San Francisco Citywide Nexus Analysis

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SAN FRANCISCO PLANNING DEPARTMENT

ONESF Building Our Future

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LIST OF ACRONYMS

AB	Assembly Bill
ACS	American Community Survey
AICCIE	Annual Infrastructure Construction Cost Inflation Estimate
BSP	San Francisco Better Streets Plan (2010)
CIP	Capital Improvement Program
CPAC	San Francisco Child Care Planning and Advisory Council
CPC	Capital Planning Committee
DOF	Department of Finance
DPW	Department of Public Works
FCCH	Family license care home
GSF	Gross square feet
LIIF	Low Income Investment Fund
LOS	Level(s) of service
LTS	Level of Traffic Stress
MTC	Metropolitan Transportation Commission
OECE	Office of Early Care and Education
PEQI	Pedestrian Environmental Quality Index
ROSE	Recreation and Open Space Element
RPD	San Francisco Recreation and Parks Department
SFMTA	San Francisco Municipal Transportation Agency
TIDF	Transit Impact Development Fee

1. Introduction

In 2013, AECOM was retained by the San Francisco Planning Department and the San Francisco Capital Improvements Program, with direction from the City Attorney's Office, to update the City's nexus analysis. This nexus analysis update was done in conjunction with AECOM's 2014 *San Francisco Infrastructure Level of Service Analysis* report[1], a study that established citywide provision standards for various infrastructure elements. The level of service (LOS) targets for infrastructure presented in this report build directly on the standards developed as part of the *San Francisco Infrastructure Level of Service Analysis* report, as well as existing nexus studies for certain infrastructure types for the City of San Francisco and the City's capital plan.

REPORT PURPOSE

The purpose of this report is to present the nexus analysis findings of new growth's connection (nexus) to facilities for recreation and open space, childcare, streetscape and pedestrian infrastructure, and bicycle infrastructure. This analysis measures the need for community infrastructure generated by new population and employment growth, using a methodology that meets the requirements for development impact fees under applicable law. The fee program estimates development's fair share of the City's new facility needs to maintain levels of service for community infrastructure that contribute to the livability and overall quality of life in San Francisco.

The citywide nexus analysis, building upon existing adopted nexus studies, aims to develop a consistent, standards-based methodology for most existing impact fees, thus facilitating the City's future administration of impact fees, including meeting the five year reporting and updating requirements.

The Planning Code currently covers more than 20 development impact fees – including several single-purpose fees and several community impact fees that were established as components of larger planning processes for the City's geographic Area Plans.[2] As a result of many separately developed impact fees, the City has revised the Planning Code to ensure that each program is administered consistently. The impact fees and the administrative procedures governing them are found in Article IV of the Planning Code. This study aims to further standardize the analysis supporting development impact fees (specifically for recreation and open space, childcare, streetscape and pedestrian infrastructure, and bicycle infrastructure) to ensure consistent administration of existing and future development impact fees and their supporting studies.

In addition to developing a more standardized development impact fee assessment methodology, this study also satisfies the requirements of Section 410 of the City Planning Code which requires that all nexus studies be

[1] Although the report was finalized in 2014, the bulk of the analysis and report was produced in 2013.
[2] Area Plans, or Specific Area Plans, are detailed plans for city neighborhoods. Area Plans are identified in the City's General Plan, and include area-specific land use policies and regulations that guide development.

updated on a five year basis: the nexus analysis presented in this report aims to verify most impact fees in Article 4 of the Planning Code except those pertaining to affordable housing, community stabilization, libraries, and the Citywide Transportation Development Impact Fee. The nexus analysis complied with the requirements of the Mitigation Fee Act, and state and national constitutional law.

REPORT STRUCTURE

The remainder of the introduction will provide background on nexus fees, catalogue San Francisco's existing impact fees, outline the nexus fee determination methodology, and summarize the maximum supportable nexus fees. The following chapters of the report address each of the four infrastructure elements – recreation and open space, childcare, streetscape and pedestrian infrastructure, and bicycle infrastructure.[3]

BACKGROUND ON DEVELOPMENT IMPACT FEE PROGRAMS

Cities are authorized by law to levy development impact fees – which are monetary exactions, charged by a local government to a development applicant as a condition of approval for the development project. In most cases, the law requires the fee amount be reasonably related to the cost of the infrastructure provided by the government collecting the fee. The collected fee monies are allocated to pay for, or defray the costs of, the infrastructure improvements necessitated by the new development. Development impact fees may not be levied to pay for existing infrastructure deficiencies unrelated to the impacts of new development. Also a jurisdiction must normally legislatively adopt findings of a reasonable relationship between fee and impact to enact a fee program.

Although local governments began levying impact fees in the 1920s as a way to finance infrastructure, in 1987, the California legislature passed the Mitigation Fee Act (Assembly Bill 1600 or the Act) to establish principles governing impact fee exactions and, to some extent, codify existing constitutional requirements. The related Government Code Sections 66000-66025 establish legal requirements to implement a development fee program for fees that meet the terms of the Act. While not all of the fees analyzed in this report are necessarily subject to the Mitigation Fee Act, the City has concluded that, in most instances, establishing a nexus for any fee imposed by the City as a condition of development is prudent practice. According to the Act, to establish a development fee program, a jurisdiction must legislatively accept a nexus study that identifies:

- the **purpose** of any fees;
- how fees will be **used**;
- a **reasonable relationship** between the fee-funded infrastructure and the type of development paying the fee;
- a reasonable relationship between the **need** for particular infrastructure and the type of development paying the fee; and
- a reasonable relationship between the amount of the fee and the **proportionality** of the cost specifically attributed to development.

Development impact fees are common among California cities (including San Francisco) and are a well-accepted way to fund a variety of infrastructure such as recreation and open space, childcare, streetscape and pedestrian infrastructure, and bicycle infrastructure.

[3] Note that a transit infrastructure fee study is currently being undertaken in an ongoing update of the 2012 *San Francisco Transportation Sustainability Fee Nexus Study*, and, is therefore omitted from this analysis.

