanding by identifying critical needs and infrastructure, conducting racial and social equity assessments, conducting outreach and engagement activities, and incorporating racial and social equity indicators into the evaluation and monitoring of programs.

POLICY 1.2.2.
Use the latest assessment tools provided by the Office of Racial Equity and Department Racial & Social Equity Action Plans to center racial and social equity into the planning, evaluation, and monitoring of programs.

In City efforts for safety and resilience, racial and social equity must be incorporated into the planning, evaluation, and monitoring of all programs. For applicable programs, perform racial and social equity assessments and the latest tools provided by the respective agency's Racial & Social Equity Action Plan and the Office of Racial Equity. These tools provide high-level guidance to understanding and centering racial and social equity into projects and programs. The tools require consideration at each step of the decision-making process, as to who would benefit or be harmed by a certain action, and by iteratively considering these questions to generate better results.

POLICY 1.2.3.
Prioritize documentation of historic, archaeological, and intangible cultural resources in the most vulnerable areas to the climate crisis, starting in Environmental Justice Communities.

San Francisco's historic and cultural resources are critical to the City's identity. They contribute to the City's unique character, support heritage tourism and economic development, and hold stories of the diverse communities who have called San Francisco their home. The City must continuously understand and preserve these resources and offer reasonable protection from current and future hazards. The City should prioritize documentation of historic, archaeological, and intangible cultural resources in areas most vulnerable to the climate crisis, such as areas within the Sea Level Rise Vulnerability Zone, as these resources may be experience irreparable damage or be completely lost.

Efforts are underway to document, preserve, and protect these assets, including resources that may become inundated by sea level rise or may collapse from an earthquake. However, the timing, severity, and impact of hazards such as earthquakes, floods, and fires are not fully understood. Hazards could severely damage or completely destroy buildings, building features, or artifacts within buildings.

Having a comprehensive cultural resource survey is critical for both hazard risk assessment and post-disaster recovery. The San Francisco Citywide Cultural Resources Survey identifies important individual historic or cultural resources and potential districts throughout the City. Additionally, the City can employ tools such as photographs, architectural drawings, oral histories with community knowledge and culture bearers, 3D laser surveys, and/or digital technology to archive and research these resources. The City can also explore the latest approaches to documenting these resources, as more is learned about preservation and adaptation from hazards such as poor and hazardous air quality and extreme storms.

POLICY 1.2.4.
Prioritize funding for infrastructure maintenance and improvements in Environmental Justice Communities.

Environmental Justice Communities and other vulnerable people often rely more heavily on critical pieces of City infrastructure than communities with more resources, higher quality options, and privilege. Infrastructure provides public services such as transportation, water, energy, and internet. These infrastructure assets and systems are essential for people living, working, and playing in the City. It is important to fund the operation, maintenance, and improvements of such infrastructure and prioritize the needs of the communities who are more reliant on their services.

Goal 2. Multi-Benefit Climate and Hazard Resilience

Pursue multi-hazard risk reduction strategies and maximize community benefits along the way to becoming a net-zero emissions City by 2040.

OBJECTIVE 2.1.

CLIMATE RESILIENCE. **PURSUE SYNERGISTIC EFFORTS THAT BOTH ELIMINATE GREENHOUSE GASES (CLIMATE MITIGATION) AND PROTECT PEOPLE, THE BUILT ENVIRONMENT, AND NATURE FROM THE UNAVOIDABLE IMPACTS OF THE CLIMATE CRISIS (CLIMATE ADAPTATION).**

POLICY 2.1.1.
Coordinate the regular update of implementing documents of this General Plan including: the Hazards and Climate Resilience Plan (HCR) and the Climate Action Plan (CAP), both incorporated by reference here, as well as the Emergency Response Plan (ERP) and the Recovery Plan (pending).

The Hazards and Climate Resilience Plan (HCR), incorporated by reference here, serves as the City's local hazard mitigation plan to the Federal Emergency Management Agency (FEMA). It addresses all hazards the City is at risk to and strategies to mitigate from harm. It serves as a tracking and monitoring tool, with annual reporting to FEMA. The Climate Action Plan (CAP), incorporated by reference here, guides how the City can reduce greenhouse gas emissions to net-zero by 2040, building on the City's climate and sustainability framework, "0-80-100-Roots." This framework aims for zero waste, 80% of trips taken by low-carbon transportation modes, 100% renewable energy, and carbon sequestration. The Emergency Response Plan (ERP) provides an immediate action plan to coordinate response to disaster. It includes an overview of the emergency management system, detailed and restricted information for the Emergency Command Center, and a set of functional and hazard-specific details.

The Recovery Plan is planned to be produced by the City. The Recovery Plan can serve as the advance planning document to guide long-term recovery and reconstruction post-disaster for all hazards that the City faces.

These documents should be coordinated and be regularly updated to ensure the City is best positioned to equitably protect people from all hazards and the climate crisis.

POLICY 2.1.2.
Direct City actions to reduce local contributions towards the climate crisis by mitigating greenhouse gasses and by increasing carbon sequestration.

Globally, scientific consensus on the threats of climate change and the current climate crisis has been widely agreed upon for many years. The climate crisis increases the frequency of natural disasters and threatens life and wellbeing, the economy, and more. In 2019, the City declared a climate emergency and strengthened plans for net-zero greenhouse gas emissions.

According to the 2022 Intergovernmental Panel on Climate Change Sixth Assessment Report, human-induced global heating is causing dangerous and widespread disruption in nature and affecting the lives of billions of people around the world, despite efforts to reduce the risks. Multiple climate hazards will occur simultaneously, and multiple climatic and non-climatic risks will interact, resulting in compounding the overall risks cascading across sectors and regions. For example, increased heatwaves, droughts, and floods are already exceeding the tolerance thresholds of plants and animals, driving mass mortalities in species such as trees and corals. These weather extremes are occurring simultaneously, causing cascading impacts that are increasingly difficult to manage. They have exposed millions of people to acute food and water insecurity, especially in Africa, Asia, Central and South America, on Small Islands, and in the Arctic.

To avoid mounting loss of life, biodiversity, and infrastructure, ambitious and accelerated climate adaptation is required, at the same time as making rapid, deep cuts in greenhouse gas emissions. So far, adaptation progress is uneven and there are increasing gaps between action taken and what is needed to deal with the increasing risks, the new report finds. These gaps are largest among lower-income populations.

The United Nations Intergovernmental Panel on Climate Change reported a dire warning about the consequences of inaction on the climate crisis, that due to human-induced global heating, the world "faces unavoidable multiple climate hazards" over the next two decades with global warming of 2.7°F (1.5°C). San Francisco has committed to local action to limit further warming through a goal of net-zero sector-based emissions by 2040, a 90% reduction from 1990 levels, and an interim target of cutting sector-based emissions 61% below 1990 levels by 2030.

The Climate Action Plan describes the strategies necessary to reach emissions reductions goals by sector:

- **Zero Waste:** By 2030, reduce solid waste generation by at least 15% below 2015 levels, and reduce solid waste disposed of by incineration or deposit in landfill by at least 50% below 2015 levels.
- **Transportation:** By 2030, increase low-carbon trips to at least 80% of all trips measured, and increase electrification of vehicles to at least 25% of all private vehicles registered. By 2040, in-crease electrification of vehicles to 100% of all private vehicles registered.
- **Energy:** By 2025, supply 100% renewable electricity, and by 2040, supply 100% renewable energy.
- **Housing:** Build at least 5,000 new housing units per year with maximum affordability, including not less than 30% affordable units, with an emphasis on retaining and rehabilitating existing housing.
- **Buildings:** By 2021, require zero onsite fossil fuel emissions from all new buildings, and by 2035, require zero onsite fossil fuel emissions from all large existing commercial buildings.
- **Roots:** Sequester carbon through ecosystem restoration, including increased urban tree canopy, green infrastructure, and compost application.

POLICY 2.1.3.
The City shall create and implement a Recovery Plan to facilitate robust social, economic, and environmental recovery post-disaster.

The experiences of New Orleans, Louisiana and the Gulf after Hurricane Katrina in 2005 illustrate the need for local jurisdictions to perform advance planning. Before a disaster strikes, there may be more resources within the community and within local government available. While the specifics of recovery would vary depending on hazards and impacts, certain aspects of recovery can be facilitated by advance planning.

The Association for Bay Area Governments produced a model recovery plan for the City of Oakland. A local recovery plan for the City should be centered in racial and social equity and should include, but not be limited to, the following topics discussed in Oakland's plan: financing recovery issues; recovery of government facilities and services; land use change; and the long-term recovery of housing, business, health care, schools, utilities, and transportation.

POLICY 2.1.4.
Ensure that City projects and private developments provide multi-benefit solutions that mitigate hazard risk and contribute to a zero-emission future.

With limited resources and capacity, it becomes more important that large development projects provide as much comprehensive benefit to the community as possible. The climate crisis is worsening conditions on the ground, and hazards are occurring more frequently, intensely, and simultaneously. A development project must consider a broad set of hazards and prepare holistically for the project's climate resilience, while actively reducing greenhouse gas emissions to contribute to Climate Action Plan targets and goals. Options for projects to reduce emissions include carbon sequestration through urban greening and native planting, building electrification, and connection to renewable energy.

OBJECTIVE 2.2.

MULTI-HAZARD RESILIENCE AND CO-BENEFITS. IN ADAPTATION AND MITIGATION INVESTMENTS TO MULTIPLE AND SIMULTANEOUS HAZARDS, MAXIMIZE RISK REDUCTION STRATEGIES AND THE RELATED COMMUNITY BENEFITS.

POLICY 2.2.1.
Include multi-hazard risk assessments in private development, capital projects, and the City's climate resilience programs.

With limited resources, and the worsening effects of the climate crisis, the City must extend the reach of every dollar spent on climate adaptation. The City must evolve the approach to climate adaptation and address how hazards are occurring more frequently, intensely, and simultaneously. In the project design and planning, incorporate how projects can deliver on a broad set of values and goals of the City.

With multi-hazard risk assessments, programs and projects need to consider the near- and long-term risks of all hazards. ClimateSF, the City's coordinated climate resilience interagency group, can support connecting climate resilience to intersecting issues across housing, health, transportation, and other public benefits. The General Plan can also determine opportunities for projects to support public benefits.

In private development and capital projects, development plans should ensure new development is designed and constructed to ensure functional recovery—beyond life safety expectations—in the event of all hazards. For known hazard risks, such as liquefaction on landfill areas, development should seek a performance equivalent to that of similar structures built on firm ground. For development within the Air Pollution Exposure Zone (APEZ), the plan should provide as healthy indoor air as projects that are outside the APEZ.

The project teams should conduct outreach and engagement to assess and understand the complete set of hazards and associated vulnerabilities in a project geography, especially as they relate to environmental justice. The assessments should support expanding the impact of resources directed at a singular hazard to develop multi-benefit strategies and solutions for projects and communities. Work with stakeholders, community members, and the private sector to assess and understand the complete set of hazards and associated vulnerabilities in a major development's surrounding area.

POLICY 2.2.2.
Examine the risk of flooding and evaluate adaptation actions that will protect people and the built and natural environments to help inform land use, capital investment, and other policies.

Despite best efforts to reduce greenhouse gas emissions and mitigate against the climate crisis, current CO2 levels are already causing changes in weather patterns, more extreme weather events, and an increase in sea levels. Even if greenhouse gas emissions were halted today, the long half-life of many greenhouse gasses and the change in global ocean temperatures mean that we will be experiencing consequences of increased CO2 in the atmosphere for centuries.

There is potential for permanently inundated land to greatly increase from the climate risk and associated flooding from storm surges, increased participation, sea level rise, and groundwater rise. With worsening conditions and without adaptation action, flood hazards will expand and alter the current 100-year floodplain and Sea Level Rise Vulnerability Zone, making many more people and structures vulnerable than currently. The City should continue to review scientific emissions and sea level rise projections to become fully aware of risks to health, safety, and reliable functioning of City infrastructure systems due to flooding, as well as support the institutions, professional organizations and individuals who carry out climate research. In certain areas of the City, such as Environmental Justice Communities, neighborhoods may be affected by the intersection of increased flooding and increased exposure to toxic substances. There is ongoing research to explore how flooding, especially groundwater rise, affects the mobilization of toxic substances from contaminated soils, and the related public and environmental health impacts.

The risk of flooding needs to be taken into account when making land use decisions, bearing in mind that perceptions of acceptable risk may change in the future. These risks should also be incorporated into appropriate City plans and policies, such as the Planning and Zoning Codes, and capital planning. The Planning Commission, Board of Supervisors, and other City decision-making bodies should be fully apprised of these risks as they conduct reviews.

The City should review best practices, case studies, and current technology to mitigate these potentially harmful effects and adapt to future conditions that will reduce loss of life, build structures, and infrastructure. Adaptation actions should be considered for feasibility, and they should be incorporated into seismic upgrades and routine maintenance if possible. The adaptation strategies can include, but are not limited to: building elevation, floodproofing, green infrastructure and ecological/habitat features, hard engineering, zoning/code changes, and relocation of sensitive assets.

POLICY 2.2.3.
Seek sufficient funding to address climate hazards through all phases of mitigation, preparedness, response, recovery, and reconstruction.

Each phase of disaster planning (mitigation, preparedness, response, recovery, and reconstruction) requires their own planning, design and engineering, construction, maintenance and operations, and ongoing monitoring. Providing sufficient staff and budget resources for interagency coordination is no small feat. Further, equitable distribution of funding—considering historic disinvestment in certain communities—requires heightened consciousness to resource allocation and providing opportunities for community input and decision making.

The 10-Year Capital Plan provides an approach for long-term efforts to be balanced with immediate needs. The Capital Plan should prioritize funding for 1) Environmental Justice Communities for the specific threats they face being compounded by systemic inequities; 2) specific hazard threats poised in vulnerable areas; 3) areas and functions that serve the most people 4) projects with matching state and federal funding; and 5) investments that support achieving a state of good repair of existing infrastructure and assets. The traditional cost-benefit models to determine funding needs have been built around tax and economic revenue, which continues cycles of disinvestment in historically disadvantaged and disinvested areas. Instead, holistic cost-benefit models should consider social, economic, and environmental costs and benefits.

POLICY 2.2.4.
Adapt the City's bay and ocean shorelines to current and future climate flood hazards, including coastal flooding, sea level rise, groundwater rise, and extreme storms.

The City faces threats from the slow-moving disasters of sea level rise and flood hazards. Surrounded on three sides by water, the City must adapt the bay and ocean shorelines to these hazards to prevent inundation; spread of environmental pollutants; disrupted services of key assets such as utilities and underground rail; assets and property damage; and loss of open space, neighborhoods, and communities.

The City should develop adaptation strategies to address current and future hazards for the bay and ocean shorelines. Building off of the Sea Level Rise Action Plan, the City should develop a citywide adaptation plan that addresses the interaction between sea level rise, coastal and inland flood hazards, and extreme storms. The adaptation plan should include a model of these joint hazards and have neighborhood-specific analysis, especially in low-lying areas in the Sea Level Rise Vulnerability Zone, like Mission Creek, Islais Creek, and Yosemite Slough.

The adaptation strategies may use a combination of measures, including flood defenses, accommodation strategies such as floodproofing, elevating sensitive equipment, operational policies, and removal or relocation of sensitive assets. Flood defense measures should incorporate natural or ecological features as much as possible. Adaptation strategies should be reviewed and amended over time as conditions and flood projections evolve. They should build in redundancy to provide extra protection should flood defense structures fail.

OBJECTIVE 2.3.

NATURE-BASED SOLUTIONS. ENHANCE NATURE, BIODIVERSITY, AND PUBLIC OPEN SPACE THROUGH CLIMATE RESILIENCE STRATEGIES THAT MIMIC OR RESTORE ECOLOGICAL SYSTEMS AND FUNCTION.

POLICY 2.3.1.
Maximize the preservation and maintenance of carbon sinks and landscape approaches that advance the rate of carbon sequestration.

An essential element of becoming a net-zero emissions City is pursuing carbon sequestration, the capture and storage of greenhouse gas emissions. Trees, other flora, especially native plants, should be preserved, maintained, and increased as carbon sinks in the City. Native plants should be prioritized in pursuit of the City's carbon sequestration, water management, and biodiversity goals.

There are many City agencies involved in this work, such as Public Works, Recreation and Parks, Department of the Environment, the Public Utilities Commission, and the Port. Public Works has ongoing efforts to plant trees throughout the City that are sequestering carbon through tree photosynthesis. Recreation and Parks offers plant palettes to maximize climate resilience in park landscapes and engages in climate resilient land management by repurposing green waste as mulch and chip cover.

POLICY 2.3.2.
Prioritize nature-based solutions that restore ecosystem function and maximize ecological benefits to plants, animals, and people.

For climate resilience, nature-based solutions offer approaches to restore ecosystem function and maximize ecological benefits. In capital, development, and other projects, incorporate greening and plantings that are climate appropriate, non-invasive, and native species into the building and surrounding infrastructure. Where possible, design solutions that make ecosystem function visible so that relationships between people and nature can be understood, cultivated, and appreciated. For open space projects, it is important to coordinate with the American Indian and Alaska Native community to preserve existing culturally significant areas and ensure access to culturally significant practices, such as harvesting food from the area.

POLICY 2.3.3.
Prioritize nature-based solutions as flood adaptation strategies, to enhance shoreline biodiversity and ecological function, manage stormwater, and protect against sea level rise and coastal flooding.

Against the present and increasing threats of sea level rise and flood hazards, prioritize the use of nature-based solutions and green infrastructure to increase climate resilience. The unique characteristics of these water-related hazards present the opportunities for both site-specific and district-scale solutions to manage stormwater and protect against sea level rise and coastal flooding. For greater climate resilience, prioritize nature-based solutions that enhance ecological function, preserve the natural aspects of the shoreline, and reconnect people to these systems.

The nature-based solutions, such as wetlands, should be adapted to the condition of the shoreline. Where possible, consider soft landscape transitions to the bay, ocean, and creeks that maintain public access, especially visual access, to these water features. In areas with limited space for soft landscape transitions, consider vertical strategies such as living or ecological seawalls.

POLICY 2.3.4.
Reduce the threat of wildfire to San Francisco residents and infrastructure.

Though the probability of wildfires within San Francisco is low, it remains high for areas outside the county where City-owned infrastructure is located. Significant portions of the Hetch Hetchy Regional Water System in San Mateo, Alameda, Santa Clara, and Tuolumne Counties are located in very high fire hazard lands. Coordinate with Yosemite National Park, Stanislaus National Forest, CAL FIRE, and adjacent communities on risk reduction, and properly care for City-owned land and facilities to reduce wildfire risk.

A small portion of the Crocker Amazon neighborhood has been designated as a high fire hazard area by the State. There are potable water mains and hydrants along the perimeter of John McLaren Park, as well as a 2015 era 75,000 gallon Emergency Firefighting System cistern at the corner of Moscow and Geneva.