EXISTING DEVELOPMENT IMPACT FEES

San Francisco currently has more than 20 development impact fees, many of which the City established as a component of a larger planning process (either at the city or neighborhood level), and supported by a specific nexus study. Some existing impact fees are single-issue fees imposed citywide or in a limited area; others are components of community infrastructure fees. Table 1 catalogues the existing impact fees in San Francisco for the four infrastructure components studied in this report (recreation and open space; childcare, streetscape and pedestrian infrastructure, and bicycle infrastructure). In Table 1, single-issue fees for any of the four infrastructure items are reported, and community infrastructure fees are apportioned by infrastructure item.[4] Table 1 also highlights the maximum fee charged in each infrastructure category.

Table 1. Existing Related Impact Fees in San Francisco for Four Infrastructure Categories (2013 Fee Rates)

Fee Area	Recreation and Open Space	Childcare	Streetscape and Pedestrian Infrastructure	Bicycle Infrastructure	Other [1]	Total Community Impact Fee, where relevant, 2013[2] (GSF)
Residential Fees ($/GSF)						
Rincon Hill	$2.85	$0.00	$6.66	-	-	**$9.51**
Market and Octavia	$2.12	$0.83	$4.12	$0.05	$2.83	**$9.95**
Eastern Neighborhoods	$8.85	$1.24	$0.35	-	$7.26	**$17.70**
Balboa Park	$2.66	$1.68	$3.36	-	$1.15	**$8.85**
Maximum Residential Fee by Category ($/GSF)	**$8.85**	**$1.68**	**$6.66**	**$0.05**	**$7.26**	-
Commercial Fees ($/GSF)						
Downtown Park Fee	$2.21	-	-	-	-	-
Child Care: Citywide - Commercial	-	$1.11	-	-	-	-
Transit Impact Development Fee (TIDF)					$13.30	-
Market and Octavia	$0.52	-	$2.14	$0.02	$1.11	**$3.76**
Eastern Neighborhoods	$1.08	$0.46	$0.51	-	$13.42	**$15.48**
Balboa Park	$0.50	$0.32	$0.63	-	$0.22	**$1.66**
Visitacion Valley	$1.67	$1.12	$1.42		$0.86	**$5.07**
Maximum Commercial Fee by Category	**$2.21**	**$1.12**	**$2.14**	**$0.02**	**$13.42**	-

Source: San Francisco Citywide Development Impact Fee Register, January 1, 2013, and the San Francisco Planning Department.

1. Table 1 focuses on the four infrastructure categories analyzed in this nexus report. It does not include all fees included in Article 4 of the Planning Code (for example, it omits transit fees and affordable housing fees), or expenditures that are analyzed elsewhere (for example, it omits library fees, program administration, and transit fees).

2. The City annually adjusts all developer impact fees using an Annual Infrastructure Construction Cost Inflation estimate (AICCIE), as per Article 4 of the Planning Code.

The residential fees range across the neighborhoods from no fee (i.e., neighborhoods without community infrastructure fees) to almost $18 per GSF; the commercial fees range across the neighborhoods from no fee (i.e.,

[4] Apportionment of community infrastructure fees is based on the Planning Code (Section 4), as provided by Kearstin Dischinger, Senior Community Development Specialist of the Planning Department, in a spreadsheet entitled max_fee_by Category_Planned.xls. This spreadsheet is appended for informational purposes.

neighborhoods without community infrastructure fees) to more than $15 per GSF. Two additional downtown fees exist for childcare and parks, of $1.11 and $2.21 per GSF. A transit impact fee of as much as $13.30 per GSF is also charged citywide.[5]

STANDARDS-BASED NEXUS METHODOLOGY

Impact fees can be calculated several ways, but the foundation of all methodologies is determining an appropriate level of infrastructure for future development, the cost to provide this infrastructure, and a reasonable relationship between growth and cost, by which to apportion the cost burden.

With one exception, this study focuses on a standards-based approach, which relies on an explicit infrastructure LOS to derive a maximum supportable fee level. A per-unit provision standard is established by the City – for example, a certain number of acres of open space per person (or service population unit[6]) – and subsequent development must adhere to the standard. The nexus fee for development is based on development's share of the cost to provide this level of provision.[7] Applying standards-based metrics to impact fees allows the City to streamline the fee analysis process, creating a consistent methodology across all infrastructure types that can be easily understood, repeated and updated as necessary. This streamlined approach reduces costs, and strengthens the link between new development and demand for new infrastructure. Recreation and open space, childcare, and streetscape and pedestrian infrastructure nexus fees are established using this standards-based approach.

The *San Francisco Infrastructure Level of Service Analysis* report sets the foundation for the nexus, by exploring various metrics and LOS standards for select infrastructure items, and by providing a comprehensive study of San Francisco's infrastructure elements, current LOS provision, long-term aspirations, and short-term infrastructure LOS targets. The short-term targets are the standards used for the nexus analysis. These standards were developed through a review of existing City policies, interviews with City departments, and research on existing precedents. Note that setting citywide standards for infrastructure LOS is a complex undertaking that few cities have undertaken rigorously, making San Francisco an exemplar in its nexus approach.[8]

A more traditional project-based approach, in contrast, takes a list of planned infrastructure projects, and bases the nexus fee on the apportionment of their cost. This project-based approach is used for bicycle infrastructure. For bicycle infrastructure, the SFMTA has developed a comprehensive policy document that outlines specific capital projects for bicycle infrastructure. At the direction of the agency and with the support of stakeholders, the nexus for bicycle infrastructure relies on this policy document (SFMTA's 2013 *Bicycle Strategy*).[9] (Note that, although the bicycle nexus relies on a discrete list of projects rather than a per-population or per-service-population LOS, the cost is apportioned between residential and commercial development via service population. That is, the bicycle infrastructure requirements are determined by a project list (13 miles of upgraded bikeway, 13 upgraded

[5] The Transit Impact Development Fee (TIDF) ranges from $6.80 per GSF to $13.30 per GSF, depending on the land use (Economic Activity Category or Subcategory), as per San Francisco Planning Code Section 4.11.3 (e).
[6] Service population is discussed in more detail in the section, Additional Assumptions: Service Population.
[7] As long as the standard is not above the existing LOS conditions (i.e. as long as the existing LOS is not deficient per the standard), new development may bear the full burden of providing the LOS associated with its development. When a standard *is* above the existing LOS conditions, the City may require the development to bear the portion of the cost related to its fair share of the cost. In this case, best practice dictates that the City should demonstrate how it will fund the remaining cost to elevate the existing infrastructure to the LOS standard. The City cannot charge new development to increase an LOS for existing residents.
[8] San Diego applies a standards approach for park infrastructure and many California cities that are not built-out use level of service standards to inform master planned areas on the periphery of their respective cities.
[9] While this document is still a draft, SFMTA staff directed the consultant to use it because SFMTA is developing the Capital Improvement Program (CIP) project list to be put forward for board approval in April 2014 based on this document. Although no plans exist to take the 2013 *Bicycle Strategy* to the board for adoption, the project list derived from it will be taken to the board for CIP approval in April 2014.

intersections, etc.) as opposed to a per-service-population LOS; but, the cost of the bicycle infrastructure projects in the project list is allocated to development based on the increase in service population attributable to new development.)