POLICY 2.3.5.
Educate and empower stakeholders and communities to know, grow, and steward local native plants and wildlife on private and public property.

Property owners and other stakeholders can take the lead in nature-based solutions and urban greening with more support from the City. The City should develop a centralized repository of information and training to increase public awareness of climate appropriate, non-invasive, and native plants and wildlife on private and public property. For public property and open space, it is important to ensure the American Indian and Alaska Native community have access to conduct cultural practices, such as harvesting.

Goal 3. Hazard Mitigation

The City must reduce the likelihood, scale, and severity of impacts from all disasters to the economy; the built and natural environment; and all communities, starting with reducing such impacts in Environmental Justice Communities.

The climate crisis already adversely impacts San Francisco and influences how people live, work, and play. The climate crisis will accelerate impacts for decades to come. In San Francisco, there are 13 main hazards that have the most potential impact to the City. Of these hazards, seismic hazards pose the greatest direct risk to human life and safety via the failure of buildings and other structures during shaking or ground failure. In addition to tragedy, there will be substantial economic losses and severe social, cultural, and economic dislocations. These same consequences are threats across all other hazards, including slow-moving hazards such as sea level rise and emerging hazards such as poor and hazardous air quality. As the climate crisis worsens, hazards are occurring more frequently, intensely, and simultaneously—with compounding impacts. It is critical to ensure robust levels of safety and resilience relative to all hazards, by learning more about the risks posed to vulnerable communities and developing plans to reduce those risks; and by considering hazards in all land use, infrastructure, and capital planning.

OBJECTIVE 3.1.

EXISTING BUILDINGS. **ENSURE RETROFITS AND RENOVATIONS TO EXISTING STRUCTURES INCREASE BUILDING LONGEVITY AND MEET CURRENT BEST PRACTICES TO PROTECT OCCUPANTS AND STRUCTURES.**

Risk Reduction

POLICY 3.1.1.
Reduce the risks presented by City-owned structures and privately-owned buildings and provide assistance to vulnerable communities with limited adaptive capacity to reduce those risks.

Hazards such as earthquakes can cause damage to buildings that render them unsafe to occupy or cause them to collapse. Sea level rise and flood hazards can cause permanent inundation. Poor and hazardous air quality can exacerbate indoor and outdoor air pollution. The City needs a comprehensive approach to address the resilience of all at-risk structures and buildings where people live, gather, and work.

While the City has numerous programs in place to bring public buildings into seismic compliance, addressing privately-owned buildings is a political, legislative, and financial challenge. The Community Action Plan for Seismic Safety (CAPSS) and Earthquake Safety Implementation Program (ESIP) is a 30-year implementation plan to support the City's resilience in the face of probable earthquakes along the San Andreas and Hayward Faults. These programs address seismic risk reduction for many building uses, such as residential and commercial.

The City should create additional action plans and implementation plans to address the range of hazards that are occurring more frequently, intensely, and simultaneously. These actions should address non-ductile concrete frame buildings, old construction in need of retrofits, pre-cast concrete tilt-up buildings, and housing units that serve low- and very low-income residents.

POLICY 3.1.2.
Reduce the risk of all hazards, especially geological, weather-related, and fire-related hazards, posed by concrete buildings and older, small, wood-frame residential buildings.

The City's current programs for unreinforced masonry buildings and soft-story wood-frame buildings apply to larger scale and commercial structures. Individual homes or buildings under 5 units are not required to be seismically strengthened. Some individual homeowners make upgrades to their buildings voluntarily, but that number could be substantially increased with more programs designed for safety improvements by homeowners. "Soft-story" buildings, in which the ground story has much less rigidity and strength than the rest of the structure, pose significant hazards. Often, the soft story is the result of multiple garage door openings or ground floor parking. Soft-story failure was responsible for nearly half of all homes that became uninhabitable in the 1989 Loma Prieta Earthquake. Photographs of the Marina District became iconic symbols of the compounded seismic risks from earthquake and liquefaction for housing built on top of landfill, loose, or saturated soils. The City estimates 43% to 85% of un-retrofitted soft-story buildings will be uninhabitable following a major earthquake.

The City should adopt incentives and regulations to encourage relatively simple retrofit approaches that increase the structural stability and safety of smaller wood-frame residential buildings, as well as consider a phased mandate for retrofits over a 30-year timeframe as directed by the Community Action Plan for Seismic Safety and the Earthquake Safety Implementation Plan. The City's Mandatory Soft Story Retrofit Ordinance established an inventory of buildings with five or more units and required their owners to evaluate and retrofit at-risk buildings. This program has been successful, with an 85% compliance rate for buildings that fall within the program's purview. Next, the City should enact a concrete building retrofit program, in accordance with the Earthquake Safety Implementation Plan. Older non-ductile concrete frame buildings and rigid wall flexible diaphragm buildings, aka "tilt-ups" with high-level risk should be addressed.

POLICY 3.1.3.
Abate structural and non-structural hazards in City-owned properties.

Both technical and financial resources are needed to repair and retrofit City-owned properties. The City shall use its capabilities to assess hazards and to create and implement bond and other funding opportunities to carry out retrofit projects. Through bond financing, numerous City buildings have already been structurally upgraded.

There still remain important City-owned buildings that present seismic risks, as identified in the 10-Year Capital Plan, Hazards and Climate Resilience Plan, and other studies and plans.

The City's Capital Improvement Advisory Committee (CIAC) acts as the policy body advising the City's capital-planning process. Recognizing that certain kinds of public buildings are critical to the community's functioning, the CIAC should work to establish a clear prioritization for these projects, develop an implementation program for their upgrade including funding sources (such as bond measures), and establish a timeline for the improvements.

POLICY 3.1.4.
Encourage property owners to evaluate their risks to all hazards.

Many property owners hold a misguided perception that federal and state sources will provide financial assistance after a disaster. But, federal aid provided in a declared disaster does not protect individual homeowners. When a major disaster hits an entire area, local governments are often strapped with simply providing funds necessary to repair major public infrastructure and buildings.

The City can encourage residents and businesses to evaluate their own risk and the repercussions they might face from reasonably foreseeable hazards. Whether through a formal risk assessment through a qualified consultant or simply through a personal assessment that evaluates the potential for damage, property owners should consider the full range of opportunities for decreasing their risk. This risk should be clearly communicated to tenants, upon sale of buildings, and be made part of public City records.

POLICY 3.1.5.
Support the ability to shelter in place and provide help for vulnerable communities with limited adaptive capacity.

The term "shelter in place" refers to people's ability to remain in their home or another place of shelter and stay there until instructed otherwise, due to ongoing hazards outside of the home that threaten health and life safety.

Seismically, for a building to have shelter-in-place capacity, it must be strong enough to withstand a major earthquake without substantial structural or non-structural damage. This is a different standard than that employed by the Building Code, which requires buildings to meet life-safety standards. In some cases, a building may not collapse, but might be deemed unusable because of the level of damage. Shelter-in-place housing standards would mean that a building is safe enough to live in during the months after an earthquake, but it may not be fully functional as a hospital or other public facilities would need to be.

Supporting shelter-in-place capacity can help minimize the need for emergency housing and services post-disaster, keep current residents in their homes, and minimize disruption of society and the economy. This could greatly minimize recovery costs and allow communities to remain intact.

Historic Preservation

POLICY 3.1.6.
Maintain a data clearinghouse of existing housing and building stock that inventories their features' architectural and cultural character, vulnerability and resilience to all hazards, and other resilience features.

In order to make holistically-informed approaches and strategies to improve the safety and resilience of the City's housing and building stock, the City needs a complex set of readily available, current, and high-quality data. The data on housing and building stock, including its location, specifications, conditions, and use, is managed by a number of City agencies and private sector actors, making it difficult to conduct research, assess the vulnerability and consequences to hazards, and identify opportunities to increase safety and resilience.

The City should develop and maintain a data clearinghouse that supports existing and projected housing and their interaction with all hazards. This clearinghouse can demarcate types of structures and buildings with known vulnerability to hazards, such as concrete buildings and wood-frame buildings, and denote opportunities for improving resilience, such as removing gas lines. The clearinghouse can utilize property information from past and current building surveying efforts, including the San Francisco Citywide Cultural Resources Survey (SF Survey), as well as existing information found on the Planning Department's Property Information Map.

POLICY 3.1.7.
Starting with properties associated with Environmental Justice Communities, expand life safety and functional recovery considerations to increase the likelihood that historically valuable architecture and structures will survive all hazards, and encourage the adaptive reuse of historic structures.

Older buildings are among those most vulnerable to destruction or heavy damage from a large earthquake. They are less likely to have more recent engineering features or be built to current codes. This makes these buildings less resilient to ground shaking, and many of them are located in areas near the bay and the historic bay inlets with the City's softest soil conditions. These buildings may also have ornate façade structures that, in the event of an earthquake, can detach and threaten people on the street.

A major earthquake could result in an irreplaceable loss of the historic built fabric and social communities of San Francisco. Part of the City most vulnerable to fire also contains many historic structures. North Waterfront, South Beach, Mission Bay, Potrero Hill, Hunters Point, Civic Center, Downtown, Tenderloin, and Hayes Valley neighborhoods have moderate risk for large urban fires. Additionally, San Francisco's waterfront is lined with historic structures, including historic pier structures, vulnerable to risks posed by current flooding and accelerating sea level rise. Furthermore, stormwater flooding may pose risks to properties more inland in neighborhoods including the Mission, South of Market, and Bayview. The City should mitigate these hazards in a way that preserves the historic structures and fabric of the different neighborhoods.

When new programs are being considered to abate hazards posed by existing buildings and structures, the likely impacts of those programs on historic buildings must also be thoroughly investigated. The resulting programs should encourage the retrofit of older buildings in ways that preserve their architectural and historical character while increasing life safety and functional recovery. When development concessions, transfers of development rights, or City funds are granted to promote preservation of historic buildings, there should be reasonable measures taken to increase the building's resiliency to environmental hazards.

POLICY 3.1.8.
Safeguard diverse elements of the City's living heritage through supporting the protection and/or adaptation of intangible elements and their ties to the City's natural and built environments, which collectively contribute to San Francisco's cultural identity.

In the event of a hazard, there may be damage to the people, resources, and opportunities that contribute to San Francisco's living heritage. These diverse and intangible elements of living heritage, such as performing arts, traditional crafts, foodways, rituals, and festivals, must be protected and adapted against the threats of all hazards.

After a hazard, the unique materials and supplies necessary for living heritage may be destroyed or heavily damaged beyond function. The opportunities and space to come together and practice rituals and festivals may be lost or deemed unsafe. The people and communities who own, practice, and appreciate acts of living heritage may be lost or displaced.

The City should identify the elements that contribute to San Francisco's cultural identity, as that identity has been and may be evolving over time, and work to safeguard these elements from the threats of all hazards.

Resilient Retrofits

POLICY 3.1.9.
Reduce hazards from gas-fired appliances and gas lines, removing gas lines when possible, focusing on communities with concentrations of older housing stock.

In support of the City's goals of becoming a net-zero emissions City by 2040, the City is minimizing reliance on gas and instead electrifying the future. For the remaining gas lines, the City must protect people and assets from seismic, combustion, and related hazards.

A large earthquake is likely to result in fires at a time when the water systems may be disrupted and fire-fighting personnel may be overtaxed. One of the common sources of ignition will be gas leaks from appliances. As part of removing gas lines, support the infrastructure for building electrification. In existing buildings, the San Francisco Lifelines Council recommends the Department of Building Inspection to require electrification with gas shut-off valves as an interim measure to full building electrification.

POLICY 3.1.10.
During building retrofits, follow a comprehensive retrofit strategy to provide support to vulnerable communities, reduce greenhouse gas emissions, and reduce the risk of property loss and damage during wildfires, flooding, and seismic hazards.

During building retrofits, there is opportunity to address a broad range of hazards at once. In addition to improving building resilience, there are improved protections for human safety and prevention of damage and loss of life. The retrofit strategy should address the main hazards the area is susceptible to, including seismic hazards, sea level rise and flooding, urban fire, and poor and hazardous air quality. Building retrofits, which include weatherization and electrification, are needed to meet San Francisco's goal of net-zero greenhouse gas emissions by 2040.

POLICY 3.1.11.
For existing housing and building stock, provide training, guidance, and assistance to build resilience against extreme heat, poor and hazardous air quality, and flooding, especially in Environmental Justice Communities and other vulnerable people.

There is a set of emerging hazards occurring more frequently and severely in the City, exacerbated by the climate crisis. These hazards, such as extreme heat, poor and hazardous air quality, and sea level rise and flooding, are challenging existing approaches to make existing housing and building stock resilient to hazards. As compared to new and projected housing units, the existing housing and building stock—especially older stock—often serve as the City's valuable resource of affordable housing.

For housing security and housing that is safe, healthy, and affordable to people, the City should provide training, guidance, and assistance to weatherize and retrofit. For example, the City can address temperature control, indoor air quality, and elevating property. These resources should be targeted to Environmental Justice Communities and other vulnerable people.

POLICY 3.1.12.
Provide guidance and assistance to residents about the risks associated with their home and their options to improve safety as renters.

San Francisco residents should be informed about the hazard risk profile of their homes and neighborhoods. For existing buildings and new construction, property owners and residents should be notified and informed. The City should pursue policies around mandatory reporting around seismic risk, such as during the time of sale or as permanent notice in building entryways. The City should pair notification with opportunities to learn more, such as pointing to an online directory of hazard and neighborhood profile information and opportunities to increase resilience of housing units.

OBJECTIVE 3.2.

NEW BUILDINGS. **MAXIMIZE THE SAFETY, ENVIRONMENTAL PERFORMANCE, AND CLIMATE ADAPTABILITY OF ALL NEW DEVELOPMENT.**

Hazard Information in Decision Making

POLICY 3.2.1.
Continue to support and monitor research about the nature of all hazards in the Bay Area, including prediction and warning systems, community vulnerability and consequences assessments, and improvements to building performance

and resilience.

Knowledge about hazard risks in the Bay Area is substantial, but always evolving. The City needs to stay informed, through City staff, state and federal agencies like CalOES and the United States Geological Survey, and other professional contacts about advances in the field. New information will be shared with the public and decision makers.

Similarly, new techniques are continually developing in the structural design of structures, and new data is emerging about the actual functional performance of previously retrofitted buildings. For example, the risks of damage to life and property from seismic hazards can be reduced by improved engineering practices. The City should continue to support the institutions, professional organizations, and individuals who carry out research in structural safety. Special attention should be paid to support and seek out research that identifies innovative and low-cost retrofit concepts. Once the City sets new acceptable safety levels, this research should support the engineering requirements to meet safety levels. Similarly, new techniques are continually developing to protect building occupants from poor and hazardous air quality, extreme storms and flooding, and pandemic.

POLICY 3.2.2.
Research and maintain information about all hazards, including adverse impacts on vulnerable communities.

The field of disaster research is growing in both scope and recognition. In recent decades, the September 11 attacks in 2001, the Indian Ocean earthquake and tsunami in 2004, Hurricane Katrina in 2005, the Haiti earthquake in 2010, and the COVID-19 pandemic starting in 2019 are major examples. While research into disasters focused primarily on natural disasters through environmental management, newer research strains extend into terrorism and cyber failures, biological and chemical emergencies, and other community-wide crises. They encompass research components such as organizational response to disasters and the social ramifications of hazards, disasters, and large-scale terrorist attacks.

In addition to the science and management of all hazards, the field is increasingly aware of the disproportionate impact of disaster among different groups of people and the need to prioritize attention to the people most vulnerable to risks and consequences. As hazards occur more frequently, intensely, and simultaneously, it is often Environmental Justice Communities and other vulnerable people who experience the impacts of disaster first and more severely, and who take longer to recover compared to the rest of the City. For some people, they have the resources and adaptive capacity to bear a disaster and recover to pre-disaster levels with relative ease. For vulnerable communities, there are higher risks, limited resources, and constrained adaptive capacity, meaning that research on all hazards should account for these dynamics of adverse impact and work to address these community needs.

The Department of Emergency Management should keep abreast of evolutions in this field of research, particularly as new threats emerge and as new methods of mitigating those are developed. The City should also continue grow its partnership with community response teams, such as the Neighborhood Emergency Response Team (NERT) and the Neighborhood Empowerment Network's Empowered Communities Program (ECP). NERT is a community-based training program dedicated to a neighbor-helping-neighbor approach to disaster response. The NERT program trains volunteers to work as members of an emergency response team, preparing them to respond to a personal emergency or assistance to Fire Department response. ECP is a community development approach to neighborhood-level disaster resilience, empowering neighborhoods to develop and implement strategies that strengthen communities during hazard events.

POLICY 3.2.3.
Coordinate interagency Citywide efforts to assess the City's vulnerabilities to multiple hazards, such as poor air quality, flooding, and extreme heat.

As the City continues to experience more extreme, more frequent, and more simultaneous hazards, the interagency climate resilience program should be empowered to assess the City's vulnerabilities to a complex set of hazards. The City should develop a citywide assessment, at the neighborhood level, to generate baseline information around the vulnerabilities and consequences to all hazards. This assessment should include impacts on Environmental Justice Communities and other vulnerable people, businesses and the economy, historical and cultural resources, and critical infrastructure. This assessment should support increasing public awareness for emergency preparedness. Currently, there is ClimateSF as an interagency collaboration to advance the City's climate resilience activities, including the Office of Resilience and Capital Planning, Planning Department, Department of the Environment, the Port, and Public Utilities Commission.

POLICY 3.2.4.
Ensure foundations and structural systems are designed with consideration of site soils conditions when reviewing projects in areas subject to liquefaction, slope instability, sea level rise, groundwater rise, and other flood hazards.

The Building Code considers soil conditions at a very general scale. But, soil conditions vary enormously throughout the City. Different soil conditions can result in very different earthquake impacts and can result in damage at other times, such as with landslides. Because of the importance of soil conditions, the California Seismic Hazards Mapping Act requires that a geotechnical investigation and geotechnical report be prepared for new or renovated buildings that are constructed in Seismic Hazard Zones.

Pursuant to this act, the Department of Building Inspection (DBI) requires geotechnical reports prepared by a licensed geologist and geotechnical engineer for projects in areas with susceptibility to ground failure, including liquefaction and landslides. DBI has procedures in codes and bulletins identifying when projects are subjected to additional geotechnical review and requirements based on site conditions and/or proposed scope of work to support these efforts.

Additionally, there is ongoing research of the interaction of sea level rise and flood hazards with the potential mobilization of soil contamination.

POLICY 3.2.5.
Provide training, guidance, and assistance for the geotechnical and foundation issues unique to tall buildings.

In San Francisco, there is a unique concentration of tall buildings that are 240 feet or taller. These tall buildings have advanced and complex characteristics and demands for seismic safety. Their structural systems preclude generic performance assumptions and prescriptive engineering solutions, and they are increasingly being used to house residents.

Based on the Tall Buildings Study and Earthquake Safety Improvement Program, the City should implement mandatory training and guidance to property managers and tenants around the seismic safety of tall buildings, as well as offer assistance to improve the geotechnical and foundational issues in the event of an earthquake. The Department of Building Inspection (DBI) developed guidelines for preparing geotechnical and earthquake ground motion reports for the foundation design and construction of tall buildings. DBI also requires performance-based structural design reviews for buildings above 240 feet tall (and some building types above 160 feet tall), and they convene an engineering design review team of external consultants to review and advise on proposals of new tall buildings.

As tall buildings are increasingly being used for housing purposes, in addition to business purposes, the City should set up data monitoring to track building use and resident demographics in order to address additional vulnerabilities.

POLICY 3.2.6.
Consider hazard information during City decision-making processes about land use, building density, building configurations, and infrastructure.

Land use decisions should be made with hazards in mind. The Planning Commission, the Board of Supervisors, and other City decision makers shall be aware of and consider hazards when making decisions that will affect the types and structures that will exist in the future, including existing and potential structures, land uses and their associated densities, transportation, and other infrastructure.

Changes to the General Plan, Area Plans, and Planning Code should take into consideration the prevalent disasters affecting the City and the effects they may have on the safety of future development. These considerations should balance with other environmental justice and community welfare concerns, ranging from safety to community health to economic security to quality of life.

In order to protect City property, building codes and technical knowledge must be as up to date as possible as new engineering expertise is gained. Keeping abreast of such information and technologies should be a priority for the City.

POLICY 3.2.7.
Monitor emerging industries like bioscience and other lab-based sectors, and ensure that state and local codes manage risks effectively.

The City has made it a goal to encourage the bioscience industry, as well as other lab-based industries, in the City because of its economic development potential. The University of California, San Francisco (UCSF) is a generator of life science and bioscience companies, it and has made the Bay Area a center for the industry. The number of companies located or seeking space in the City is expected to grow.

Many medical research laboratories handle biological materials, which may generate radioactive or otherwise hazardous materials and waste. Because of this, bioscience and biotechnology lab facilities in the City are subject to hazardous materials safety regulation by the federal government, state government, and the San Francisco Department of Public Health. Firms are required to generate Hazardous Materials Business Plans including storage and secondary containment policies; Emergency Response Plans; and training plans to educate staff about handling and disposal. Currently, state and federal regulations are adequate and sufficient to govern bioscience activities. In addition, San Francisco has adopted more stringent threshold reporting requirements for labs resulting in greater local oversight.

Lab-based sectors such as bioscience are likely to evolve, and the functions of the firms located in the City may shift. The City should monitor these industries to ensure safety regulations continue to be applicable. The City should encourage performance-based design and engineering technologies to protect the safety of critical research projects, particularly if facilities are vulnerable to hazards.

Promote Green Building

POLICY 3.2.8.
During retrofits and new construction, prioritize building practices that emit lower greenhouse gasses and build resilience to multiple hazards at once, especially in Environmental Justice Communities.

When retrofitting existing construction and developing new construction, use the latest building practices to emit lower greenhouse gasses and increase resilience to multiple hazards at once. In Environmental Justice Communities, where there are disparities in the prevalence of safe, healthy, and affordable homes, it is especially important to prioritize low-carbon building practices without jeopardizing housing affordability. In addition to the latest building standards, pursue building electrification, urban greening, low-carbon building materials, weatherization, interactions with the public realm, and other green building practices.

POLICY 3.2.9.
Continue to promote green stormwater management techniques.

The City has an abundance of impervious surfaces. Buildings, streets, parking lots, and other paved surfaces prevent the absorption of rainfall, so low-lying areas of the City are particularly susceptible to flooding in heavy rains. In addition, urban stormwater runoff can be highly polluted, and pollutants that go down storm drains can have negative impacts on the sewer and storm system, contributing to system overflows. Natural systems can often be an effective supplement, helping to absorb the overflow and filter out pollutants from that runoff.

Building and site development should include natural systems wherever possible. Natural vegetation, landscaped swales, and gardens included in site designs can reduce, filter, or slow the spread of stormwater runoff. “Green streets” that include pervious concrete, planters, and landscaped strips adjacent to sidewalks can assist the City’s sewer discharge capabilities. Green roofs incorporated into buildings provide another method of absorption. Similarly, sustainable construction techniques can be used to mitigate against the effects of future disasters. Green building technologies now allow for buildings that can provide their own power and filter their own water from runoff. This helps reduce two problems associated with disasters, the need for power and the need for potable water.

The City needs bolstered flood control structures and flood proofing to respond to the anticipated impacts of extreme storms. To prepare, the Public Utilities Commission can continue upgrading the City sewer system, and also critical are more imaginative solutions, like capturing stormwater for irrigation, increasing urban forestry activities, and other green uses.

OBJECTIVE 3.3.

INFRASTRUCTURE AND PUBLIC REALM. **ENSURE THE CITY’S LIFELINE SYSTEMS, TRANSPORTATION AND EMERGENCY RESPONSE FACILITIES, UTILITIES, STREETS, PUBLIC SPACES, AND COASTS CAN WITHSTAND AND ADAPT TO ALL HAZARDS.**

Public Assets and Awareness

POLICY 3.3.1.
Reduce the risk of all hazards to community facilities and lifeline infrastructure, starting with Environmental Justice Communities.

For safety and resilience, community facilities and lifeline infrastructure serve as key assets in emergency management. Many types of community facilities can be areas for refuge and evacuation, storing and distributing disaster supplies, and providing critical services like medical care. Community facilities provide public services, such as public schools, childcare facilities, fire stations, police stations, recreation centers and parks, public and non-profit health facilities, libraries, arts and culture facilities, social welfare facilities, and facilities serving the homeless. In addition to facilities supported by the Community Facilities Element, the City can coordinate with other institutions such as private schools and places of worship. Identify the network of these facilities, assess their vulnerability and consequences to hazards, and create a set of strategies to mitigate harm so that these are available and functional to the community during disaster.

POLICY 3.3.2.
Identify and replace vulnerable infrastructure and critical service lifelines in high-risk areas.

In the event of a disaster, two of the most critical networks will be the City’s water system and its sewer and sanitation lines. Upgrades are already underway: the San Francisco Public Utilities Commission (SFPUC) and Public Works have ongoing programs to replace vulnerable water mains and sewers and to improve performance of the systems during earthquakes—by including system segmentation, safety shut-off systems, and redundant back-up systems or other methods of reducing damage—and providing alternative sources of service. SFPUC is undertaking a Water System Improvement Program to strengthen the Hetch Hetchy water transmission system against earthquake damage. A connecting pipeline is currently under construction to connect the region’s major water supply systems of the Hetch Hetchy, managed by the SFPUC, and the reservoirs in Calaveras, Amador, and Alpine counties managed by the East Bay

Municipal Utility District (EBMUD), which will enable water to be distributed from one Bay Area system to another in the case of failure. However, aging infrastructure in the City's sewer and sanitation system is a concern—beyond ailing pipes, the City's tunnels, pump stations, and treatment plants need upgrades and repairs. The San Francisco Sewer System Master Plan project currently underway at the SFPUC will eventually provide a detailed roadmap for these major improvements and provide a plan for funding these improvements.

Other upgrades underway include Pacific Gas and Electric's seismic program replacing vulnerable gas lines, and Caltrans' bridge and highway retrofit programs. BART is in the midst of a system wide seismic upgrade project; the City should lobby for continued seismic retrofit and disaster-resistance measures on our regional transportation systems such as Caltrans and AC Transit. More upgrades are needed to PG&E's electric system to reduce the risk of service disruption to customers, including transmission improvements, replacement of vulnerable transformers, circuit breakers, and other at-risk components of the electric system. The City should require a specific plan detailing these improvements, and a timeline for their implementation.

POLICY 3.3.3.
Conduct capital planning to advance resilient infrastructure prioritizing life safety and functional recovery, as well as the needs of Environmental Justice Communities and other vulnerable people.

In capital planning, incorporate environmental justice analysis of community facilities and other critical infrastructure that serve, impact, and are more used by Environmental Justice Communities and other vulnerable people. Community facilities provide public services, such as public schools, child-care facilities, fire stations, police stations, recreation centers and parks, public and non-profit health facilities, libraries, arts and culture facilities, social welfare facilities, and facilities serving the homeless. With community outreach and engagement, listen to resident needs and priorities of their built environment and public realm. Explore how public infrastructure projects can limit environmental justice burdens and improve outcomes for active transportation, open space access, and climate resilience.

POLICY 3.3.4.
Where there are ongoing and known plans for future public infrastructure projects, consider prioritizing maintenance of public access and protecting the public rights-of-way above the needs of private property and development.

Public infrastructure projects often depend upon the system of public rights-of-way for accommodation. For this reason, the City should prioritize maintaining and protecting the public rights-of-way, above and below street level, for future public use. The City should refrain from issuing encroachment permits to private development without considering these priorities.

For certain public infrastructure projects to deliver lifeline and other public services, they can be so large and complex that they cross multiple jurisdictional boundaries and rights-of-way between public and private spaces. The City must protect the public-rights-of-way, especially above the needs of private development projects, to have a space to deliver public services. Ensure that private encroachment permits do not interfere with future public infrastructure projects.

POLICY 3.3.5.
Provide training, guidance, and assistance for nearby communities most impacted to potential threats and consequences to public assets and infrastructure within the Sea Level Rise Vulnerability Zone.

In the Sea Level Rise Vulnerability Zone, over six percent of the City's land (about four square miles) could be inundated by temporary or permanent flooding by 2100. This will affect people, jobs, and vital infrastructure in the City. There are public assets and infrastructure like the Muni yard and San Francisco Public Utilities Commission water stations that are at risk. The City should develop training, guidance, and assistance to communities in and adjacent to the vulnerability zone on how these assets may be affected and how their lives may be impacted. These resources should increase the City's understanding of how sea level rise and inundation is a potential threat and consequence to the vulnerable communities; increase communities' understanding of adaptation efforts underway; how to stay involved; increase adaptation capacity; and decrease disruptions in service.

Resilience to Future Hazards

POLICY 3.3.6.
Maintain research, monitoring, and guidance related to earthquakes, sea level rise, and flood hazards to inform a framework for future investments and development.

In San Francisco, earthquakes are the greatest hazard risk to life and property due to the San Andreas and Hayward Faults. Within the next 30 years, the probability of the San Francisco Bay region experiencing an earthquake measuring magnitude 6.7 is 72%. Unlike other hazards, earthquakes strike without warning. Even if the next earthquake was accurately predicted with a week's warning, without advance planning and action, there are tens of thousands of seismically vulnerable buildings throughout the region that would be

severely damaged or collapsed. On the other hand, sea level rise is a slow-moving threat that also demands immediate action. By 2030—without taking any adaptation actions—the City is at risk of sea level rise negatively impacting 5,000+ residents, 10,000+ jobs, 200+ acres of open space, and other communities, buildings, and assets.

The City needs to learn more about the evolving science of earthquakes, sea level rise, and flood hazards, monitor the impacts and potential threats to the people and assets of the City, and guide adaptation and response activities to these hazards. It is especially important to understand the interactions of these hazards, and with other hazards like biological hazards (e.g., hazardous materials), to inform effective investment and development of strategies for resilience.

POLICY 3.3.7.
Support the development and updates to building, planning, and other municipal code requirements that meet City climate and seismic resilience performance goals.

The design and construction methods used in buildings are critical to community safety and resilience. At regular intervals, use best practices to review and amend all relevant public codes to incorporate the most current knowledge of structural engineering regarding seismic risks; design and site new buildings considering flood and sea level rise elevations; and green building practices relative to best biologic and ecosystem processes.

Among U.S. cities in areas of very high seismic hazard, the City is unique because of its geography, urbanization, and reliance on public transportation. Current seismic codes ensure that new buildings are earthquake- and fire-resilient, and protect people inside buildings by preventing collapse and allowing for safe evacuation. However, current code requirements do not necessarily limit damage to a structure, or ensure its function post-earthquake. Damage to new buildings and developments can have magnified impacts that affect adjacent structures and the City's lifelines.

A number of factors support the idea that new and retrofitted buildings in the City should be built for better seismic performance than the default level provided by the current Building Code. Consider creating tiered, "enhanced" levels of seismic performance that are performance-based by offering incentives such as priority processing (similar to a LEED certification for sustainable design).

There are additional nature-based solutions that support the built environment's contribution to enhanced natural ecosystem function. Consider higher floor elevations, softscape and natural buffers, and other flood proofing approaches within the Sea Level Rise Vulnerability Zone. Use the latest climate resilient expectations in the Building Code.

POLICY 3.3.8.
For new construction and public assets, consider resilience measures against future climate projections and other hazards, beyond current life safety expectations in building codes.

Many hazards, such as sea level rise and extreme heat, are occurring more frequently and intensely. The research shows nonlinear projections of how these hazards occur and impact the City. While building codes prioritize life safety and seek the latest best practices, the Safety & Resilience Element encourages resilience measures in new construction and public assets to act aggressively against all hazards and their future climate projections. As the climate crisis worsens, it is beneficial to act out of an abundance of caution to protect the safety and increase resilience of people and assets. The City encourages utilizing resilience measures that may not be reflected in building codes yet or may not yet have been applied.

POLICY 3.3.9.
Design and utilize open spaces considering their use as emergency gathering areas, floodable spaces, and ecosystem services, per the Recreation and Open Space Element.

For certain hazards, such as earthquakes, flooding, pandemic, and extreme heat, open spaces in the public realm can serve as critical spaces for emergency gathering (evacuation, shelter) and buffers (retreat). Per the Recreation and Open Space Element, design and utilize open spaces to act as emergency gathering areas that are low-risk, flexible use, and resilient. Additionally, these open spaces along and near the ocean and bay shorelines can serve as floodable spaces as part of nature-based solutions to sea level rise and flood hazards.

POLICY 3.3.10.
Identify and maintain emergency access areas and potential evacuation routes to support capacity for future emergencies and evacuations.

During certain disasters, the City must maintain an essential transportation network to facilitate disaster response and safety. Public Works maintains an Emergency Priority Route Map which is integrated into the Department of Emergency Management's Emergency Response Plan. The map identifies a priority route network for City agencies to conduct damage assessment and maintain critical facilities and services post-disaster, such as a major earthquake.

For evacuation needs, the City must also maintain the safety and function of streets and roads to activate as evacuation routes and emergency access areas at any time. These transportation corridors will need to support an influx of users and maintain structural integrity and function during a large earthquake or other disaster. As part of identifying potential evacuation routes, the City must identify accessibility needs of people with limited mobility options and other vulnerable people, such as people with disability, access, and other functional needs.

Where known, consult with relevant authorities governing major transportation corridors and access areas to ensure all levels of government are aware of the current and future capacity expectations for safe evacuation. These activities should include sub-surface, ground, air, and water transportation routes.

OBJECTIVE 3.4.

SPECIFIC HAZARDS. IDENTIFY AND PURSUE PROGRAMS AND PROJECTS THAT MITIGATE AND SAFEGUARD AGAINST MULTIPLE HAZARDS ACROSS MULTIPLE ASSETS, ESPECIALLY FOR ENVIRONMENTAL JUSTICE COMMUNITIES AND OTHER VULNERABLE PEOPLE.

POLICY 3.4.1.
Assess, mitigate, and provide holistic information about all hazards affecting the City, as identified in the Hazards and Climate Resilience Plan.

The City should advance research and understanding of all hazards and their impact to the people and assets of San Francisco. The Hazards and Climate Resilience Plan (HCR) serves as the City's Local Hazard Mitigation Plan (LHMP). The City should work with the academic community, appropriate government agencies, and other stakeholders to assess the threat and impact of the 13 main hazards to the City. Coordinate this basic research with the appropriate data clearinghouses in the City that relate to achieving racial and social equity, public awareness, and informing decisions around capital planning and development.

These hazards include geologic hazards (earthquake, tsunami, landslide, and dam or reservoir failure), weather-related hazards (flooding, high wind, extreme heat, and drought), fire-related hazards (large urban fire, wildfire, and poor air quality), and biologic and toxic hazards (pandemic and hazardous materials).These hazards can include the latest emerging hazards that may not be reflected in the Hazards and Climate Resilience Plan, such as sea level rise and noise pollution.

POLICY 3.4.2.
Protect against the risks of using, storing, and transporting hazardous materials and increase public awareness, particularly in areas prone to seismic and flooding risks.

The City should coordinate with the appropriate regulatory and monitoring agencies for the use, storage, and transportation of hazardous materials. The location of hazardous materials, existing and potential, should be in areas resilient to seismic and flooding hazards to minimize the spread as an environmental pollutant and threat to public health. Where hazardous materials are close to people, and critical assets like the water table, the public should be notified and empowered to seek more information and resources to protect health and safety.

POLICY 3.4.3.
Educate the public about hazardous materials procedures, including transport, storage, and disposal.

Hazardous materials include chemical, biological, radiological, nuclear, and explosive substances (CBRNE). Accidents such as toxic releases from facilities and vehicles, fires and explosions caused by chemical releases, and oil spills in the bay are not uncommon. There is also increasing awareness and research about the mobility of hazardous materials during inundation and flood hazards, particularly towards the groundwater table. The Federal Emergency Management Agency (FEMA) has estimated that an average of 60,000 accidents and over 200 deaths involving chemicals occur in this country every year. The City should support research about the interaction of toxic substances with groundwater threats.

Several of the City's agencies provide businesses and residents with information about safe disposal of hazardous materials, primarily the Fire Department and Department of Public Health. The City's Fire Department is responsible for administering local safety regulations for business operating with hazardous materials, and it is the first responder to chemical and hazardous spill accidents. The Fire Department is also the point of contact for risk/hazard assessments, capability assessments, and detailed response planning. The Department of Public Health enforces state and City environmental health laws, including hazardous materials storage; issues hazardous materials use permits; and investigates illicit discharge and disposal of hazardous materials.

For common CBRNE hazards at the household-level, the Neighborhood Emergency Response Team (NERT) educates the community about their indicators and safe disposal methods. The Public Utilities Commission also provides residents and businesses with information (through ads and website resources) on how to properly dispose of hazardous materials including waste oils, such as motor oil.

POLICY 3.4.4.
Develop a plan for supporting Environmental Justice Communities and other vulnerable people during Sheltering-in-Place activities, to protect from poor and hazardous air quality, pandemic, and other hazards.