INFRASTRUCTURE CATEGORIES

A nexus between development and maximum supportable impact fees has been determined for the following infrastructure types:


Recreation and open space


Streetscape and pedestrian infrastructure


Childcare


Bicycle infrastructure

All of these four infrastructure elements (recreation and open space, childcare, streetscape and pedestrian infrastructure, and bicycle infrastructure) represent areas where existing impact fees are charged – that is, areas identified by the City where development will require new capital investment.

CITYWIDE APPROACH TO IMPACT FEES

Although many existing impact fees result from the City's planning processes in various Area Plans, and thus are neighborhood-specific, the City seeks a nexus analysis that applies consistent nexus methodologies across varying fee programs and geographies. This nexus study is therefore conducted at a citywide level. While the City acknowledges that the actual implementation of fee programs may still vary based on specific considerations of individual Area Plans, a citywide nexus model provides a consistent nexus architecture that affords the City an over-arching structure and a program that can easily be administered and updated (with revised cost and demographic inputs) on a five-year basis.

INFRASTRUCTURE LOS

The LOS standards for each infrastructure element are shown in Table 2. Recreation and open space and streetscape and pedestrian infrastructure improvements are based on demographic projections through 2030, as a reasonable development timeframe, while childcare and bicycle improvements are based on shorter-term projections, due to the changing distribution of children in the city, and the proposed bicycle improvement strategy upon which the bike measures are built. In terms of childcare, because the number of children in San Francisco is projected to decrease after 2020, the childcare LOS provision is based on 2020 demographics to avoid under-providing childcare at the child population's projected peak.[10] For bicycle infrastructure, SFMTA's *Bicycle Strategy*

[10] Unlike the general population, the child population in San Francisco is projected to begin a slow decline within the next five to seven years. As a result, if longer-term projections were used, childcare facilities in the short-term would be under-provided. In addition, the City has many policies to encourage families to stay and live in San Francisco, such that the population of children may not necessarily decline as projected. A shorter timeframe to 2020 affords the opportunity to revisit the projections in several years without under-providing in the short-term. Avoiding short-term under-provision is especially prudent if the projected trend of a declining child population does not materialize.

that outlines their proposed projects is based on a five-year timescale, and has been extrapolated to the nearest decade end.

Table 2 includes the infrastructure LOS for the infrastructure categories using a standards-based approach (recreation and open space, childcare, and streetscape and pedestrian infrastructure), and the capital improvements list for the infrastructure category using a projects-based approach (bicycle infrastructure).

Table 2. LOS Metrics for Infrastructure Categories

Infrastructure Element	LOS Standard / Capital Improvement	Measure	Target Year for Nexus Evaluation
 **Recreation and Open Space**	LOS	• 4.0 acres of open space / 1,000 service population units • 3.5 acres of open space / 1,000 service population units • 0.5 acres of improved open space / 1,000 service population units	2030
 **Childcare**	LOS	• Childcare provided for 37% of demand for infant/toddler (age 0-2) care • Childcare provided for 99.6% of demand for preschooler (age 3-5) care	2020
 **Streetscape and Pedestrian Infrastructure**	LOS	• 88 square feet of improved sidewalk / service population unit	2030
 **Bicycle Infrastructure**	Capital Improvements List	Complete build-out as per "Bicycle Plan Plus Scenario" of SFMTA's *Bicycle Strategy* (extrapolated through 2020) • Upgrade 13 miles of bikeway to premium facilities • Install bicycle signals at 13 intersections • Add 5,333 bike parking spaces • Pilot bike share program of 67 stations and 667 bicycles	2020

Source: AECOM *San Francisco Infrastructure Level of Service Analysis* report (March 2014)

GROWTH PROJECTIONS

The nexus analysis is predicated on a demographic forecast that helps determine the need for future infrastructure. The following population and employment projections from 2013 through 2030 (Table 3) were developed by the City and AECOM, based on U.S. Census, American Community Survey (ACS) data and information from the California Department of Finance (DOF). The projections below are consistently applied throughout all of the nexus analyses. Based on the low residential and commercial vacancy rates in San Francisco, it is reasonable to assume that population and employment growth will result in new physical development. [11]

[11] San Francisco's apartment vacancy rate is 3.1 percent according to a Reis Report by Justin Peterson entitled "San Francisco Apartment Sector Amongst the Strongest" (October 2012). San Francisco's office vacancy rate (approximately 11 percent) is the lowest in the US office market, according to rankings done by Jones Lang Lasalle in their report "Office Outlook: United States. Q2 2013". San Francisco's retail vacancy rate is reported as 2.7 percent (second quarter of 2013) by CoStar in their article "Market Trend: San Francisco's Retail Vacancy Decreases to 2.7%" (July 2013). Note that all markets, including the housing market and the office space market, have a natural rate of vacancy that allows movement within the system. Full (100 percent) absorption would result in an inflationary market. The vacancy rates in San Francisco's apartment, office, and retail markets are below common metrics of natural vacancy, making it a reasonable premise that there is a one-to-one relationship between population and employment growth and new physical development (Krainer, John. Natural Vacancy Rates in Commercial Real Estate Markets. Federal Reserve Bank of San Francisco. October 5, 2001; Belsky, Eric. Rental Vacancy Rates: A Policy Primer. National Association of Home Builders. Housing Policy Debate, Volume 3, Issue 3. 793-813. 1992.).