During a disaster, sheltering in place may be necessary to social distance, prevent the spread of disease, protect from threats to health and safety, and support public health. Sheltering In Place requires safe, healthy, and affordable housing be available to all. It limits the ability for people to conduct their routine behaviors for living and working, such as grocery shopping, going to work, and going outdoors for physical and mental health. The City should develop a plan for supporting Environmental Justice Communities and other vulnerable people during shelter in place, including assessing information and resource needs, culturally competent communication, outreach of public services, and disaster supplies.

POLICY 3.4.5.
Prepare for efficient and equitable responses to medical emergencies and pandemics.

On January 21, 2020, the City activated its Emergency Operations Center to support the response to COVID-19 and coordinate with active Department Operations Centers. Mayor Breed's early decision to proclaim a local emergency was instrumental to San Francisco's ultimate success responding to the pandemic, allowing City agencies to enact emergency procedures that helped save lives. As of December 2021, the City continued to have the lowest cumulative per capita COVID-19 mortality rate among other large jurisdictions.

The COVID-19 Pandemic Response After Action Report outlined the strengths of the City's response and suggested further updates to enhance the City's emergency response plan. In addition to early and rapid action, the City's successful response can be attributed to the unified priorities, pooled resources, and clear communications that came from the coordinated COVID Command Center, as well as the flexibility and capacity provided by the Disaster Service Workers. Specifically, improvements should focus on increasing racial and social equity in the community, improving the City's Disaster Service Worker program, and providing further clarity and streamlining to both the organization of response services and procurement of disaster supplies.

For all future pandemics and other medical emergencies, the City should create an advance plan to prepare for a similarly successful early and rapid response. This plan should include the disease testing and response capacity of hospitals; disaster supply needs at the household, neighborhood, and citywide level; community health capacity of community facilities; and accessibility capacity of public information. The City should ensure the public is kept well informed about evolving information regarding the public health emergency. The City should ensure systems are in place to ensure continuity of public services, such as public transportation and utilities service with staff absences. The City should solidify plans to ensure access to a stockpile of emergency services to use and distribute, such as medicine and protective equipment.

POLICY 3.4.6.
Assess and mitigate the risk of flooding by incorporating the Flood Insurance Rate Map for San Francisco and related programs.

The National Flood Insurance Program (NFIP)., managed by the Federal Emergency Management Agency (FEMA), provides low-cost flood insurance for communities that adopt floodplain management programs to help mitigate flood losses and damages. FEMA uses the Flood Insurance Rate Map (FIRM) to identify areas with 1% annual chance of flooding, and it uses this as the basis for insurance rating.

FEMA approved the City's application for participation in the NFIP in April 2010, and subsequently, the City has amended the 2008 Floodplain Management Ordinance in order to meet NFIP requirements. The established flood damage reduction program provides homeowners and other property owners the opportunity to purchase federally-subsidized flood insurance at affordable rates. FEMA issued a preliminary FIRM for San Francisco in 2007. The final map and ordinance was adopted in 2020.

The Floodplain Management Ordinance requires the first floor of structures in flood zones to be constructed above the floodplain or to be flood-proofed with variances for exceptional circumstances. The map, as proposed, would designate portions of waterfront piers, Mission Bay, Bayview Hunters Point, Hunters Point Shipyard, Candlestick Point, and Treasure Island in coastal flood hazard zones, which may have implications for development plans and insurance requirements in those areas.

To mitigate against potential risks, the City should maintain NFIP participation and use the information provided by FEMA to engage in additional floodplain improvements to at-risk areas. The City should continue to implement ordinance requirements for new construction, address flood hazards in wastewater projects, and pursue ordinance requirements for substantial improvements projects located in Special Flood Hazard Areas.

POLICY 3.4.7.
Support retrofitting measures for historic buildings vulnerable to current or future flooding, while respecting architectural and historic character, consistent with pertinent local or federal design guidelines.

Consistent with design guidelines at the local and federal levels, address the unique retrofitting measures required for historic buildings that are vulnerable to sea level rise and flood hazards. The U.S. Secretary of the Interior issued flood mitigation design guidelines for historic properties, and the City can explore additional design guidelines that respect the architectural and historic character that is vulnerable to damage.

Goal 4. Emergency Preparedness

Ensure San Francisco's residents, workers, and visitors have the knowledge, capacity, and government support needed to be safe in the face of disasters. The City must be prepared to respond quickly and effectively in the case of a disaster. In order to meet the needs of its people and assets after a disaster, response, recovery, and reconstruction plans must be prepared in advance to the extent possible. The City must have the coordination necessary to execute them rapidly. In addition to readying its own agencies and departments, the City must ensure all people are aware and prepared for the possibility of disaster. State and local emergency responders advise people to be prepared for a minimum of 72 hours of self-sufficiency after a large earthquake. Achieving preparedness is even more critical for vulnerable populations and those in geographic areas and building types that are more vulnerable to earthquake damage.

OBJECTIVE 4.1.

AWARENESS AND CAPACITY BUILDING. **INCREASE THE UNDERSTANDING AND TRAINING OF EQUITABLE EMERGENCY PREPAREDNESS TO ALL HAZARDS AMONG ALL GOVERNMENT, PRIVATE, AND PUBLIC SECTORS.**

POLICY 4.1.1.
Provide ongoing emergency preparedness and response training to all City employees and other responding agencies.

Under state law, all public employees are designated Disaster Service Workers. At any time during an emergency that results in conditions of disaster or in extreme peril to life, property, and resources, City employees could be assigned to any disaster service activity that promotes the protection of public health and safety. The Department of Human Resources (DHR) manages the City's Disaster Service Worker Program, which includes mandatory training for all City employees. The Department of Emergency Management (DEM) is responsible for ensuring that City employees are trained to perform as needed under the City's emergency plans.

The City should also continue to hold multi-agency drills on a regular basis to test and refine emergency plans. During the COVID-19 pandemic, the Disaster Service Worker Program was a vital source of staffing for the Emergency Operations Center and for responding to community needs. DHR, in consultation with DEM and other City agencies, should continue to refine the Disaster Service Worker program so that is deployed equitably continues to be used effectively to bring response activities to the community.

POLICY 4.1.2.
Promote greater public awareness of disaster risks, personal and business risk reduction, and personal and neighborhood emergency response.

People and organizations that are well informed about possible disasters can take effective private measures to reduce their vulnerability to risks. They can also increase their effectiveness in responding to a disaster and helping others when public agencies are overwhelmed. Several of the City's agencies, including the Department of Emergency Management, the Fire Department, the Police Department, Public Works, and the Department of Building Inspection, provide information to the public on what to do in a disaster. As an example, the Fire Department administers the Neighborhood Emergency Response Team (NERT) to deliver on these goals. The Department of Building Inspection maintains a list of earthquake information and emergency power shut down information at its public reception and on its website.

However, information access can be increased beyond these sources, especially to reach populations who may be less familiar with the City system and are less frequent visitors to City buildings. Materials should be placed in everyday materials such as newspapers; alternative venues such as social clubs, community facilities, or service agencies; and distributed via mobile sources at gatherings such as fairs and festivals. Information should be available in large print and on audio cassette for the visually impaired, as well as in a variety of non-English languages.

POLICY 4.1.3.
Create a consolidated website linking all the City's disaster-related information for the public and ensure distribution of the information through offline outreach that is accessible and equitable to all people.

Just as the responsibilities for disaster planning programs is distributed among many agencies and departments within the City, the related information about those programs and operations is dispersed. Much information is housed within the agencies responsible, and it can be difficult for the layperson to access all the information that exists.

The City should utilize technology to redress this issue—a simple solution would be to bring together all the varied information that exists into one website. This site should contain links to hazard maps of geologic hazards and soil conditions; to the City's adopted emergency response plans and other related plans and documents; to programs such as Building Occupancy Resumption Program (BORP) and Neighborhood Emergency Response Team (NERT); to programs for property owners, incentives, and other action items; and to information about emergency services and locations. It should map relevant public information such as drinking areas, evacuation routes, emergency transport pick-up locations and locations of Public Information Centers to be set up in an emergency.

This consolidated website should be accessible to equitably reach all people, through availability on both web and mobile platforms, translation into many non-English languages, and accessible to screen readers.

POLICY 4.1.4.
For pandemic preparedness, develop a framework of healthcare management that combines the City's physical assets with social and management tools to better respond to public health emergencies.

The COVID-19 pandemic transformed society overnight. It rapidly altered how people interacted with one other and the built environment, as society wrestled with how to apply public health principles to stop the spread of the virus and prevent further loss of life. Building on these lessons from COVID-19, as well as other infectious diseases, the City should develop a comprehensive framework of healthcare management that includes physical and intangible resources to maximize public health outcomes. For physical assets, there are medical institutions, public infrastructure, and land use patterns. For intangible resources, there is social cohesion (strength of relationships and sense of solidarity among community members), trust in government, and socio-cultural factors. These two groups of assets can be managed holistically to manage the transmission and control of infectious disease and maximize public health outcomes.

OBJECTIVE 4.2.

***CITY AGENCY CAPABILITIES.* PLAN FOR THE OPERATIONAL, DATA, AND LOGISTICAL CAPACITIES NEEDED TO FACILITATE COMMUNITY SAFETY DURING THE RESPONSE, RECOVERY, AND RECONSTRUCTION PHASES OF ALL HAZARDS.**

Water and Energy

POLICY 4.2.1.
Ensure potable water is available in an emergency.

The San Francisco Public Utilities Commission (SFPUC) has various strategies for supplying and/or distributing alternative water supplies during an emergency. Emergency disinfection may be necessary. The California Department of Public Health has issued guidelines for the use of alternate water sources and the issuance of Unsafe Water Alerts and Boil Water Orders. Usage of alternative water supplies will require coordination with appropriate agencies, such as San Francisco Department of Public Health, California Department of Public Health, San Francisco Fire Department, and others.

At the supply and source level, SFPUC has redundancy of sources under the operational responsibilities of Water Enterprise and Operating Divisions. These include Upcountry reservoirs, East Bay reservoirs, Peninsula reservoirs, and local groundwater. At the treatment level, SFPUC has plans and procedures for responding to treatment issues and disruptions. At the distribution level, SFPUC maintains a range of equipment and procedures for alternate delivery. Equipment includes water trailers, portable disinfection units, and 40 hydrant distribution manifolds. Manifolds, water trailers, and other equipment is stored at either CDD Corporation Yard or storage facility at University Mound. Bottled water is identified as a needed alternate water strategy, and supplies and distribution points would be coordinated and acquired at the City Emergency Operations Center level, through citywide logistics.

The SFPUC has installed 6 groundwater wells on the westside of San Francisco. The groundwater wells currently pump less than 1 million gallons per day (mgd) and is expected to increase to 4 mgd by 2030. Additionally, SFPUC is studying the opportunity to produce and serve purified water in San Francisco.

POLICY 4.2.2.
Ensure renewable energy sources are available for redundant energy in the event of an emergency.

More frequently, the threat of Public Safety Power Shutoffs (PSPS) is affecting San Francisco. The increased frequency of wildfires occurring at the regional and state levels pressure PG&E to turn off power lines during high winds or dry conditions. Fortunately, San Francisco is less likely to experience a PSPS compared to other jurisdictions due to the lower likelihood of wind-induced fire events with

the City and its location on the transmission grid. However, the disruption in energy service is an inconvenience and threat to wellbeing that should be addressed through resilience of the energy grid.

There are many people who rely on continuous, affordable energy for their health and safety, such as storing life-saving medication and motorized wheelchairs. There are also public assets and infrastructure that relies on energy for safety and function, such as broadband internet and traffic lights. PSPS events occur due to a number of potential hazards, such as high winds, drought, and wildfire. The City should pursue strategies for redundant energy sources and use in the event of an emergency, and seek renewable sources of energy that do not contribute to the climate crisis. The City should continue to work with relevant government agencies, the private sector, and other stakeholders to assess capacity to generate, store, and distribute renewable energy for essential lifeline and recovery activities.

POLICY 4.2.3.
Continue to expand the City's fire department prevention and firefighting capability with sufficient personnel and training.

The City faces risk from fires associated with earthquakes. A great number of structures were lost in the 1906 earthquake, not due to the ground shaking itself, but because of the spread of fires that were difficult to battle in the aftermath of the quake. Fires continue to be a great threat, particularly in densely developed areas.

The supplemental water supply systems have been extended and strengthened since the Loma Prieta earthquake, including the Auxiliary Water Supply System, the Portable Water Supply System, cisterns, Bay water suction devices, and fire boats. Staffing and equipment needs of the Fire Department must be foreseen in advance and met. The City needs to improve water supply systems to cover those neighborhoods not served by the Auxiliary Water Supply.

The Fire Department should consider expanding the scope and training of Neighborhood Emergency Response Training (NERT) to include fire suppression, fire reporting, and other neighborhood recovery assistance, and consider coordination with neighborhood-level disaster planning.

Disaster Response

POLICY 4.2.4.
Ensure the City's designated system of emergency access routes is coordinated with regional activities for both emergency operations and evacuation.

After a large earthquake or other disaster, it is likely that many streets will be impassable. This will make firefighting and other emergency response actions more difficult, hinder the movement of people, and interfere with debris removal and other short-term recovery activities. In order to support post-disaster transportation movement, Public Works has developed priority routes for opening during an emergency or disaster. These routes include routes which connect fire and police stations, hospitals, and other critical facilities; routes to emergency drinking water distribution sites and City shelters; and routes to staging areas for disaster service work around the City. These routes enable the necessary clearance width for emergency vehicles and support trucks, and they have been prioritized for debris clearance immediately following a disaster.

The City should ensure that the regional sequence of clearance activities is coordinated to connect with these priority routes, and that the route openings are well-timed to sync with the opening of bridges and regional highways. This coordination can be directed using information from the Transportation Management Center (TMC) staffed by Caltrans, California Highway Patrol, and MTC, specifically its Emergency Operations Center (EOC) which was created for procedural disaster management. In addition, the Regional Emergency Operations Center (REOC) Transportation Branch will distribute a transportation service plan which shall include information related to regional evacuation and route openings. For Caltrans District 4, the EOC is activated to serve as the central location to manage and coordinate responses to major incidents/disasters affecting State transportation facilities.

POLICY 4.2.5.
Utilize the City's and region's transit network to facilitate response and recovery during and after a disaster.

The transit network—bus, rail, freight rail, transit, ferry, and air—will be a critical component of response during a disaster. As dependence on cars will not work well in a state of emergency, the transit network will be a critical component of response during a disaster. The City's vehicular network is limited by bridges and freeways with little redundancy; damage caused by the event to roadway networks, security considerations, and traffic control may require the restriction of private automobile use for months after the event. As of 2022, one in five residents in San Francisco does not have access to a personal vehicle and will require public transportation to access essential services. The transit network provides safe and efficient use of resources and is capable of moving significant numbers of people and equipment with relatively few resources. The San Francisco Municipal Transportation Agency has emergency reserves of fuel and is able to continue operations even when the region faces significant disruption.

Transit may be used in emergency situations to move emergency workers and deliver equipment to sites. Evacuation plans should incorporate public transportation to efficiently evacuate people quickly and efficiently without snarling roadways and impeding emergency operations.

Immediately following a disaster, the City should utilize its transit network to restore mobility—to help bring evacuees back to their neighborhoods, to move daily workers to jobs, and to resume day-to-day life. Coordinated transit services can be used to provide long-range links across counties. Additional temporary transportation improvements such as limited stop buses, bus-only lanes, and the addition of high-occupancy vehicle lanes may help relieve overtaxed freeway segments. The clear conveyance of route information and service maps, such as real-time road safety conditions and available public transit options, can help connect riders to services.

The Bay Area region, under the leadership of a task force that includes the CalOES, Caltrans, the Metropolitan Transportation Commission (MTC) and Bay Area transportation agencies, has developed a Trans Response Plan (TRP). The TRP sets out a framework for a coordinated, multi-modal, and timely response by Bay Area transportation providers to a major earthquake or other significant emergency in the region. The resulting procedures are tested on an annual basis through tabletop or functional exercises. The procedures have also been integrated into individual operator emergency plans so that the regional response can be automatically invoked, if needed.

The City, in cooperation with MTC, also has plans that address immediate emergency transportation needs, and the day-to-day transportation routes that will need to be reinstated in order for the region's activities to resume. The Transportation Coordination and Recovery Plan (TCRP) focuses on emergency transportation, evacuations, and the movement of emergency workers. The Regional Transportation Emergency Management Plan (RTEMP) addresses how agencies will coordinate with each other to assist with the movement needs of the public following a major disaster. Together, the two plans are expected to result in a single, unified program to direct the region's transportation resources.

OBJECTIVE 4.3.

CITYWIDE COOPERATION. **CREATE PROACTIVE PLANS AND PROGRAMS TO PREPARE READINESS AND COORDINATION FOR ALL DISASTERS.**

Emergency Management

POLICY 4.3.1.
Bolster the Department of Emergency Management's role as the City's provider of emergency planning and communication, and prioritize its actions to meet the needs of San Francisco.

The Department of Emergency Management (DEM) has responsibility for developing the City's Emergency Response Plan, annexes, and other emergency plan elements; supporting the coordination of the response and recovery agencies; providing emergency training opportunities; conducting and advising on functional and discussion-based exercises, coordinating activities with regional, State and federal agencies; and maintaining the Emergency Operations Center. This agency must be maintained at an appropriate level, with sufficient personnel and resources to carry out these tasks.

The agency also manages Homeland Security Grants disbursed by the federal government. In recent years, the City has been the recipient of a significant amount of homeland security funds, most of which were targeted for urban centers. In the future, DEM should work with the state to improve its homeland security spending, to ensure that grant money can be effectively utilized and will not revert back to the federal government.

POLICY 4.3.2.
Support the Emergency Operations Center and continue maintenance of alternative operations centers in the case of an emergency.

The City's Emergency Operations Center (EOC) is designed to serve as a secure well-equipped location for centralized communications and direction. This center houses the Department of Emergency Management, including its Division of Emergency Communication, and consolidates 911 calls and Fire, Police, and Medical Dispatch. It is managed by the Department of Emergency Management.

However, emergency centers may be destroyed or rendered inaccessible in a major catastrophe. The City should prepare for this possibility in advance, by ensuring duplication of information and systems in multiple locations, by identifying alternative sites for temporary EOCs, and by establishing a mobile command center with the necessary technology and information infrastructure for flexible operations.

POLICY 4.3.3.
Ensure all response plans are coordinated with the Disaster Council.

The San Francisco Disaster Council is the City's central body for emergency planning, and it has been accredited by the California Emergency Council. The Disaster Council is codified by the San Francisco Administrative Code, Chapter 7. The Disaster Council is chaired by the Mayor and composed of the Director of Emergency Services, key department heads and City officials, three members of the Board of Supervisors, and representatives of private organizations having official emergency responsibilities. The Council reviews the efforts of the Emergency Response Planning Task Force and recommends emergency actions such as mutual aid plans and for adoption by the Board of Supervisors.