Table 3. Population and Employment Projections for San Francisco (2010 - 2030)

Year	2013	2020	2030
Population			
Total Population	820,585	872,451	947,625
Employment			
Jobs	600,740	677,531	706,848

Source: Overall population and employment taken directly from the San Francisco Planning Department 2013 projections received by AECOM on May 14, 2013 from Aksel Olson, Planner/Geographer in Citywide Information and Analysis Group, San Francisco Planning Department. Projections were given at five year intervals beginning in 2010, so AECOM used linear interpolation to arrive at 2013 estimates.
Note: All values rounded to the nearest integer.

ADDITIONAL ASSUMPTIONS

In addition to the population and employment projections presented above, there are a number of other assumptions that are applied in the nexus analyses for each infrastructure area. For example, this nexus analysis ascribed demand for infrastructure on a gross square footage basis that is consistent with current density assumptions (residents or employees per GSF). These assumptions are summarized in Table 4.

Table 4. General Nexus Assumptions

*	Metric	Value	Source
*	**Residential Assumptions**		
A	Residents per service population unit	1	*Service Population Concept Memorandum* (September 24, 2013)
B	Residents per housing unit	2.32	American Community Survey 3-Year, 2000-2011, DP02: Selected Social Characteristics for San Francisco County
C	GSF per average residential housing unit	1,156	Weighted average from Eastern Neighborhoods Impact Fee and Affordable Housing Analysis (2008)[1]
D	GSF per residential service population	498	C / B
	Commercial Assumptions		
E	Employees per service population unit (streetscape and pedestrian infrastructure; bicycle infrastructure)	0.5	*Service Population Concept Memorandum* (September 24, 2013)
F	Employees per service population unit (recreation and open space)	0.19	*Service Population Concept Memorandum* (September 24, 2013)
G	GSF commercial space per employee	327	San Francisco Planning Department assumptions received via email from Aksel Olsen, Planner/Geographer, on July 15, 2013
H	GSF per commercial service population (streetscape and pedestrian infrastructure; bicycle infrastructure)	654	G / E
I	GSF per commercial service population (recreation and open space)	1,721	G / F

Source: AECOM, 2013; other sources as noted.

1. The GSF per average residential housing unit is calculated by dividing the average unit size of 925 net square feet by a building efficiency rate of 80 percent. A building's efficiency rate reflects the ratio of leasable or rentable area to gross floor area. The average unit size (925 square feet) and building efficiency rate (80 percent) assumptions are taken from the *Eastern Neighborhoods Impact Fee and Affordable Housing Analysis*, which Kearstin Dischinger, Senior Community Development Specialist with the San Francisco Planning Department has concluded still reflect current conditions. Kearstin Dischinger, in a meeting on July 16, 2013, directed the consultant to use this square footage and efficiency rate.

2. Unlike the streetscape and pedestrian infrastructure and bicycle infrastructure categories which use a standard discount factor for employees of 0.5 to calculate service population, the frequency of use between residents and employees is adjusted downwards for recreation and open space to reflect the findings of a study performed by the Hausrath Economics Group. The study indicates that employees use park facilities at a rate of 0.19 times that of residents.[12] As a result, the service population for recreation and open space is calculated as one times the number of residents plus 0.19 times the number of employees. For a more detailed discussion of the service population concept, refer to the Service Population section of the report.

Service Population

Two of the included nexus methodologies (recreation and open space, and streetscape and pedestrian infrastructure) rely on the "service population" concept for their LOS. Service population is a relatively standardized concept, which determines the level of capital infrastructure demand placed on given infrastructure by additional development, including both residents and employees.[13] Service population can be estimated either at a building level, by estimating the typical population and/or worker density of the building use, or at a citywide level. For purposes of this study, the city's total service population is calculated as one times the resident population plus 0.19 times the employment population (1:0.19 ratio) for recreation and open space, and, as one times the resident population plus half of the employment population (1:0.5 ratio) for streetscape and pedestrian infrastructure.

[12] Hausrath Economics Group, "Phoenix Park and Library EDU Factors Study". A Report to City of Phoenix Planning Department. September 1998. The park usage factor of 0.19 from the Hausrath study was applied to the San Francisco context by both the *Eastern Neighborhoods Impact Fee and Affordable Housing Analysis* and the 2008 *City and County of San Francisco Citywide Development Impact Fee Study*.

[13] *Service Population Concept Memorandum*, September 24, 2013, listed in Appendix A and included in the accompanying background materials compact disc.

This approach evaluates infrastructure demand based on both place of residence and place of work. Under this model, resident-employees (i.e. persons that both live and work in San Francisco) are counted twice, once for their home location, and once for where they work. This methodology accounts for the infrastructure need generated both at their place of work and at their place of residence (e.g. required parks and sidewalks near their homes and near their offices). While employees require similar capital improvements (e.g. parks and sidewalks) as residents, the employee factor has been discounted (to 0.19 or to 0.5) to reflect a conservative approach to employee capital infrastructure demand. These 1:019 and 1:0.5 ratios serve as the basis for the service population calculations.

For streetscape and pedestrian infrastructure, the service population calculation discounts employees to 0.5, relative to residents (weighted as 1). This discounting represents an industry standard discount factor for employees in service population calculations.[14] For recreation and open space, the service population calculation discounts employees further to 0.19, relative to residents (weighted as 1). This discounting represents the finding, as analyzed by the Hausrath Economics Group (see Footnote 12), that people require and use recreation and open space near their homes much more than near their workplace. As a result, the recreation and open space chapter applies a modified service population calculation which weights employees less than the standard (0.5) discount factor.

Note that although bicycle infrastructure relies on a project-based approach to determine bicycle infrastructure requirements, the nexus methodology for bicycle infrastructure uses the "service population" concept to apportion cost. The total cost for all bicycle infrastructure projects is allocated to new development based on new development's share of the growth in service population. In this case, the conventional service population calculation (of ascribing one unit to residents and 0.5 units to employees) is applied.

Administrative Costs

For each fee calculation, five percent of the calculated cost is added to cover administrative services, as directed by the San Francisco Planning Department, which oversees the fee calculation.[15] Five percent reflects the average administrative cost across all citywide and neighborhood fees.[16]

Gross Square Feet

Consistent with current City practices, all fees are presented in terms of cost ($) per gross square foot (GSF). For neighborhoods which have a considerably lower or higher residential efficiency rate[17] than the 80 percent applied in the assumptions in Table 4, the Planning Department reserves the right to recalculate fees based on adjusted assumptions.

SUMMARY OF CITYWIDE IMPACT FEES

The impact fees determined in this nexus analysis are tabulated below (Table 5). The fees range from a few cents per square foot (bicycle infrastructure fee) to almost fifteen dollars per square foot (residential recreation and open space fee).

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[14] *Service Population Concept Memorandum*, September 24, 2013, listed in Appendix A and included in the accompanying background materials compact disc.
[15] *Administrative Cost Memorandum*, November 4, 2013, listed in Appendix A and included in the accompanying background materials compact disc.
[16] Five percent was used in the 2008 *Citywide Development Impact Fee Study*, as well as in the 2008 *Eastern Neighborhoods Impact Fee and Affordable Housing Analysis*.
[17] A building's efficiency rate reflects the ratio of leasable or rentable area to gross floor area.

Table 5. Maximum Supportable Citywide Impact Fees per GSF, 2013

Citywide Nexus Fees	
Recreation and Open Space	
Residential ($/GSF)	$14.99
Non-Residential ($/GSF)	$4.34
Childcare	
Residential ($/GSF)	$1.86
Non-Residential ($/GSF)	$1.58
Streetscape and Pedestrian Infrastructure	
Residential ($/GSF)	$7.98
Non-Residential ($/GSF)	$6.08
Bicycle Infrastructure	
Residential ($/GSF)	$0.06
Non-Residential ($/GSF)	$0.04

Source: AECOM, 2013

Note: All values rounded to the nearest cent.

COMPARISON OF CITYWIDE IMPACT FEES WITH EXISTING IMPACT FEES

The calculated citywide impact fees support the existing impact fees in all categories. Additionally, all calculated citywide fees exceed the maximum existing neighborhood fee by at least 10%, as shown in Table 6. Note that both existing and maximum supportable citywide fees are expressed in $/GSF.

Table 6. Comparing Maximum Supportable Citywide Fees to Existing Fees

	Maximum supportable Citywide Fee (determined by this Nexus)	Highest Existing Fee (2013 fee rates)	Percent of Maximum Supportable Nexus Recovered by Existing Fee (Existing/Proposed)
Recreation and Open Space			
Residential ($/GSF)	$14.99	$8.85	59%
Non-Residential ($/GSF)	$4.34	$2.21	51%
Childcare Infrastructure			
Residential ($/GSF)	$1.86	$1.68	90%
Non-Residential ($/GSF)	$1.58	$1.12	70%
Streetscape and Pedestrian Infrastructure			
Residential ($/GSF)	$7.98	$6.66	83%
Non-Residential ($/GSF)	$6.08	$2.14	35%
Bicycle Infrastructure			
Residential ($/GSF)	$0.06	$0.05	83%
Non-Residential ($/GSF)	$0.04	$0.02	50%

Source: AECOM, 2013

Note: All fee values rounded to the nearest cent; all percentages rounded to the nearest integer.

2. Recreation and Open Space

This chapter summarizes the nexus analysis for recreation and open space. After providing a brief background, this chapter will outline the relevant growth assumptions, the LOS standard developed in the associated *San Francisco Infrastructure Level of Service Analysis*, the methodology used to determine the nexus fee, and the final determination of the maximum supportable nexus fee.

INTRODUCTION

RECREATION AND OPEN SPACE BACKGROUND

Recreation and open space is a common, City-provided, public amenity. San Francisco, like most cities, aims to provide adequate quality open space for the broader public health and quality of life of its citizens and workforce. As new development occurs, it attracts new residents and employees, who, in turn, require new (or expanded and enhanced) open space. This relationship between new development, an influx of residents and workers, and a demand for open space provides the nexus for an impact fee.

The impact of new residential development on the need for open space is widely understood in California and development impact fees for open space are commonly imposed in many California jurisdictions. In addition to serving the residential population, the City has a longstanding commercial development impact fee, the Downtown Park Fee, initiated in 1985, which supports recreation space in the downtown area for the neighborhood's daytime employee population.[18] In adopting the Downtown Park Fee, the Board of Supervisors recognized that continued office development in the Downtown increased the daytime population and created a need for additional public park and recreation facilities in the downtown. The Board recognized at that time that, while the open space requirements imposed on individual office and retail developments through the Planning Code addressed the need for plazas and other local outdoor sitting areas to serve employees and visitors in the district, such open space could not provide the same recreational opportunities as a public park. The City thus created the Downtown Park fund in order to provide the City and County of San Francisco with the financial resources to acquire and develop public park and recreation facilities necessary to serve the burgeoning daytime population in the Downtown. The City continued its commitment to insuring that recreation and open space facilities increased apace with new commercial development when it adopted open space fees on commercial development as a part of various Area Plans such as Market and Octavia, Eastern Neighborhoods, Balboa Park and Visitacion Valley (Table 1.)

[18] Planning Code Section 412. http://www.amlegal.com/nxt/gateway.dll/California/planning/article4developmentimpactfeesandprojectr?f=templates$fn=default.htm$3.0$vid=amlegal:sanfrancisco_ca$anc=JD_412

Providing recreation and open space – such as baseball diamonds, soccer fields, parks, playgrounds, tennis courts, flower gardens, community gardens, and greenways – is a capital intensive undertaking, especially in San Francisco where land availability is low and land prices are high. Recreation and open space fees, levied on new development, are collected to fund the acquisition and construction of new or expanded recreation capacity for the additional residents and workers directly attributable to new development.

Note that the terms "park space", "recreation space" or "open space" may be used in this chapter as shorthand to denote any and all recreation and open space.

PURPOSE AND USE OF REVENUES

The primary purpose of the recreation and open space development impact fee revenue is to fund expansion of San Francisco's recreation capacity to meet the demand from new development. Recreation and open space capacity can be increased either through the acquisition and construction of new park land, or through capacity enhancements to existing open space. Both types of open space investments increase the capacity of San Francisco's open space network to accommodate new development. Examples of how development impact fees would be used include:

- Acquisition and construction of new park and recreation land;
- Lighting improvements to existing parks, which extend hours of operation on play fields and allow for greater capacity;
- Recreation center construction, or adding capacity to existing facilities; and
- Converting passive open space[19] to active open space[20] through addition of trails, play fields, playgrounds, etc.