In order to coordinate the actions of the various agencies throughout the City, the Disaster Council should serve as a central repository for all hazard mitigation, preparedness, and response and recovery activities. The Disaster Council, through its contact with the State Emergency Council and the several local disaster councils within this metropolitan area, can ensure that the work of the City is coordinated with those of the surrounding region. All actions recommended by the Safety & Resilience Element, and developed in other efforts or documents, should be brought forth to the Disaster Council for their review and approval.

POLICY 4.3.4.
Maintain and implement a comprehensive, current Emergency Response Plan with neighborhood-level detail on equitable implementation to guide the response to disasters.

The Emergency Response Plan (ERP) ensures that the roles of City agencies and others are well defined, in compliance with applicable state and federal regulations. The ERP utilizes an all-hazards approach to emergency planning and encompasses all natural and human-made hazards applicable to the City. Specifically, the ERP identifies and describes City interactions with regional, state, and federal entities; the role of the San Francisco Emergency Operations Center (EOC); and the coordination that occurs between the EOC and City agencies. The ERP should include the responsibilities of Equity Officers and neighborhood-level planning to ensure equitable outreach. There should be periodic functional and discussion-based exercises of the ERP to test plans and identify gaps in emergency management practices.

POLICY 4.3.5.
Maintain and implement the San Francisco Disaster Debris Management Plan.

The City's Emergency Response Plan includes a response strategy, identifying post-disaster debris management as a key function. The Post Disaster Debris Management Plan establishes a strategy for removal and disposal of disaster debris. Designating appropriate temporary and permanent disposal sites as part of this plan is critical for long-term land use planning.

Post-disaster, the Plan aims to incorporate existing waste ordinances, diverting as much waste as possible from landfills though reuse and recycling. All vegetative debris should be composted; metals should be recycled; other wastes should be separated and reused or recycled wherever possible. Disaster recycling programs seeks to follow the City's recycling program already in place, so as not to require new permits or other legal permission to be developed. The City should develop clear guidelines to direct businesses and residents as they deal with their own debris and trash removal after the disaster.

Communications

POLICY 4.3.6.
Utilize advance technology to enhance communication capabilities in preparation for all phases of a disaster, particularly in the high-contact period immediately following a disaster.

Reducing the impacts of natural and technological hazards requires extraordinary cooperation and coordination among City agencies, and between departments and other governments and non-government agencies. During the immediate response period, the City will need to determine the extent and location of damage, marshal resources for response, provide information to the public, and provide critically needed services to the affected populations. The Division of Emergency Communications of the Department of Emergency Management maintains responsibility for coordinating communication among emergency responders, private partners, and people in San Francisco to ensure an effective and successful emergency operations system.

The City currently uses technologies such as geographic information systems and global positioning to allow wide access to everyday information, and is extending these networks to enhance disaster communication. The City has developed an emergency text-message alerting system, AlertSF, which delivers disaster notifications to registered users, and allows users to access neighborhood specific information. It has reestablished the World War II-era sirens to provide alerts, and it is further upgrading the system to broadcast voice instructions for responding to an emergency. There is the 311 City phone service, where callers will get assistance from an agent 24 hours a day, 7 days a week, and will provide real-time instructions during an actual emergency.

Continuing advances in technology and information systems will enable information to be more widely, quickly, and reliably. Under the direction of CalOES, the City should keep abreast of these advances and utilize them to bolster the existing local information network. The Department of Technology and Office of Economic and Workforce Development should explore opportunities to use technology to

keep all people informed during an emergency, using the full potential of rapid, online, and offline communications mediums. The City should ensure redundant networks exist to communicate at all levels, to internal staff and emergency response personnel, to convey public information, to ensure communication with special needs populations such as the hearing impaired or non-English speakers.

The City should explore work to improve inter-departmental communications during a disaster. The City's police, fire and most other agencies are on the same radio system, but other agencies such as the City's Municipal Railway and the California Highway Patrol use separate systems. The City should work internally to coordinate the radio frequencies used for its various agencies to aid smoother communications during a disaster. The public safety agencies throughout the Bay Area use a varied network of radio frequencies and equipment, making direct intercommunication difficult. The City should also coordinate with other municipalities to coordinate frequencies across the Bay Area, perhaps using a model similar to that used by the San Diego area, where a regional radio communications network links all of the areas public safety agencies.

POLICY 4.3.7.
Enhance communications with other jurisdictions.

Local Emergency Planning Committees (LEPCs) are regional entities set up to enhance coordination among adjacent municipalities. LEPCs are comprised of representatives from local government, the fire service, law enforcement, the local community, and industry; and they are intended to facilitate the coordination and flow of mutual aid. CalOES Coastal Regional Branch-Mutual Aid Region 2 is the LEPC for the San Francisco Bay Area and nearby counties.

The City is acting as the lead agency to develop a Regional Emergency Coordination Plan (RECP) to help the Coastal Region CalOES address gaps in regional emergency plans. The plan will detail how the communities which make up the LEPC will work together on evacuation, housing and transportation of displaced people. It also will outline how medical professionals will interact and how to cope with threats to the water supply, among other issues. Once complete, the City should utilize this plan as a basis for emergency operations issues that transcend City boundaries, such as emergency transportation, evacuation, and the movement of emergency workers.

Public Safety

POLICY 4.3.8.
Plan to address safety and violence issues that may arise post-disaster, and balance these issues with the other demands that will be placed on public safety personnel as emergency response providers.

Violence in the community, including looting and rioting, can occur in the aftermath of disaster. Desperate situations, such as being without food or being stranded with no expectation of rescue, can lead to despair and risky personal actions. Experts state that perceptions of widespread community violence are often based on misinformation, citing human tendency to misread crowds as more malevolent than they really are.

The Centers for Disease Control recommends that efforts to prevent violence after a natural disaster should focus on supporting the physical and emotional needs of individuals and families as well as restoring community-based services. De-escalation training should be provided to all City employees and volunteer emergency responders. San Francisco recently started a program called, Street Crisis Team, that sends Fire and Health teams to respond to behavioral issues, instead of police. Similar programs should be pursued to prioritize the deployment of police officers for interventions where they are most needed.

During a disaster, police will be needed for public safety including activities such as search-and-rescue activities, directing traffic, or dealing with other emergency duties. Police response must be coordinated so that it can respond to both social and physical needs in the face of disaster. Law enforcement agencies, including the San Francisco Police Department and the Sheriff's Department, District Attorney's Office, agency forces such as San Francisco Municipal Railway Police Department, and institutional agencies such as the San Francisco Community College District Police Department, should work to ensure better organization among agencies, so that their magnitude can be leveraged towards the many services that will be required. The City should also maintain relationships with state and federal level peacekeepers that may be needed in an emergency, such as the Coast Guard and National Guard. Finally, security forces should establish communication with Disaster Service Workers to mobilize civilians if necessary to support their efforts.

Partnerships

POLICY 4.3.9.
Develop and maintain mutual aid agreements with local, regional, and state governments as well as other relevant agencies.

Many state and local governments and private nonprofit organizations enter into mutual aid agreements to provide emergency assistance to each other in the event of disasters or other crises. The California Master Mutual Aid Agreement has been adopted by the City, as well as most cities and counties in the state. This agreement creates a formal structure for giving and receiving assistance in emergency situations. The City should expand its network of mutual aid beyond local governments to include relevant agencies such as transit providers, utilities, volunteer agencies and professional organizations for groups like health workers and emergency managers. Numerous agencies and businesses may have resources—facilities, trained staff, transportation or equipment—that can be valuable in emergencies. The City should pursue Memorandums of Understanding or other contracts with any local agencies or businesses that can be identified as resources, including the Unified School District. Discipline-specific mutual aid agreements, such as those for public works, engineering, or public information, may also be useful.

POLICY 4.3.10.
Continue coordination with water transit agencies, ferries, and private boat operators to facilitate water transportation as emergency transport.

Water transit can provide vital transportation support in response to a natural or human-made disaster. Following the 1989 Loma Prieta Earthquake, ferries were heralded for providing much-needed commute service and moving goods. Commercial boats can supplement the role of ferries in evacuating people and provide transit to emergency personnel and equipment in reaching disaster sites.

Vessels must be quickly deployed where most needed, and the response needs to be coordinated with land transit providers to get evacuees to/from the shoreline. The Trans Response Plan (TRP) includes a Regional Maritime Contingency Plan, which aims to establish this coordination through its guidelines and procedures for utilizing the Bay's waters in the recovery phase of a major disaster.

The Water Emergency Transit Authority (WETA) manages the Emergency Water Transportation System Management Plan which lays out emergency response and communication procedures in the case of an emergency. WETA also has plans to add seven new routes through its Ferry Implementation and Operations Plan, and will add a number of new boats and terminals. The increase in capacity gained by these new improvements would allow the Bay Area's ferries to carry over 20,000 trips per hour during a response to disaster, which is almost the evacuation capacity provided during the Loma Prieta earthquake by ferries. The City should support these plans and should ensure coordination is in place. While existing public transportation ferry services within the Bay Area are being transitioned to WETA management and ownership, the City should coordinate with private operators not yet transitioned to WETA, with the aim of establishing emergency aid agreements for the boats as well as the operators in the case of need.

POLICY 4.3.11.
Ensure the City's plan for medical response is coordinated with its privately-owned hospitals.

The Department of Public Health is the City's lead health response agency in the event of a hazard that leads to a major health emergency. They should continue efforts to coordinate with Bay Area private hospitals, community-based clinics, and community-based organizations in the Bay Area.

POLICY 4.3.12.
Develop agreements with private facilities to ensure immediate supply needs can be met.

Supplies that may be critical and in short supply after a disaster include food, water, medical supplies. Hospitals and service providers may also have difficulty in obtaining replacement equipment and medication. The City should coordinate agreements with private facilities such as hospitals, private schools, and warehouses to ensure that reasonable quantities of these necessities can be made available to the City and its people in case of a disaster. The City should also maintain its up-to-date list of rental agreements, for use of temporary supplies and facilities should they be necessary.

POLICY 4.3.13.
Develop partnerships with private businesses, public service organizations and local nonprofits to meet disaster-time needs.

The City should seek opportunities to partner with private sector businesses and organizations where possible. For example, drug stores can be used to distribute medical supplies and pharmaceuticals during emergencies. Medical institutions and university health centers can be set up to provide medical treatment such as inoculations in the event of a chemical or biological emergency.

Private and community-based organizations can assist with recovery activities, and in the dissemination of disaster information. The American Red Cross, Habitat for Humanity, Salvation Army, as well as numerous local groups, can be supportive partners in providing emergency shelter, food, clothing, and physical and mental health support. The City's relationships with these agencies and organizations should be mutually supportive. Local services, particularly in lower-income areas, such as food banks, senior centers, childcare centers, may be ill-prepared to cope with disaster. The City should assist in developing support networks for these organizations, providing them with employee response training, assisting them in securing insurance coverage and helping to develop contingency plans for their continued operations post-disaster.

OBJECTIVE 4.4.

GOVERNANCE AND COLLABORATION. INCREASE THE CITY'S COLLECTIVE CAPACITY TO IMPROVE SAFETY AND RESILIENCE OUTCOMES THROUGH EFFECTIVE COLLABORATION AMONG PEER AGENCIES, THE PRIVATE SECTOR, AND THE PUBLIC SECTOR.

POLICY 4.4.1.
Develop centralized strategies for City safety and resilience functions that hold individual agencies accountable for their roles in disaster planning, coordination, decision-making, funding, cost-sharing, implementation, and risk allocation.

The City must be prepared to deliver life safety and functional recovery services at all times. Beyond basic life-safety functions, critical government programs need to continue in the aftermath of disaster. While it is incumbent on each City agency to do their own planning, centralizing plans across departments is needed to ensure that efforts by individual departments complement each other and provide a continuous service to the public. These centralized strategies need to systematically ensure advanced planning results in the proper preparation activities, disaster response activities, and adjustments necessary for life safety and functional recovery. These strategies must also include securing dedicated funding essential to a sustained effort with program longevity and consistent engagement and outreach to connect with the private and public sectors.

POLICY 4.4.2.
Align safety and resilience work by regional, state, federal, and tribal government bodies to expand the reach and strength of local government support in the face of all hazards.

Actions that the City take should be consistent with regional, state, and federal plans and projections. the City should take steps to assist these larger governmental agencies in meeting local needs. The City can pursue cooperative actions with other jurisdictions such as recommending localized and evidence-based strategies, exploring policy advocacy and funding opportunities for alignment, and developing mutual aid agreements.

POLICY 4.4.3.
Form effective and clear partnerships with non-government bodies, such as community organizations, institutions, private companies, and development partners to reach all people, especially Environmental Justice Communities and other vulnerable people.

When a disaster strikes, the "all hands on deck" response requires advance collaboration and partnerships across agencies, sectors, and jurisdictions. The overall response provided by government agencies, the private sector, and the public sector must be evidence-based, timely and proportional, multi-objective, and well measured and quantified. The long-term capacity-building partnerships with major institutions, like hospitals and universities, private development partners, and community-based organizations, will support response, recovery, and reconstruction activities meeting the highest resilience strategies.

The response, recovery, and reconstruction strategies must be based on strong, local evidence in order to reach all people at the neighborhood-by-neighborhood or block-by-block level. The strategies must be acutely aware that the climate crisis is an emergency that is already impacting communities and the environment, and so there is urgent and transformative actions needed. The strategies must be developed around racial and social equity and long-term sustainability, and they must be tracked as close to real-time as possible, so that adjustments and recalibration can be made in an informed way.

Goal 5. Response

Provide San Francisco residents, workers, and visitors with the essential support and services needed immediately following a disaster for life safety and functional recovery. The first days after a disaster make up the response phase. Immediate response will focus on saving life and property damaged by the disaster and restoring functional recovery. The City has a network of emergency response strategies in place. The response activities will provide aid for the community, stabilization of day-to-day conditions, and support reestablishment of the critical economic welfare, social networks, and emotional well-being of the City.

OBJECTIVE 5.1.

LIFELINES. PROVIDE CRITICAL INFORMATION AND SERVICES TO PREVENT FURTHER LOSS OF LIFE AND ESTABLISH COMMUNITY SAFETY DURING THE IMMEDIATE AFTERMATH OF DISASTERS.

POLICY 5.1.1.
Ensure the City's lifeline systems are constantly maintained to be in a state of good repair.

In 2010, the Federal Transit Administration (FTA) launched an initiative to maintain the nation's bus and rail systems. With state of good repair, there are well maintained and reliable bus and rail systems that provide safe, dependable, and accessible services at a full level of performance. These initiatives include having an inventory of all assets; reporting their performance and performance restrictions; and managing assets for preservation, maintenance, and operation.

As example, the transportation system is infrastructure essential to disaster response, such as serving as evacuation routes to move people out of harm's way and limit further loss of life. It is important that the transportation system is maintained to be in a state of good repair, meaning it remains in function or can soon return to function immediately after a catastrophic event. The City should coordinate with relevant government agencies, such as Caltrans and Federal Transit Administration, to preserve and expand transportation investments and financing for a well-maintained and reliable transportation infrastructure.

In San Francisco, the City can extend state of good repair principles to all lifeline systems. Lifelines are systems and facilities that provide services vital to the function of society and are important to the emergency response, recovery, and reconstruction after disaster. These systems and facilities include communication (phone, radio, television, internet), power (electric, fuel, gas), transportation (airports, highways, ports, rail, transit), water and wastewater, and more.

To extend to other lifeline systems, the City should pursue an inventory, reporting system, and asset management plan to ensure the City's lifeline systems and facilities are constantly maintained to be in a state of good repair.

POLICY 5.1.2.
Ensure plans are in place to support people most at risk during breaks in lifeline service.

As events have repeatedly shown, from the Loma Prieta earthquake in 1989 to SARS-CoV-2 in 2019, the most vulnerable populations become even more vulnerable when the City is disrupted by disasters. Gaps in transit service can drastically impact immobile populations such as the elderly, low-income, and medically fragile, especially in terms of their access to medical care. Loss of electrical power can also be a problem for homebound and medically-dependent individuals. Programs to notify officials, especially power providers, of these individual locations should be developed so that patients who may be unable to help themselves during a power outage or any other emergency can get the necessary support, including continuing medical care for chronic conditions and delivery of prescription refills.

POLICY 5.1.3.
Mitigate threats posed by digital hazards, such as terrorism and communication failures, to City systems and infrastructure.

While the City does maintain some risk of terrorism, it is more likely at risk of deliberate acts intended to impact its service and communication networks. Often the objective of such acts is not destruction or death, but disturbance—a visible impact to the City's public services, economies, and social networks. Critical facilities include the City's communication systems, such as its fiber-optic data network and network data, its physical infrastructure, such as its water and power systems. It is important to upgrade public facilities to enhance security, through physical security measures, cyber protection measures, and tight security procedures and policies as technology and practices improve. Redundant networks will help ensure that incidental failures do not have grave impacts.

The communications asset class transmits voice and data communications by cable, telephone, or broadcasting. San Francisco Department of Technology manages a wide array of communications systems, including radio, TV, internet, City internal data network, public warning sirens, emergency call boxes, communication path for traffic signals, and the Mayor's Emergency Telephone Systems (METS). In addition, private communication operators own TV and radio antennas, cell sites, hubs, fiber networks, and switches for TV, radio, internet, cell phone, and voice communications.

The key City-owned systems include the municipal fiber optics network, data centers, and an 800 Mhz radio system.

- **Fiber optics network:** This fiber network provides internet access, email, and VoIP communications. There are hundreds of miles of fiber optic cable connecting every municipal building in San Francisco.
- **Data centers:** The primary data center located in San Francisco stores, manages, and disseminates the data for most of the City's communications systems. A back up data center has been established in Rancho Cordova, CA. There are two separate network paths to Rancho Cordova for redundancy.
- **800 Mhz radio system:** The City is transitioning to a new 800 MHz radio system for emergency communications. The system relies on 11 antennas placed on buildings or high locations throughout the city, with two antennas located outside of San Francisco in Daly City and San Bruno. Most antennas are located on shared radio tower sites on buildings or high ground. The towers are not owned by the City. They are built to the highest seismic standards, but the performance of the buildings on which they are

placed is generally not known. Loss of one or more antennas in the network will degrade communications, but the system is designed so it can remain operational despite loss of several antennas. The antennas are connected to each other by fiber cables and microwave paths. The radio towers have back up power.

The private communications systems are owned by a wide range of operations, including Verizon, AT&T, T-Mobile, and Comcast, as well as private fiber optics networks and data centers that these operators rely on.

POLICY 5.1.4.
Increase communication capabilities in preparation for all phases of a disaster, and ensure communication abilities extend to hard-to-reach communities.