The recreation and open space impact fee aims to ensure that new development contributes its fair share of funding to recreation and open space. Because the LOS metric upon which the nexus is developed directly ties infrastructure to the service population, there is a clear relationship between new development, which increases housing and employment space, and an increase in demand for recreation capacity.

As with all impact fees, the fee may not be used to address existing infrastructure deficiencies, and, as such, no portion of the funds will be used for RPD's deferred maintenance tasks. Unlike capacity enhancements that make the open space usable by more people, deferred maintenance efforts simply restore open space to its initial capacity. For example, as noted above, a park enhancement might be adding lighting to a tennis court, which extends the effective hours of operation of the tennis court, allowing more people to use the court. By contrast, re-flooring a tennis court as part of a maintenance effort simply maintains the tennis court's capacity, and thus would not be a permitted use of funds in the development impact fee context.

This nexus analysis assumes that the City will fund 100 percent of the development-based demand for open space through the fee. This study estimates the maximum supportable fee based on the relationship between the cost to provide open space and the LOS provision to accommodate new development. However, the City may choose to adopt a lower fee as appropriate.

[19] Lawn or forested areas dedicated for "general enjoyment of outdoors", as per RPD's *Parks Acquisition Policy* (August 2011).
[20] Recreational space construct to accommodate "team sports and athletics, children's play areas, courses and courts, bike, pedestrian and equestrian paths", as per RPD's *Parks Acquisition Policy* (August 2011).

NEXUS DETERMINATION

The maximum supportable fee calculation for recreation and open space infrastructure combines the proposed recreation and open space LOS metric with residential growth projections and the cost to provide recreation and open space.

LOS METRIC

Although recreation and open space infrastructure comprises a wide range of components, from playgrounds, lawn areas and recreation centers, to baseball diamonds and forested areas, the LOS metric put forth in the *San Francisco Infrastructure Level of Service Analysis* – acres of open space per service population unit – encompasses, undifferentiated, all types of park-related improvements.

As noted in the *San Francisco Infrastructure Level of Service Analysis*, the City is currently responsible for providing 4.0 acres of open space per 1,000 service population units, and aims to maintain this provision into the future.[21] This metric assumes that for each new service population unit, the City will provide an equivalent level of service, whether it comes in the form of new open space or capacity improvements to existing open space (see Nexus Methodology & Fee Calculation section below for more detail).

GROWTH PROJECTIONS

The development horizon for recreation and open space is 2030. Between 2013 and 2030, San Francisco is projected to house 127,040 more people and employ 106,108 more workers (Table 7).

[21] City-provided park land includes land owned by the Recreation and Parks Department, the Department of Public Works, the Port, and the Redevelopment Agency/Successor Agency to the San Francisco Redevelopment Agency.

Table 7. Growth Projections for Recreation and Open Space (2013 - 2030)

	2013	2030	Growth (2013 - 2030)	Percent Increase
Population				
Population	820,585	947,625	127,040	15%
Employment				
Jobs	600,740	706,848	106,108	18%
Service Population				
Service population[1]	934,726	1,081,926	147,200	16%

Source: Overall population and employment taken directly from the San Francisco Planning Department 2013 projections from Aksel Olsen, Planner/Geographer in Citywide Information and Analysis Group, received May 14, 2013. See appended documents for files. Projections were given at five year intervals beginning in 2010, so AECOM used linear interpolation to arrive at 2013 estimates.

Note: all values are rounded to the nearest integer.

1. Service population is a weighted sum of residents and employees. Unlike the streetscape and pedestrian infrastructure and bicycle infrastructure categories which use a standard discount factor for employees of 0.5 to calculate service population, the frequency of use between residents and employees is adjusted downwards for recreation and open space to reflect the findings of a study performed by the Hausrath Economics Group. The study indicates that employees use park facilities at a rate of 0.19 times that of residents.[22] As a result, the service population for recreation and open space is calculated as one times the number of residents plus 0.19 times the number of employees. For a more detailed discussion of the service population concept, refer to the Service Population section of the report, under the Additional Assumptions section.

NEXUS METHODOLOGY & FEE CALCULATION

The fee calculation methodology (Table 8) calculates the total cost of increasing open space acreage for the new service population (2013-2030), and distributes the cost between residential and non-residential land uses based on their associated contributions to total incremental service population growth. The residential fee is based on the percentage of service population units arising from the new resident population; the non-residential (commercial) fee is based on the percentage of service population units arising from the increase in employee population.

Note that, to maintain the LOS at 4.0 acres of open space per 1,000 service population units, an equivalent of 566 new acres of open space would need to be constructed (Table 8, Row G). Given the size of San Francisco, the building density, and expensive land costs, constructing 566 new acres of open space within San Francisco is infeasible.[23] RPD has determined that it can reasonably acquire 55 new acres of open space within San Francisco. The remaining 511 acres demanded by the LOS (566 minus 55) will be accommodated not through the construction of new park acres, but through the capacity improvement of existing acres.[24] The capacity

[22] Hausrath Economics Group, "Phoenix Park and Library EDU Factors Study". A Report to City of Phoenix Planning Department. September 1998. The park usage factor of 0.19 from the Hausrath study was applied to the San Francisco context by both the San Francisco Eastern Neighborhoods Nexus Study and the 2008 City and County of San Francisco Citywide Development Impact Fee Study.

[23] RPD staff members Dawn Kamalanathan, Planning Director, Stacey Bradley, Planner, and Taylor Emerson, Analyst, noted in meetings that RPD could not feasibly acquire and construct 566 acres of new open space within San Francisco. Dawn Kamalanathan confirmed this assertion in an email dated February 13, 2014.

[24] If land were available for 566 acres of new open space in San Francisco, developers would be charged the acquisition and improvement cost ($9,365,400 per acre for acquisition (Table 8, Row J) plus $939,197 per acre for capacity improvement (Table 8, Row K)) for the full 566 acres. Given the constraints, the stated approach of charging developers the full cost (acquisition plus improvement) for only 55 acres, and a capacity improvement cost only for the remaining acres (511) represents a discounted nexus and more accurately reflects how much land RPD will acquire and improve.

improvements of existing acres must add capacity to the existing land (refer to Purpose and Use of Revenues section above).[25]

Table 8. Nexus Methodology for Recreation and Open Space Fee

*	Measure	Value	Source/Calculation
Service Population			
A	Total service population projected for 2030	1,081,926	Table 7
B	Total projected service population growth (2013-2030)	147,200	Table 7
Unit Conversions			
C	Residential (GSF/service population)	498	Table 4
D	Commercial (GSF/service population)	1,721	Table 4
Metric			
E	Total acres of open space (all City owners, 2013)	3,762	RPD[1]
F	Acres of park improvements per 1,000 Service Population Units	4.0	*San Francisco Infrastructure Level of Service Analysis* (March 2014)
Cost			
G	Incremental acres of open space required to maintain LOS (2013-2030)	566	A / 1000 * F - E
H	Feasible new acres of open space (2013-2030)	55	RPD[2]
I	Acres of open space to be improved (2013-2030)	511	G - H
J	City estimate of unit acquisition cost ($/acre of open space acquired)	$9,365,400	*RPD Cost Assumptions Memorandum (March 2014*)
K	City estimate of unit improvement cost ($/acre of open space improved)	$939,197	*RPD Cost Assumptions Memorandum* (March 2014)
L	Total cost for new open space	$566,753,000	H * (J + K)
M	Total cost for improved open space	$479,930,000	I * K
N	Cost attributable to incremental growth	$1,046,683,000	L + M
O	Administrative costs (5% of fee)	$52,334,000	*Administrative Cost Memorandum* (November 4, 2013)
P	Total attributable cost with administrative costs	$1,099,017,000	N + O
Nexus Fee Maximums			
Residential ($/GSF)		**$14.99**	P / (B * C)
Non-Residential ($/GSF)		**$4.34**	P / (B * D)

Source: AECOM, 2013

Note: All numbers and percentages are rounded to the nearest integer. All dollar values (except those specified by the City, i.e. Lines M and N, and the nexus fee maximums) are rounded to the nearest thousand. Nexus fee maximums are rounded to the nearest cent.

1. RPD staff members Dawn Kamalanathan, Planning Director, Stacey Bradley, Planner, and Taylor Emerson, Analyst, noted in a meeting on November 14, 2013, that RPD owns 3,437.28 acres of open space within San Francisco, and that other City agencies (the Port, DPW, and the Redevelopment Agency/Successor Agency to the San Francisco Redevelopment Agency) own another 324.4 acres of open space within San Francisco, for a total of 3,762 acres of open space within San Francisco.

2. RPD staff members Dawn Kamalanathan, Planning Director, and Stacey Bradley, Planner, advised in meetings that RPD could feasibly acquire and construct 55 new acres of open space. Dawn Kamalanathan confirmed this via email dated February 13, 2013.

[25] To fully maintain the LOS, the capacity improvements would need to double the open space capacity. Capacity improvements to parks vary in effectiveness, with typical enhancements improving park capacity by 20 to 30 percent, according to RPD staff (Dawn Kamalanathan, Planning Director, Stacey Bradley, Planner, via email received January 10, 2014, from Kearstin Dischinger, Senior Community Development Specialist of the Planning Department). Therefore, improvement acreage and cost represents a conservative, discounted nexus. One of the challenges with the application of this approach is that it will become difficult to measure how the LOS has been maintained moving forward. The Planning Department has advised AECOM that it will work with RPD to develop a clear set of equivalency units, which identify the relationship between improvements and increased capacity. These equivalencies will help ensure that the fees are used to directly address proportional capacity increases.

NEXUS FINDINGS

Based on the approach summarized in Table 8, the maximum estimated cost per residential square foot is $14.99 per gross square foot, and the estimated non-residential fee is $4.34 gross square foot.

As Table 9 demonstrates, both determined maximum supportable fees are above the highest existing fee for recreation and open space. The highest existing recreation and open space fees recover 50 to 60 percent of the maximum supportable nexus.

Table 9. Comparing Proposed Maximum Supportable Recreation and Open Space Fees to Existing (2013) Fees

	Proposed (Max)	Existing (Max)	Percent of Maximum Supportable Nexus Recovered by Existing Fee (Existing/Proposed)	Proposed Max > 10% Above Existing
Residential ($/GSF)	$14.99	$8.85	59%	YES
Non-Residential ($/GSF)	$4.34	$2.21	51%	YES

3. Childcare

This chapter summarizes the nexus analysis for childcare infrastructure. After providing a brief background, this chapter will outline the relevant growth assumptions, the LOS standard developed in the associated *San Francisco Infrastructure Level of Service Analysis*, the methodology used to determine the nexus fee, and the final determination of the nexus fee.

INTRODUCTION

CHILDCARE SPACE BACKGROUND

For families with children – especially those with children under the age of thirteen – childcare is a key concern. In San Francisco particularly, with high housing costs, many families have working parents and, therefore, require non-parent childcare. The City recognizes the importance of childcare as a community-serving amenity, and first adopted a childcare inclusionary zoning ordinance with an in-lieu fee option in 1986 as part of the Downtown Plan.[26] In addition to the City's childcare ordinance, there are four City Areas with Community Infrastructure Impact Fees that include a childcare component – Market & Octavia, the Eastern Neighborhoods, Visitacion Valley, and Balboa Park. These fees are used to help provide facilities for childcare demand resulting from new commercial and residential developments. The City will continue to plan for resident and employee childcare needs and articulate this commitment in local policy.

As new development occurs, it attracts new residents and employees, some of whom have children who require non-parent childcare. This relationship between new development, an influx of residents and workers, and a demand for childcare facilities provides the nexus for an impact fee. While childcare is not a mandated public service, the City government is involved in some capacities in the provision of licensed childcare options. Childcare fees, levied on new development, are collected to help fund childcare slots in the city, demand for which is directly attributable to new development.

[26] The ordinance applies to office and hotel development in the Downtown Area of the General Plan and the 2013 fee level is $1.11 per gross square foot. The City's ordinance establishes a separate fund for the collection of fee revenues, called the Child Care Capital Fund. Under this ordinance, "all monies in the fund shall be used solely to increase and/or improve the supply of child care facilities affordable to households of low and moderate income" (Section 414 of the City Planning Code). Since adoption, the City has collected $7.1 million in childcare in-lieu fees (through Fiscal Year 2010-2011). During the same time period, the Child Care Capital Fund has expended $6.5 million. The City currently contracts with the Low Income Investment Fund (LIIF) to administer the expenditures of the Fund (FY 2010-2011 Development Impact Fee Report, Controller's Office, City and County of San Francisco, December 1, 2011).