Communication will be necessary and critical to the City in the response phase immediately following a disaster and in the recovery and reconstruction period. The City should have redundant networks in place to communicate at all levels, to coordinate internal staff and emergency response personnel, and to convey public information. The public communication should be equitably disseminated to ensure outreach to special needs populations, such as the hearing impaired or non-English speakers. The communication methods should be culturally competent, address the digital divide, and be independent from reliable cell service, such as outdoor public warning systems.

In addition, existing neighborhood organizations can develop local models that serve the same purpose. Development of a neighborhood communications plan can allow community members to keep in touch with, and keep track of, their neighbors, particularly the elderly or disabled that may be most in need of support during a time of emergency. Elements of this plan could include phone trees, text message trains, and the establishment of physical block captains to perform door-to-door checks if necessary.

The Department of Public Health's Community Response Plan calls for community members and organizations to have the means necessary to be inform policy makers about the damage and critical needs of each neighborhood throughout the City. By having a method for communicating at the neighborhood level, community members will be able to notify officials and seek out help in areas of the City that might be difficult to reach after a disaster.

POLICY 5.1.5.
Develop a system to convey information during and immediately after a disaster.

In addition to conveying general public information about the disaster to people and the outside world, the City will also need to respond to more personal inquiries by impacted people. This can include questions about what services and aid is available, as well as inquiries about the location, health, and welfare of relatives or other community members.

The City should plan for an information system composed of a series of local Public Information Centers intended to convey more personalized information to the public. These centers should be located in accessible community locations, such as libraries, but should also be sited away from the centers of emergency activity, such as lifeline facilities. They can be outdoor public warning systems, centralized online systems, and decentralized offline systems. These centers should be connected to receive up-to-date information from law enforcement agencies, other City agencies, the school district, public shelters, local hospitals, and the coroner, and they should also be linked to regional centers in other parts of the Bay Area. During a disaster, these regional information centers should be directly linked to consumers via the 311 City phone service.

POLICY 5.1.6.
Follow the National Incident Management System (NIMS) procedures in declared emergency scenarios.

A major disaster will entail assistance from beyond the City's borders, potentially involving assistance of other Bay Area jurisdictions, the state of California, and even the federal government. To coordinate this assistance, the federal government has developed a national approach to incident management, called the National Incident Management System (NIMS), to act as the common language and procedural guide bridging different entities. NIMS was developed so responders from different jurisdictions and disciplines could talk to each other in a common language and work together better to respond to natural disasters and emergencies, including acts of terrorism. NIMS uses a systems approach to integrate the best of existing processes and methods into a unified national framework for incident management. Its concepts and practices cover incident management; standard command and management structures; and emphasis on preparedness, mutual aid, and resource management.

The City's various agencies, particularly those who are its first responders, are already familiar with the NIMS system and utilize its framework in the development of emergency response and other plans. The City should continue this practice, and ensure it is kept up-to-date with current NIMS practices. New approaches that will improve effectiveness are likely to result in refinement of the NIMS over time, so the City should maintain an awareness of any changes and incorporate them into its response planning and practices.

POLICY 5.1.7.
After an emergency, follow the mandates of the Emergency Response Plan and Citywide Earthquake Response Plan.

The Emergency Response Plan directs the City's actions after a disaster, assigning responsibility to agencies and departments. Many of the immediate actions needed to begin the recovery process are described in the Emergency Response Plan, such as debris removal, emergency building assessment and repairs, and meeting the immediate needs of federal and state agencies for information.

The Citywide Earthquake Response Plan supports this plan by providing response actions for the incident of an earthquake. Both plans should be used to guide all responsibilities and activities in the case of a disaster.

OBJECTIVE 5.2.

COMMUNITY PARTNERSHIPS. WORK WITH NEIGHBORHOOD-BASED ORGANIZATIONS AND TRUSTED PARTNERS TO EXPAND DISASTER RESPONSE ACTIVITIES ACROSS THE CITY.

POLICY 5.2.1.
Work collaboratively with nonprofit and community partners to assist Environmental Justice Communities and other vulnerable people during and immediately after a disaster to ensure resumption of social services.

In addition to disrupted infrastructure, such as transit and transportation, power, water, gas and sewer, phone service, the City will also face disruptions to its social services at a time when they may be most needed. The City's most vulnerable populations will be at risk of service disruption and delayed resumption, including seniors, people with disabilities and other functional needs, institutionalized or incarcerated people, youth who have been separated from their families due to the disaster, and residents of single-room occupancy hotels and public housing. Hospitals and clinics may be damaged or overcrowded, schools and daycare centers will be closed, and families may be separated. Centers for special needs populations may be temporarily shut down, due to damage or unavailability of employees. Local services, particularly those meeting the needs of low-income residents, may be ill-prepared to cope.

The City should have continuity policies and plans in place for its services. One way of supporting their immediate resumption would be to establish a policy clarifying that for specified City employees, their primary role as Disaster Service Workers is to carry out their everyday positions in social service provision. In advance of a disaster, processes should be established to ensure the continuity of payments to social service organizations under contract with the City.

The City is not, however, the only service provider that needs to plan for disasters. The City should assist local service providers so that they can resume services immediately following a disaster, including mental health centers, substance abuse services, homeless shelters, community health centers, and senior services. But in past disasters, lack of coordinated planning—between the City and among agencies—has resulted in gaps in aid or in redundant services.

Community-based organizations and neighborhood-level emergency planning efforts should plan for disasters and be in coordination and partnership with the City. Nonprofit groups are key players in disaster response, providing food and shelter in the short-term and assisting in longer-term recovery through services such as health care and job placement. In advance of disasters, the City can support community-based organizations by providing them with employee response training, insurance coverage, encouraging development of contingency plans, and offering opportunities for financial resources.

POLICY 5.2.2.
Identify and retain vendors and contractors to be readily available to respond immediately after a disaster.

When a disaster strikes, there will be a strain on needed goods and services, such as shelter, food, and waste removal. One way to address the urgency of post-disaster needs is to make arrangements with local and regional contractors before disaster strikes. Pre-qualifying of contractors who can respond in emergency scenarios and who have equipment to handle the work is another solution for immediate response.

The Office of Contract Administration maintains an emergency list of supply vendors. The Office should work with other departments to understand the types of supplies that may be necessary in the case of a disaster and have contracting options readily available, including an up-to-date list of qualified contractors. The list should contain sufficient sources for the kinds of goods that will be most in demand after a disaster—tents, food, etc. As-needed contracts should be readily implementable to meet emergency need, and existing contracts and franchise agreements should be reviewed for their applicability in the case of a disaster.

Public Works maintains a registry of construction-related contractors. This list can be a valuable resource after a disaster. The agency should ensure it is kept up-to-date, and that old or unavailable contractors are removed on an annual basis. The City should also explore methods that will enable small and local firms, including minority- and women-owned businesses, to take a more active role in the response and rebuilding process, it may be beneficial to develop a program to train and qualify local contractors for government-backed projects.

POLICY 5.2.3.
Develop and implement plans to accept, train, organize, and utilize volunteers in the delivery of basic emergency management tasks.

Post-disaster, it is likely that the City will see an outpouring of people willing and wanting to help with recovery efforts. The mobilization and reinforcement of these resources will require significant management by City responders. If no system is in place to harness the potential provided by these spontaneous, or "convergent," volunteers, this resource will be lost. Volunteers are convergent when they are unexpected, typically community members who wish to render aide following a large-scale emergency.

During the City's COVID-19 efforts, the Department of Human Resources (DHR) established an Emergency Volunteer Center (EVC) where it credentialed over 1,000 volunteers in the State's Disaster Service Worker Volunteer Program. DHR deployed over 600 of those volunteers to perform volunteer services with the Department of Public Health. The City should ensure that the lessons learned from its COVID-19 volunteer management and response efforts are incorporated into a revised plan for organizing and mobilizing convergent volunteers. This revised plan should encourage working in concert with the City's ongoing disaster service volunteer programs, such as the Neighborhood Emergency Response Team (NERT).

POLICY 5.2.4.
Develop strategies for cooperating with the media.

Having a media communication strategy is an important component of responding to a disaster. Beyond communicating locally and to the region, the media is the means by which the outside world understands what has happened. Media coverage leads to national, and potentially global understanding, of a disaster and its impacts. Media coverage can be a primary factor in attracting public and private aid. It can fuel demands for action and stimulate public support for actions to prevent or mitigate future disasters.

The Mayor's Office of Communication will direct all high-level strategic messaging regarding the City's overall emergency response. The Joint Information Center (JIC) will integrate Mayor's Office of Communication strategic messaging into the myriad of communications produced within the JIC, including media responses, public information alerts and notifications, and proactive social and traditional media content. The Mayor's Office's crisis communications plan should include strategies for openly and honestly dealing with the media. Procedures for disaster media relations should also ensure that the designated spokesperson—and in the case of a disaster, this may not be the usual media spokesperson—understands the depth of the disaster and the details of its impacts. Media kits should be prepared and ready for distribution as soon as possible.

There are frequently concerns about the negative impact of media coverage on a community post-disaster. Because of the nature of media, stories can often be overtaken by a focus on deaths and damage to property. Political leaders may be concerned about the negative publicity's impact on tourism and external investment, or fear that it could incite mass departure of business and residents. Even in the face of these fears, it is important that the City take a positive view of media operations and cooperate with the media based on a policy of openness.

Rather than restricting information, the City should work to present media organizations with a balance of information about the kinds of public actions and safety measures that have succeeded, as well as those that have failed, so that coverage can go beyond simply accounting for totals of loss. A news story focusing on the amount of earthquake damage inflicted could just as easily include information about the number and types of structures that survived because of hazard mitigation measures, and provide information about shelter locations, response and recovery efforts and priorities, and more.

OBJECTIVE 5.3.

HAZARD-SPECIFIC RESPONSE. ADDRESS ANY SPECIFIC, SHARED, OR COMPOUNDING NEEDS FOR COMMUNITY SAFETY IN THE AFTERMATH OF A DISASTER.

POLICY 5.3.1.
Establish a plan to facilitate the continuity of permitting services in the case of a disaster for building repairs and other essential permitting services.

Rebuilding the City post-disaster can be facilitated by increasing the points of access where permitting can occur. With certain hazards, it can be challenging and infeasible to maintain permitting continuity through the San Francisco Permit Center's in-person services. The City can offer a fully digital permitting platform and satellite, in-person permitting centers to offer one-stop City permitting services such as Building, Public Works, and Health permits. Through these accessible modes, permitting can increase building owners' access to services for their recovery planning and can reduce the possibility of overload at the central permitting facilities at the Planning Department and the Department of Building Inspection.

The City should develop a fully digital permitting process to be nimble in its continuity of permitting services and remote staffing capabilities in the event of a disaster. The digital platform can support the permitting roles and responsibilities across City agencies, such as the Planning Department, Department of Building Inspection, Public Works, and the Department of Public Health. These satellite centers can be operated on a temporary basis, perhaps until a targeted number of buildings are brought back online. Depending on the hazard and level of damage, the network of satellite centers may depend on building and outdoor safety, ability to congregate, or staffing availability.

POLICY 5.3.2.
Ensure historic resources are protected in the aftermath of a disaster and support post-disaster restoration of damaged historic buildings.

Preservation of the City's historic resources is an immediate concern when damage is being assessed. The older construction techniques of historic buildings make them more vulnerable to damage, and if the damage is noted without recognition of the resource's historic value, the building can be at risk of further damage or demolition. Having complete and accurate information to document historic resources is fundamental to ensuring they are not lost. This information can be mapped and used by assessors in the tagging of buildings post-disaster.

The Planning Department has been actively engaged in survey work through the Citywide Survey Program. The focus of the program is on neighborhoods that are undergoing long-range planning efforts or are the focus of intense development activity. The Citywide Survey Program will continue survey efforts in neighborhoods outside of Area Plan study areas as resources become available. While that Citywide Survey is underway, the City should make use of existing survey information, including privately developed property reviews, and ensure it is made available to the Department of Building Inspection and any other relevant contractors who may be charged with doing evaluations of damaged buildings.

Post-disaster assessment should include an analysis of the extent of damage to historic areas and resources. In a typical assessment scenario, assessors will attach a green tag if a building is structurally sound, a yellow tag where repairs are needed, and a red tag if the structure is uninhabitable. This system should ensure sufficient protection for historic resources post-disaster, in that all tagged buildings receive more detailed evaluation that considers survey information before any steps towards demolition are taken. The system could also include separate placards identifying the building as a historic resource. Without such identification, the buildings are at risk.

POLICY 5.3.3.
Address hazardous material and other spills by requiring appropriate clean up by property owners, per local, state, and federal environmental laws.

Spills, leakages, and releases of hazardous waste and substances can cause severe damage not only to the environment, but to public health. This is a particular issue for older industrial properties with historic contamination issues, as they convert to other uses or forms of development. In cases where environmental damage or hazardous spills have occurred, the City shall require all property owners and other responsible parties to report and to perform clean up to the level required by local, state, and federal environmental laws. Where such parties delay in this required clean up, the City, working with other regulatory agencies, shall take all measures necessary to ensure public health and safety is protected.

Goal 6. Recovery and Reconstruction

Rebuild San Francisco's built, natural, and social assets and communities towards a more equitable and resilient future. Short-term recovery actions—ensuring reconnection of utilities and services, temporary housing—are often an outgrowth of the response phase. Long-term recovery begins once many of those short-term actions are underway or have been completed—as the rubble and debris have been cleared, major services are restored, and daily operations are reinitiated. The actual reconstruction phase typically takes 5 to 10 years, but it can be much longer. Even across the City, full recovery—return to or improvement beyond the pre-disaster state—can vary considerably from neighborhood to neighborhood. Some areas might be best repaired and rebuilt similar to their pre-disaster conditions, while other areas with pervasive damage may need new area plans applying citywide objectives. Advance planning will improve the City's ability to make decisions quickly and equitably. Longer-term recovery and reconstruction decisions will need to be made by decision makers—including the Mayor, the Board of Supervisors, the Planning Commission, and others—with considerable public involvement by the people most impacted by hazards and their consequences.

OBJECTIVE 6.1.

BUILDINGS AND INFRASTRUCTURE. **MAXIMIZE THE OPPORTUNITIES TO RESTORE AND REBUILD THE BUILT ENVIRONMENT WITH RESILIENCE TO ALL HAZARDS.**

Housing Security and Justice

POLICY 6.1.1.
Support actions to mitigate the spread of homelessness pre-disaster and increase the likelihood that the City's stock of lowest-cost housing will survive post-disaster.

Individuals and families experiencing homelessness have high exposure to risks and are especially vulnerable to hazards. They lack adequate shelter and protection from harm. Post-disaster, especially for catastrophes with potential to destroy housing, the City's existing shortage of affordable housing will be exacerbated. A significant portion of the City's affordable housing stock are provided by some of the neighborhoods most vulnerable to serious damage in an earthquake. Much of the City's lower-cost housing is provided through older buildings, which are more likely to sustain damage in the case of an earthquake. Many of these older units are kept affordable through rent control. Through state-mandated vacancy decontrol, the rent of rent-controlled units may be increased when the unit is vacated, and the unit does not have to be restored if the unit is replaced. Without action, sea level rise and flood hazards may increase risk in lower-cost housing in Environmental Justice Communities. These conditions are likely to exacerbate homelessness and displacement post-disaster.

Damaged affordable housing units and single-room occupancy hotels should be repaired as expediently possible, and if necessary, replaced on a one-to-one basis. Cooperation among the private market, nonprofit agencies, and local, state or federal government sources should pursue achieving a similar level of affordability as units are replaced or made resilient to future hazards. Eviction regulations in the post-disaster period should ensure the disaster is not misused to remove tenants with lower rents.

Pursue policy advocacy at the state and federal levels to enable eviction moratoria and rental relief during disasters, such as the eviction moratoria during the COVID-19 pandemic. This relief should be available to vulnerable people, property owners, and businesses who are displaced by disasters and to facilitate their right to return. In the wake of a disaster, it may be difficult for residents, especially renters, to demonstrate proof of residency and liaise with landlords and property owners. The policy advocacy should identify inclusive eligibility criteria, robust funding sources, and have limited barriers to accessing the relief.

POLICY 6.1.2.
Provide adequate interim accommodation for residents and businesses displaced by a major disaster in ways that maintain neighborhood ties and cultural continuity.

While the City's first priority should be to encourage and enable the retrofit of residential buildings, to minimize damage and allow residents to shelter-in-place following a disaster, the Department of Emergency Management estimates that after a major earthquake, between 20,000 to 90,000 housing units may be destroyed or substantially damaged. Many businesses that provide necessary services to residents will also be displaced. The Care and Shelter Plan establishes a framework for the provision of emergency shelter for the general population. The Care and Shelter Plan should be expanded to accommodate people experiencing homelessness at the time of disaster. Currently, no specific agency is tasked with the responsibility of interim housing, nor with finding temporary space for displaced businesses. Future implementation plans should address these issues.

The City should designate a lead agency to plan for interim housing and business needs. This agency should work in collaboration with state and federal agencies to consider City goals and advocate for the affected communities. To maintain relationships and connections within the community, interim housing and other facilities should prioritize keeping residents in their neighborhoods and near their pre-disaster homes as much as possible.

POLICY 6.1.3.
Repair damaged neighborhoods in a manner that facilitates resident return and minimizes long-term displacement, prioritizing Environmental Justice Communities and other communities disproportionately impacted by housing disparities.

San Francisco neighborhoods have distinct characteristics, and often have long-term residents, businesses, and institutions. Many neighborhoods have distinct cultural identities and provide the bonds of community for their residents. The City, in cooperation with state and federal agencies and community-based organizations, must manage rebuilding to minimize long-term displacement, retain neighborhood cohesion, and expand housing opportunities for communities disproportionately impacted by housing disparities.

As such, plans should provide opportunities for those who lived in the area to return to new or repaired homes and other facilities there. The City should explore methods of providing return rights to tenants that must vacate their unit because of reconstruction, renovation, or improvement. These methods may include the "right-to-return," down payment assistance, lottery preference, and other financial assistance that would relate to accessing private market, below-market-rate housing, and public housing.

POLICY 6.1.4.
Protect individuals and families experiencing homelessness in the wake of disaster.

Homelessness, and the risk of becoming homeless, will be exacerbated by hazards. The 1989 Loma Prieta earthquake damaged homeless shelters and numerous single-room-occupancy hotels that were an important source of housing for the very poor.

In preparation for disasters, the City should inventory its stock of homeless shelters, single-room-occupancy hotels, and transitional living facilities. The City must ensure its post-disaster plans consider major social issues like homelessness. With many properties destroyed or uninhabitable, it will be even more difficult for this challenged population to find suitable housing after an earthquake. Transition to long-term shelter will be needed for those already homeless, requiring long-term aid and greater assistance than is typically required by disaster victims. When a disaster strikes, it can be traumatizing to a community already disproportionately impacted by mental health. The City should pair long-term shelter and aid with comprehensive, evidence-based systems that offer a continuum of care, such as mental health and substance abuse care, social work, and other supportive systems.

POLICY 6.1.5.
Ensure sufficient affordable housing and workforce housing during reconstruction.

Lack of housing can have a severe impact on economic recovery. If the labor pool has nowhere to live, they are unable to work. Limited housing opportunities, particularly for low-income communities and low-wage workers, can curtail the available labor pool for construction activities during rebuilding, and the absence of permanent housing once businesses have come back online may cause local employees to seek work elsewhere.

The City should partner with the business community in restoring workforce housing for the community after a disaster. The most useful assistance local businesses can provide may be financial contributions, whether they are at-large contributions coordinated by the City or direct subsidies offered to their own workers. Some possible methods include the development of employer-directed community land trusts or rental deposit and down payment grants for displaced workers.

Reinforce Hazard Mitigation

POLICY 6.1.6.
Encourage continued and adaptive reuse of San Francisco's existing building stock, including those with architectural and historical merit, to reduce greenhouse gas emissions that may otherwise occur from new construction.

Post-disaster, the City should prioritize the repair and rehabilitation of existing buildings. As feasible, existing buildings should follow life safety and functional recovery standards, and then, be recovered as close as possible to pre-disaster conditions and use. This repair and rehabilitation of existing buildings, as compared to new development, will mitigate greenhouse gas emissions, especially when reinforcing climate mitigation principles.

In addition to those with architectural and historical merit, existing bodies contain embodied energy, and thus, their preservation can be a sustainable practice when compared to new construction. The practice of reuse can reduce or completely eliminate greenhouse gasses that are emitted as the result of demolition, manufacturing and transport of building materials, and new construction—the greenest building is one that is already built. Furthermore, less environmental strain is caused from the reduced extraction of natural resources from materials development and reduced solid waste from demolition. Promoting the reuse, rehabilitation, and restoration of existing buildings can thus help to reduce the City's carbon footprint, serving as a valuable climate mitigation technique.

POLICY 6.1.7.
Apply sustainability practices in rebuilding projects, consistent with the City's Climate Action Plan and greenhouse gas emissions reduction targets.

Particularly with large-impact earthquakes, buildings and infrastructure may be compromised or destroyed. Salvaging their materials not only aids in reducing the amount of debris going to a landfill and reducing air quality emissions associated with demolition, it also contributes to the local economy and supports the rebuilding process. The City should support the establishment of new businesses that can reclaim, warehouse, and resell salvaged materials. The City should also provide incentives to promote incorporating salvaged materials in construction.

One way the City could support a market for these materials is to develop policy that requires rescue and reuse of salvaged materials in new development and rebuilding projects. The City has many green building requirements already in place that should be reconsidered and perhaps expanded in light of projected post-earthquake rebuilding needs.

POLICY 6.1.8.
Ensure equitable outcomes in the consideration of design character and quality in all rebuilding projects.

A disaster may damage many of the neighborhoods and buildings that contribute to the City's urban design character, and it is imperative that reconstruction be done in a way that will strengthen urban design character, as the city continues to grow and evolve. The City's attitude toward rebuilding will have to balance sometimes competing objectives—the need to rebuild quickly, the need to rebuild equitably and with robust input and participation of the affected communities, and the desire to maintain or improve design character. All reconstruction should be centered in racial and social equity and should follow the framework put in place by the post-disaster recovery and reconstruction plan, as well as the urban design standards and design guidelines already in place in the city.

It is important that large-scale rebuilding does not succumb to the political pressure of property owners to rebuild, at the sake of important interests in racial and social equity, community participation and engagement, urban design, historic and cultural preservation, and hazard mitigation and resilience opportunities. While other policies speak to the need for timeliness in reviewing reconstruction projects, the policies developed must ensure humane outcomes for vulnerable communities and that design character and quality are not ignored in the urgency of rebuilding.

OBJECTIVE 6.2.

ADVANCE RECOVERY PLANNING. COMPREHENSIVELY PLAN FOR THE RESTORATION OF CITY FUNCTION AND ECONOMIC ACTIVITY, WITH FLEXIBILITY TO KNOWN AND UNKNOWN HAZARDS.

POLICY 6.2.1.
Before an emergency occurs, establish an interdepartmental working group to develop an advance recovery framework that will guide long-term recovery, manage reconstruction activities, and coordinate expedient rebuilding aligned with City policies.

Advance recovery planning is critical role for the City's resilience. A framework for recovery and reconstruction can expedite decision-making based on already agreed-upon priorities and goals. The City's history of disaster has proved that pressures for speedy rebuilding are strong. Therefore, it is critical that the governance and planning framework for recovery and reconstruction be established before disaster occurs.

To provide direction for any planning that happens post-disaster, the Mayor and the Board of Supervisors should establish an interdepartmental working group to create a framework for recovery and reconstruction. The working group should be comprised of representatives from the following departments: the Mayor's Office, Mayor's Office of Economic and Workforce Development, Mayor's Office of Housing and Community Development, Controller's Office, Chamber of Commerce, City Attorney's Office, City Administrator's Office, Office of Resilience and Capital Planning, Office of Community Investment and Infrastructure, Office of Racial Equity, Department of Building Inspection, Department of Emergency Management, Department of the Environment, Planning Department, Public Works, Public Utilities Commission, Human Rights Commission, the Board of San Francisco Travel, the Academy of Sciences, among others.

The framework should outline the City's priorities and guidelines for the City's post-disaster recovery and reconstruction. This framework should be tested through scenario planning before being developed fully into a post-disaster recovery and reconstruction plan. While such an effort cannot anticipate the impact of every disaster, the effort can reduce the demands of rebuilding after a disaster.

POLICY 6.2.2.
As a part of the advance recovery framework, develop and adopt a repair and reconstruction ordinance.

The rebuilding and reconstruction efforts that will need to be undertaken after a disaster will need to be swift in repairing lifelines, homes, and other resources the City depends upon. After a disaster, the Departments of Building Inspection and Planning will likely see a surge in permit applications. While the Department of Building Inspection already maintains procedures to deal with emergency repairs, the City does not have plans to deal with the sustained demand that may result from large-scale reconstruction. Upon completion of the advance recovery framework, the task force should develop a recovery and repair ordinance that help implement the framework and facilitate the repair and reconstruction of buildings following disaster.

The recovery and repair ordinance should build upon existing building and planning code standards and policies to facilitate an efficient reconstruction process, help to simplify and expedite the permitting and review process, support integration of racial and social equity and resilience principles, while avoiding a hastily administered permitting process. The ordinance should establish clear permit processing and review procedures to expedite rebuilding in the post-disaster period, while providing the amount of review necessary to ensure that reconstruction meets the City's objectives and appropriate local policies, plans, and code standards, yet is economically feasible.

The ordinance should consider policies to address nonconforming uses and buildings, explore modifications to outdated codes and standards, consider the applicability of the City's notification or other review procedures, and address historic buildings to ensure that, to the greatest extent possible, repairs maintain the integrity of the structure without adversely affecting its historic nature. The ordinance should also revise post-earthquake building inspection protocols to identify buildings that have reached functional recovery that can be occupied safely despite damage and loss of utilities, allowing residents to safely shelter in place while waiting to make repairs.

The ordinance should create priority categories for building types, prioritizing critical response facilities first. The ordinance should also be clear on the length of time during which it is applicable. It is important that the ordinance not work in conflict with other City goals. Large-scale damage to confined areas might warrant specific neighborhood-level plans or reconstruction guidelines, and these will take time to prepare. If necessary, the ordinance should allow for periods of non-building while important changes are adopted into law. The ordinance should also include sufficient provisions to ensure that it is evaluated, and amendments can be made as needed, post-disaster, to appropriately address the disaster impacts.

POLICY 6.2.3.
As a part of the advance recovery framework, coordinate the realignment of government post-disaster, so City employees' skills can be used effectively towards recovery and reconstruction efforts.

New roles and responsibilities for governments will emerge after a disaster strikes. It is imperative that government be nimble enough to adjust to the various new roles after the disaster. The City should be willing to reconfigure offices, departments, and services to be best serve the public after a disaster. The Disaster Service Workers program may extend into recovery and reconstruction phases.

For instance, there might be the need for the Planning Department, Public Works, or Department of Building Inspection to work together in teams and be decentralized with satellite offices set up in neighborhoods that were particularly devastated by a disaster. By placing them in neighborhoods, their time can be better spent on the ground understanding what type of reconstruction is necessary and possible, through inspections and site visits with building owners and residents.

POLICY 6.2.4.
Update the advance recovery framework on a regular basis so that it continues to be aligned with City goals and values.

The advance recovery framework should be updated as necessary to reflect changing conditions, changes in City policy and technology, and changes in state and federal regulations that affect post-disaster recovery management, financing, and other processes. The task force should set, in its creation of the plan, a schedule for regular updates to ensure it keeps up with shifting community priorities as well as to keep it present and important in the public's mind. The community must be involved in the process to identify and develop the community priorities, along with the specific core values of recovery. The advance recovery framework can inform more targeted resilience planning processes that are place-based or site-specific, such as in Environmental Justice Communities or other areas vulnerable to disaster.

POLICY 6.2.5.
Develop and maintain broad public support for the advance recovery framework to ensure its eventual implementation.

Once an advance recovery framework is developed, its work is not over. Implementation of the framework post-disaster is its critical mission, and achieving this in the aftermath of a disaster will require vigilance on the City's part. Community demands for rapid reconstruction will likely be perceived by many to be in conflict with calls for post-disaster planning and time needed to complete such a process.

The City should develop an ongoing program to regularly train the City's leadership and build community support for the framework to ensure its implementation in a time-compressed and high-pressure post-disaster environment. While there will always be tensions to rebuild quickly post-disaster, the desire for haste should not preempt the implementation of the recovery framework or undermine a potentially necessary recovery and rebuilding process. The community outreach process for the advance recovery framework should provide a vehicle to strengthen community support.

POLICY 6.2.6.
Post-disaster, build upon the advance recovery framework to create a recovery and reconstruction plan to direct the City's reconstruction activities, manage the long-term recovery period, and coordinate rebuilding activity.

Using the pre-disaster framework as the basis for all planning, the next step is turning that framework into tangible actions to direct and manage the specific impacts of an actual disaster.

Therefore, after a disaster occurs, the City shall establish a recovery and reconstruction task force to guide the planning process and plan development built upon the City's recovery framework. The task force should be made up not only of City agencies represented in the working group, but also a range of community representatives, including business interests, nonprofits and industry leaders, policy advocates, and neighborhood representatives. The task force should also engage with and involve representatives of other counties, state, and federal agencies. The task force's efforts should be directed by a designated lead agency or individual who can facilitate the recovery and reconstruction planning process and oversee its implementation.

The task force will be responsible for the development, drafting, and adoption of the post-disaster recovery and reconstruction plan, following the established framework and guidelines. Perversely, a disaster may present the City with a unique opportunity to physically, economically, and socially strengthen the City and the region equitably; the recovery and reconstruction plan should take advantage of this opportunity.

POLICY 6.2.7.
Rebuild after a major disaster consistent with established General Plan objectives and policies.

The General Plan has been adopted, after much public consideration, to assure the preservation, enhancement, and safety of this very desirable urban environment. In efforts to restore damaged areas of the City, existing development policies and regulations should be respected. Opportunities may be created for realizing General Plan policies, such as increasing affordable housing, improving circulation

systems, and providing public or private open space. In areas with extensive building and infrastructure damage, an area plan may be the best approach to coordinate rebuilding to take advantage of opportunities for neighborhood improvement. The rebuilding process may also enable possibilities for advancing environmental justice, increasing mobility through improved and increased public transit, as well as other alternatives to the private automobile. Future Elements and Area Plans of the General Plan should be formulated with an awareness of their potential applicability in relation to disaster recovery.

POLICY 6.2.8.
Ensure that an equitable recovery and reconstruction plan is adopted that is comprehensive and consistent with already established City goals, policies, and programs.

The recovery and reconstruction plan will need to prepare the City to meet immediate changing needs after a disaster. Special services and facilities will be needed on a short-term basis, including temporary housing, commercial facilities, and health and human services. During the recovery period, it may be necessary to temporarily locate these facilities in areas not normally available for development, or at higher densities than is normally allowed. Extensive damage may warrant reconsideration of large-scale issues such as housing locations, transit, and public infrastructure such as streets and freeways. A detailed recovery and reconstruction plan may require planning at scales that exceed existing policies and controls.

The recovery and reconstruction plan should build upon established General Plan goals, objectives, and policies, and ensure consistency with City programs, policies, and regulations. The plan should include clear policies and programs addressing the following at a minimum:

- Coordination with federal and state agencies
- Coordination with other regional cities and counties
- Protection of Environmental Justice Communities and other vulnerable people
- Plans for interim housing (considered to be a part of long-term planning, because many of the housing solutions may become permanent)
- Plans for financing and incentivizing housing repairs and construction of potentially large numbers of replacement housing units, including consideration for affordability needs
- Plans for land use decisions and recommended changes in response to local opportunities
- Establishment of public reconstruction priorities

The recovery and reconstruction plan may also consider potential changes to the City's physical framework and development pattern, potentially reviewing issues such as:

- Structurally and geologically hazardous conditions and mitigation options
- Re-examination of street patterns, street design, and standards such as required width, etc
- Designation of areas for consideration of land acquisitions, reconfigurations, consolidations, and subdivisions
- Comprehensively addressing environmental justice issues
- Recommendations for changes and improvements to major transportation routes, transit networks, and other lifelines
- Revisions to City infrastructure networks, including possible undergrounding of utilities, and use of new technologies in service provision
- Guidance for financing and advancing the City's long-term economic recovery.

While the specific uses of public lands may vary after a large-scale disaster, public lands must be preserved for public purposes. As circumstances allow, pursue opportunities for expanding public lands for public purposes.

POLICY 6.2.9.
Where necessary, use the City's public authority to expedite repair, reconstruction, and rebuilding in a just and equitable manner.

In the aftermath of a disaster, there may be properties that lie fallow for some time. The damage may be so severe that owners without insurance simply abandon properties; absentee owners and landlords could choose simply to not return; and there may be cases where it is not economically feasible or possible for owners to rebuild.

The City maintains the authority to impose policies, rules, and regulations to protect the public welfare, order, and security. If public welfare is at stake—for example, in damaged rental properties that remain unrepaired and unoccupied, are a safety or health hazard, or have deteriorated to such a degree that they are unlikely to be restored to quality housing—the City may need to explore ways of restoring these units through partnerships with community-based organizations, neighborhood-based efforts, and other key stakeholders.

The City should carefully consider the lessons from history prior to exercising eminent domain. There have been historic misuses of the power of eminent domain that have significantly harmed communities. In the 1940s, eminent domain harmed the Japanese American community during internment with forcible loss of property and belongings. In the 1950s, the City exercised eminent domain once again and harmed the African American community during redevelopment of the Western Addition and the Fillmore. These pernicious events should be used as cautionary tales for future uses of this tool. The power of eminent domain can be used to expand public benefits, such as the Hualapai Nation of Arizona exercising its authority to reclaim land for tribal ownership and use. The City also used eminent domain to expand public benefits through the Central Subway, extending Muni light rail service.

In addition to health and safety, the City should prioritize housing equity in the community. The City can consider the return and retention of the American Indian community, Black community, and other communities of color post-disaster; the housing needs for individuals and families with experience of homelessness; the community needs for low-income and other vulnerable people; and the recovery and growth of the local business community.

OBJECTIVE 6.3.

EQUITABLE INVESTMENT. PURSUE PLANS AND STRATEGIES THAT WOULD EQUITABLY REBUILD SAN FRANCISCO FOR EVERYONE, STARTING WITH ENVIRONMENTAL JUSTICE COMMUNITIES.

POLICY 6.3.1.
Develop an economic recovery strategy to guide planning and implementation before the disaster strikes.

A disaster can have a major impact on the economic landscape of the City. Previous earthquakes have resulted in dramatic losses in office space and subsequent relocation of businesses; in drops in tourism, which is one of the City's major industries; and disproportionate impacts on small businesses, who have fewer resources with which to recover. The City should ensure an economic recovery strategy is in place to equitably foster business resumption and growth post-disaster.

In the wake of a disaster, many local businesses, particularly small businesses, will struggle to resume activity. They may have lost assets, necessary facilities or equipment, access to employees, and even their customer base. While the City's own funds will be limited from providing direct financial assistance, there are many other things it can do to support businesses. For example, in response to the COVID-19 pandemic, the social distancing and masking requirements, as well as discouragement of sharing indoor space, made it challenging for businesses such as restaurants and small retail shops from operating normally. The City's Shared Spaces Program supported small businesses by allowing them to expand their operations to outdoor places like sidewalks, streets, and open lots.

The City can encourage loan and grant funding from non-government sources, and further affected businesses' ability to secure loans from local banks or unions by offering government guarantees on loans. Tax incentives should be explored to encourage reinvestment and growth of business, including temporary payroll tax exclusion, sales tax exemption and tax write-offs on replaced business equipment and furniture, and property tax abatements.

The economic recovery strategy should prioritize the elements of the City necessary to support business activity, starting in Environmental Justice Communities, such as the restoration of transit and regional roadways; utilities and services available to the business community; and housing availability for the local workforce and customers. The City should work with the business community to develop this strategy, and solicit wide advice on how to facilitate business revitalization. The strategy should use the latest assessment tools provided by the Office of Racial Equity and center the needs of businesses that are owned by and/or serve residents in Environmental Justice Communities. The strategy may include recommendations to hasten the resumption of business such as loans, funding for workplace building repair, and financial assistance. Updates to the City's Economic Strategy, created by the Office of Economic and Workforce Development, should include plans for economic recovery in case of a disaster.

POLICY 6.3.2.
Support the efforts of the Controller's Office to ensure service continuation and financing of post-disaster recovery and reconstruction efforts.

The Controller's Office is the designated lead agency for the Finance and Administration Section of the Emergency Response Plan, supported by the Department of Administrative Services and the Office of the Treasurer. These groups are tasked with ensuring employee payment and compensation, and with payment of contractor and vendor accounts, in the immediate response phase of a disaster through recovery to pre-disaster service. These elements will be critical to the continuing operation of City services.

In order to ensure continuation, the Controller's Office has programs underway to ensure that payroll continues to be processed for all City workers, implementing off-site payroll processing if needed; that employee compensation is resumed; that financial and accounting computer systems can recover and resume as soon as possible; and that all payments, both to City workers and to outside vendors, are processed within a reasonable time.

The City should actively encourage the use of direct deposit by all City employees, and inform all employees of the potential loss of pay in the event of a disaster for those who do not use direct deposit. Additionally, the Controller's Office should work with City employees not currently using direct deposit in order to provide backup account information that can be switched to direct deposit in the event of a disaster. The City should assist those employees without access to a bank account to open an account with a bank or credit union.

The Controller's Office will also direct the established financial policies to guide the City in its response and recovery to an emergency, particularly as it relates to personnel time, contracts, and equipment and supplies relating to the emergency. As a part of this responsibility, the Office should work with other City agencies to determine need for contracts with vendors who do not already occur on existing approved vendor lists, and it should set up these new vendor contracts well before the emergency occurs.

POLICY 6.3.3.
Provide the basic needs of all people while lifeline support is interrupted.

Beyond the immediate aftermath of a disaster, and beyond the assurance of infrastructure with explicit life safety purpose, there may still be persistent and critical basic needs for the people of San Francisco as the City recovers from disaster. The City should make a plan and provide support to cover the basic needs for all people while systems are reestablished and communities return to self-sufficiency. The plan should include basic shelter, health, and food needs, and focused on those with the least adaptive capacity for self-care. This includes Environmental Justice Communities, people with disabilities and other functional needs, the young and the elderly, and other vulnerable people.

POLICY 6.3.4.
Explore expanding the scope of the City's disaster relief programs.

The City provides financial relief to property owners through tax programs including disaster relief on property taxes, and participation in the state's Section 69.3 property tax disaster relief program which enables former residents who move to other counties to maintain their previous level of property taxation prior to the disaster.

The City should review other forms of tax relief to affected residents and business owners, including reductions on other fees and taxes. There are many local taxes and fees that are under the jurisdiction of the City, and the City has the authority to waive or defer such taxes and fees in an emergency.

Educating residents about the lack of access to funds in the event of a disaster is critical. The Office of the Treasurer and Tax Collector should be involved in working with financial institutions and educating the public on how to access private funds during a time when typical procedures will not be possible. For example, the City can leverage banking contracts to assist residents directly with cash payments.

POLICY 6.3.5.
Ensure effective use of public emergency funds and expenditures, and recovery of those expenditures.

The Controller's Office is responsible for tracking expenditures for the cost of responding to, and recovering from, the disaster. This includes tracking, recording, and reporting on all payments made in response to the emergency, including personnel working during the emergency, outside contractor work, and expenses such as supplies, materials, equipment, and vehicles.

It is important that the tasks that are authorized are relevant and necessary, and that their completion is well-documented by the Controller's Office and its supporting agencies. This documentation will be critical in submitting disaster reimbursement claims to the state and federal government and ensuring support funding is received.

Glossary

This Glossary is intended to define key words and phrases used throughout the Safety & Resilience Element of the San Francisco General Plan, to guide interpretation of the goals, objectives, and policies.

adaptation, adaptive capacity

- Adaptation is the ability, competency, and capacity of a system to adjust to variables. Climate Adaptation is the proactive measures taken to adjust the built environment and human systems to reduce harm from the impacts of the climate crisis.

- Adaptive capacity refers to the ability to adjust functions to reduce harm. In social systems, it refers to the ability of institutions and people to problem solve and take opportunities for recovery and reconstruction. It includes the ability of San Francisco's individuals, communities, institutions, businesses, and systems to survive, adapt, and grow, no matter what kind of chronic stresses and acute shocks they may experience. For San Francisco this means (1) the ability to quickly respond and recovery from a disaster or large shock; (2) the ability to address systemic crises such as lack of economic mobility, inequity, poverty, and housing shortages; and (3) the ability to prepare for and address slow-moving disasters like climate change and sea level rise.

disaster

- A disaster is a hazard that has occurred, or a hazard event. A disaster is often—but not always—sudden and causes loss of life or great damage. The terms “disaster” and “hazard” are often used interchangeably. See *Hazard.*

environmental justice, Environmental Justice Communities

- Environmental justice is the equitable distribution of environmental benefits and elimination of environmental burdens to promote healthy communities where everyone in San Francisco can thrive. Government should foster environmental justice through processes that address, mitigate, and amend past injustices while enabling proactive, community-led solutions for the future.

- Environmental Justice Communities face environmental racism and subsequently bear disproportionate environmental burdens. Environmental Justice Communities are disproportionately low-income communities and communities of color. Leadership by Environmental Justice Communities must be involved in the creation and decision-making of environmental justice solutions. In San Francisco, Environmental Justice Communities are identified through the Environmental Justice Communities Map incorporated here by reference, and are defined as the census tracts with the top 30% of cumulative environmental and socioeconomic vulnerability across the City. The Environmental Justice Communities Map was developed in response to California Senate Bill 1000 (SB 1000) which requires cities and counties to adopt a map of “disadvantaged communities” and adopt environmental justice policies in their General Plan to address “unique or compounded health risks.” The Environmental Justice Map and Framework is expected to be adopted into the General Plan in 2023.

functional recovery

- Functional recovery is a standard for buildings and lifeline infrastructure to be designed and constructed to support the basic intended functions of a building soon after an earthquake or other severe hazard, such as eating, sleeping, shopping, or learning. This standard includes maintenance and the restoration of occupancy within a determined maximum acceptable time, and goes beyond life safety standards.

green building, green infrastructure

- The principles of green building lead building design, construction, and operation to reduce or eliminate negative impacts, and can create positive impacts, on climate and the natural environment. The local context, such as climate conditions, building types and age, and cultural traditions, contribute to green building approaches. In San Francisco, these principles are supported by the Green Building Code.

- green infrastructure is an approach to water management that protects, restores, or mimics the natural water cycle. It can be effective, economical, and enhance community safety and quality of life. Green Infrastructure incorporates both the natural environment and engineered systems to provide clean water, conserve ecosystem values and functions, and provide a wide array of benefits to people and wildlife.

hazard

- A hazard is a source of potential danger or an adverse condition that could harm people, socioeconomic systems, or built and natural environments. Hazards can occur naturally and/or by human influence. As interactions between society and the natural environment are complex, it can be difficult to delineate a singular source of hazards (e.g., human-influenced ignition of fires during drought conditions, development in low-lying areas prone to flooding).
- Geological Hazards include: Earthquake, Tsunami, Landslide, Dam or Reservoir Failure
    - An earthquake is a sudden slip on a fault in the earth’s crust, and the resulting ground shaking and radiated seismic energy caused by the slip.
    - A tsunami is a series of ocean waves caused by sudden movement of the sea floor, typically as a result of major earthquakes.
    - Landslide is a general term used to describe the downslope movement of soil, rock, and organic materials under the effects of gravity.
    - A dam or reservoir failure is an unplanned release of water resulting from the structural compromise or collapse of a dam or other structural element, such as the wall of a tank.
- Weather-Related Hazards include: Flooding, High Wind, Extreme Heat, Drought
    - Flooding is covering or inundation of normally dry land with large amounts of water, can be caused by the overflow of water from a stream, river, lake, coastal body, or a water control feature such as a pipe, dam, or levee.
    - The National Weather Service defines “high winds” as sustained wind speeds of 40 miles per hour (mph) or greater lasting for one hour or longer, or winds of 58 mph or greater for any duration.
    - According to the National Weather Service, extreme heat occurs when the temperature reaches extremely high levels or when the combination of heat and humidity causes the air to become oppressive and stifling. Generally, extreme heat is 10 degrees above the normal temperature over an extended period.
    - Drought is insufficient water over a prolonged period.
- Combustion-Related Hazards include: Large Urban Fire, Wildfire, Poor Air Quality
    - A Large Urban Fire is a large, destructive fire that spreads across one or more City streets.
    - A Wildfire is an unplanned, uncontrolled fire in an area of combustive vegetation or fuel.
    - Poor Air Quality is the condition of ambient air quality having high concentrations of air pollutants that are unhealthy to public health and the environment. The U.S. Environmental Protection Agency measures air quality with the Air Quality Index (AQI), which measures the concentration of five pollutants regulated by the Clean Air Act: ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. When AQI exceeds 100, air quality becomes unhealthy for certain sensitive groups of people, then everyone as air quality worsens.
- Biological and Toxic Hazards include: Pandemic, Hazardous Materials
    - A Pandemic is when an infectious disease outbreak occurs worldwide, or over a very wide area and affects many people.
    - Hazardous Materials are harmful both to human health and to the environment. An accidental hazardous material release can occur wherever hazardous materials are manufactured, stored, transported, or used.

infrastructure

- The assets and systems that deliver public services to a community, such as roads delivering goods and transportation options, telephone lines and fiber optic cables delivering internet, pipes and pumps delivering water, and the power grid delivering energy.

lifelines

- Lifelines are the systems, assets, and facilities that provide services vital to the function of society and important to emergency response and recovery after disaster. These lifelines include water, sewer, and power provision; communication networks such as phone, radio, television, and internet; transportation; food; shelter; health; and more. By definition, these lifelines can extend beyond City boundaries. For example, state and private agencies operate some regional lifelines, like highways or internet.

mitigation, hazard mitigation

- Mitigation is the reduction of vulnerabilities, risks, and impacts of hazards on people, assets, and the environment. Often strategic nearer-term investments, mitigation actions can lessen the scale and intensity of potential future damage, thereby reducing response and recovery expenditures. Proactive hazard mitigation is particularly important for protecting the most vulnerable populations.

- Hazard mitigation is a series of sustained actions taken to reduce or eliminate short- and long-term risks to life and property from hazards.

racial advantage (or privilege)

- Racial advantage, or privilege, is the unquestioned and unearned set of advantages, entitlements, benefits and choices bestowed on people solely because of their race.

racial and social equity

- Racial equity is the systematic fair treatment of people of all races that results in equal outcomes, while recognizing the historical context and systemic harm done to specific racial groups.

- Social equity is the systemic fair treatment of people of all social groups that results in equal outcomes, while recognizing the historical context and systematic harm done to specific groups, such as along gender identity, sex, religion, and disability status.

racial disparity

- Racial disparity is a condition where one racial group systemically and disproportionately experiences worse outcomes in comparison to another racial group.

recovery and reconstruction

- Recovery and reconstruction involve activities that restore and rebuild communities post-disaster—with fundamentals such as housing security, business resumption, lifeline restoration, and provision of essential services. The thoughtful rebuilding of day-to-day livelihoods can advance San Francisco towards a more equitable, sustainable, and resilient future.

resilience

- Resilience in San Francisco describes the capacity of individuals, communities, institutions, businesses, and systems within the City to survive, adapt, and grow, no matter what kind of chronic stresses and acute shocks they may experience. It is important to note that resilience is a concept that extends beyond preparation for discrete natural disasters and should be defined in connection to issues such as climate change, escalating urbanization, and other disruptions of daily life.

response

- Response efforts provide critical information and emergency services during and immediately after disasters. It focuses on saving lives and preventing further injury to people and places, particularly focused on vulnerable populations. Response activities bring immediate support and relief against the social, economic, and environmental consequences of disasters.

risk, risk reduction

- Risk is the chance that a given hazard could occur multiplied by the understood consequences of an impact on people, socioeconomic systems, or the built and natural environment.

- Risk reduction includes regulatory controls, plans, policies, programs, projects, initiatives, and anything else employed to eliminate, avoid, or minimize risks.

safety, life safety

- Safety is the state of being protected from harm or danger. This includes physical and mental harm from external and internal dangers.

- Life safety refers to building performance that prevents partial or total structural collapse and limits damage to nonstructural and non-life-threatening levels.

vulnerable communities

- For the purposes of the Safety & Resilience Element, vulnerable communities describe communities who experience heightened risk and increased sensitivity to potential harms than the City average. To be vulnerable means possessing a lower adaptive capacity to withstand stresses, and often means that these people and places are hit the “first and worst” by disasters. These disproportionate effects are caused by physical (built and environmental), social, political, and/or economic factor(s), which are exacerbated by adverse climate impacts. The specific population groups encompassed by this term vary from issue to issue, and vulnerability can be defined by a variety of factors, such as geography, demographics, health disparities, and asset ownership. For example, vulnerable communities can include seniors, people with disabilities and other function needs, institutionalized or incarcerated people, youth who have been separated from their families, residents of single-room occupancy hotels and public housing, and others. The designation does not describe any intrinsic characteristic of a group of people, but rather a failure of society and systemic actions which have rendered them vulnerable.

2022 Safety and Resilience Element adopted by the San Francisco Board of Supervisors Ordinance 0260-22 on 12/13/2022.

EXHIBIT 25

St. Nicholas Antiochian Orthodox Church

Antiochian Orthodox Christian Archdiocese of North America

5200 Diamond Heights Blvd, San Francisco, CA 94131

Parish History (from the 75th Anniversary, 2013)

On December 5, 1937, Founding parishioners gathered at a banquet with this Eminence Archbishop Antony Bashir to express their desire for a church in San Francisco. It was from this very enthusiastic gathering that plans for a church emerged. St. Nicholas parishioner, Elias Habeeb later recalled how his mother saw a building for sale at the corner of Gough and Green Sts. and told other leaders in the community about it. Eight months after the banquet the building was purchased and remodeled to meet Orthodox requirements.

The Ladies' Aid Society was formed and became the most vital arm of the Church. Led by Rose Naify, other members included Genevieve Naify, Victoria Habeeb, and Sadie Habeeb. The first Board of Directors: President, Nick Sahati ; Vice President, Shaded Romley; Treasurer, Fred Salih; and Secretary Dr. Carl Rayes. The Directors were: Aziz Anthony, Charles Anthony, Toufic Aswad, Fred Ayoob, Issa Badran, Tanios G. Habeeb, Elias Jeha, George Naify, James A. Naify, Mitry Ofeish, S.G. Sadallah and Dr. Simon Zachariah.

In September 1938 the church was incorporated and the following year its first full time priest, Father Brahim Corey served his first Liturgy. Within the next two years the pledge system was instituted, the first Sunday school class was held and the church was consecrated.

In 1944, Father Michael Khallouf became the second pastor. During his pastorate, the end of World War II was celebrated with a special liturgy of Thanksgiving. In 1947, plans for a larger church began. In 1951, the first youth group was formed. A building fund was established when a founding member bequeathed $5,000 toward the building of a new church.

October 1, 1952, Father Elias Karim became the Church's third priest. He served until 1964. During that time there were many firsts: The first choir was formed; the first junior youth group was formed; the Ladies Junior Auxiliary was established. In 1957, the church hosted its first Western Region SOYO Convention. The Men's Fellowship was formed.

In 1958, the church purchased a lot near the corner of Portola Drive and Burnett for $7,500, made possible by a personal guarantee by John Dudum and George Anthony. On October 8, 1960 a banquet was held to raise funds for a new church building, Archbishop Antony attended and raised $29,000 in pledges. In January 1960, the Diamond Heights area was being subdivided and St. Nicholas was qualified with six other churches to purchase the lot at the corner Diamond Heights and Duncan. The Agency left the decision up to the churches to pick the winner —- out of a hat. In a most dramatic moment, the President of the Board of Trustees picked the winning number. The lot bought previously was sold in favor of the Diamond Heights location.

Ground breaking ceremonies, with Archbishop Antony presiding, along with Building Chairman, Joey Ayoub, was held in 1962 and construction on the new church began. The first mission in the Bay Area was Church of the Redeemer in Los Altos in 1963. Before that time, St. Nicholas Parish extended from Sacramento to Santa Cruz, and the East Bay. Later that year the first Cadillac drawing was held.On May 10, 1964, Father Gregory Ofiesh became the Church's fourth pastor and celebrated his first liturgy here on Mother's Day. He immediately directed his efforts toward the completion of the construction of the new church building. The East Bay Auxiliary was formed. The old church and parish house were sold. In April 1965, the church was dedicated, Archbishop Bashir presiding. Ten months later Archbishop Bashir entered eternal life.

In March, 1966, Father Philip Saliba was elected as new Archbishop and served his first Hierarchical Divine Liturgy in August at the Archdiocese Convention here in San Francisco. The year 1968 saw our first Archbishop's Cotillion and our first camp program at St. Sava Camp in Jackson, CA. Our young men participated in the Orthodox Basketball Association for the first time winning the Church's first championship. We honored the Mother of the Year and the by-laws were revised.

In 1973, we burned the mortgage of the church. The seventies also welcomed Father John Ocana as our first assistant pastor and Father Gregory celebrated ten years as our Pastor. In 1976 we hosted our second Archdiocese Convention, a week-long event that was remembered throughout the Archdiocese for many years to come.

The Northern California Deanery was established and plans for an educational center began. St. John the Evangelist was established as a new mission in the East Bay. Issa Dib was ordained to the Diaconate. We can never forget our production of the Broadway musical, the "King and I" in 1977!

The Educational Center was dedicated in 1980 and an elementary school with a day care center was opened. The eighties saw the first woman chair of the Parish Council. The mortgage for the Educational Center was burned and plans for church expansion were initiated. The 50th Anniversary of the church was celebrated.

In 1990, restoration and expansion of the church began. Metropolitan PHILIP dedicated the newly expanded church in 1992. The Archbishop's Cotillion featured 15 young ladies in 1993. Bishop JOSEPH was permanently assigned to the Western Diocesan Center.

Father Paul Baba joined St. Nicholas. Father Nicholas Habib joined Father Gregory and Haytham Borzghol became the new youth director. Father John Salem was welcomed as Associate Pastor.

They all went on to successfully serve other parishes. There were dinner dances, Middle Eastern Festivals, but the highlight of the nineties was the visit of His Beatitude IGNATIUS IV, Patriarch of Antioch and all the East.

In January, 2000 the mortgage taken out on the expansion of the church was burned – the church was debt free. Father Gregory announced his retirement in 2000 and a banquet was held in his

honor on December 2.

In January 2001, Father Nicholas Borzghol became the pastor and served until 2012. During that time, we saw the tedious restoration of the outdoor icon of the Sermon on the Mount by a group of dedicated volunteers. Church organizations: Men's Fellowship, Ladies Auxiliary, Teen SOYO continued to thrive. Teen SOYO participated in Parish Life Conferences: Bible Bowl, Oratorical Contests. We succeeded in our bid for the Parish life Conference in 2014. Our basketball team was active in OYAA (Orthodox Youth Athletic Association) and won a championship.

Father George Baalbaki was appointed as Pastor in 2012. Shortly after his arrival, Father George, chatting with Father Gregory, realized that the church would be celebrating its 75th Anniversary in 2013 and thus the idea for this celebration was born. A chairman was appointed, committees were formed, and plans were underway for a three day celebration October 25, 26, and 27, 2013. Simultaneously a committee for the 2014 Parish Life Conference was appointed and plans were started.

There have been many challenges throughout the past 75 years, but the faith and determination of all who have served brings us to this celebration. To each and every one : clergy, choir, St. Ignatius, Parish Council, Men's Fellowship, Ladies Auxiliary, Ladies Aid, Altar Guild, East Bay Ladies, SOYO and Teen SOYO, St. John the Divine, Sunday School teacher or student, faithful supporter of St. Nicholas, we say thank you – you are an important part of the mosaic that makes up St. Nicholas Church.

Our church was built on faith and it is this faith of our fathers that will continue to inspire us in the future.

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