PURPOSE AND USE OF REVENUES

The primary purpose of the childcare development impact fee is to fund expansion of San Francisco's childcare capacity to meet the demand from new development. That is, impact fee revenues are intended to be used to mitigate the childcare demands of the increasing population. Monies from the childcare impact fee may only be used to fund capital childcare projects and facilities.

Through discussions with City staff, it was determined that, while there is a need for additional school-age childcare capacity in the City, the needs are for operations assistance, not for additional facilities. After-school care is typically provided at school sites, using school facilities. Given that impact fee revenues must be spent on capital costs to maintain or increase the supply of facilities, they are not an appropriate source of funding for expanding after-school care capacity. The City does not intend to assist in the creation of new facilities providing after-school care; instead, the City intends to use other funding sources to assist the operation of after-school programs. Due to the fact that childcare impact fees are limited to capital improvements, this analysis is limited to infant, toddlers, and preschool-age children only and does not address the childcare needs of school-age children (ages 6 to 17).

This study estimates the maximum supportable fee based on the relationship between the cost to provide childcare and the LOS provision to accommodate new development. However, the City may choose to adopt a lower fee as appropriate.

NEXUS DETERMINATION

The maximum supportable fee calculation for childcare combines the proposed childcare LOS metrics with residential growth projections and the cost to provide licensed childcare.

LOS METRIC

Two LOS metrics, developed with the City and described in detail in the *San Francisco Infrastructure Level of Service Analysis,* are applied in this fee determination: (1) childcare demand accommodation for infants and toddlers (ages 0 to 2), and (2) childcare demand accommodation for preschoolers (ages 3 to 5). In both cases, the LOS target that the City aims to achieve in the relevant timeframe, and which will be applied in the calculation of the maximum supportable development impact fee, is to maintain the existing level of service provision.

In terms of infant and toddler childcare, the existing number of childcare slots available represents capacity for 37 percent of the infant and toddler childcare demand in the city. For preschoolers, the current number of childcare slots available in the city represents capacity for 99.6 percent of the preschool childcare demand in the city.[27] The City aims to maintain this provision into the future as the population and workforce grows, providing capacity for 37 percent of infant and toddler childcare demand and capacity for 99.6 percent of preschooler childcare demand.

GROWTH PROJECTIONS

The development horizon for childcare is 2020. This shortened timeframe, compared to the 2030 timeframe used for analysis of recreation and open space and streetscape and pedestrian infrastructure, is used for childcare because of irregularities in the projected growth trends for children in San Francisco. Unlike the general population, which is projected to increase steadily, the child population in San Francisco is projected to rise through 2020, and then begin a slow decline over the following decade.[28] Nonetheless, while the population of

[27] Childcare Demand Estimates for Licensed Care are calculated in the 2014 *San Francisco Infrastructure Level of Service Analysis* report (Appendix: Childcare Demand Calculations).
[28] California Department of Finance P-3: State and County Total Population Projections by Race/Ethnicity and Detailed Age, 2010-2060.

children is projected to decline after 2020, the City has many policies to encourage families to stay and live in San Francisco, such that the population of children may not necessarily decline as projected. A shorter timeframe to 2020 affords the opportunity to revisit the projections in several years without under-providing in the short-term. Avoiding short-term under-provision is especially prudent if the projected trend of a declining child population does not materialize.

Table 10. Growth Projections and Demand Estimates for Childcare (2013 – 2020)

	2013	2020	Growth (2013 - 2020)	Percent Increase
Population				
Population	820,585	872,451	51,866	6%
Employment				
Jobs	600,740	677,531	76,791	13%
Childcare Demand Estimates (for Licensed Care)[1]				
Infants/Toddlers Requiring Care in San Francisco	8,005[2]	10,534	2,529	32%
Preschoolers Requiring Care in San Francisco	14,717[3]	17,002	2,285	17%

Source: Overall population and employment taken directly from the San Francisco Planning Department 2013 projections from Aksel Olsen, Planner/Geographer in Citywide Information and Analysis Group, received May 14, 2013. See appended documents for files. Projections were given at five year intervals beginning in 2010, so AECOM used linear interpolation to arrive at 2013 estimates.

Note: All values rounded to the nearest integer.

1. Childcare Demand Estimates for Licensed Care are calculated in the 2014 *San Francisco Infrastructure Level of Service Analysis* report, (Appendix: Childcare Demand Calculations). Note that childcare demand numbers are rounded to the nearest integer. Note also that these totals represent demand for childcare *in San Francisco*. Some San Francisco residents with children are employed outside of San Francisco, and demand childcare outside of San Francisco. Some people with children, who are employed in San Francisco but live elsewhere, demand childcare outside of San Francisco. These childcare demands of San Francisco residents and employees for childcare outside of San Francisco are not included in the totals above.

2. Of the 8,005 infants and toddlers requiring care in San Francisco, 4,144 are *resident* infants and toddlers (i.e. the children of San Francisco residents; see A in Table 11), and 3,861 are *non-resident* infant and toddlers (i.e. the children of people who work in San Francisco but live elsewhere; see B in Table 11). These demand estimates are calculated in the 2014 *San Francisco Infrastructure Level of Service Analysis* report (Appendix: Childcare Demand Calculations).

3. Of the 14,717 preschoolers requiring care in San Francisco, 10,878 are *resident* preschoolers (i.e. the children of San Francisco residents; see C in Table 11), and 3,839 are *non-resident* preschoolers (i.e. the children of people who work in San Francisco but live elsewhere; see D in Table 11). These demand estimates are calculated in the 2014 *San Francisco Infrastructure Level of Service Analysis* report (Appendix: Childcare Demand Calculations).

Unlike other infrastructure categories, which are required by residents and employees at multiple locations (both at home and at work), childcare facilities are required in only one location per child in need of care. As a result, an LOS based on service population (like recreation and open space, and streetscape and pedestrian infrastructure) is not relevant to childcare.[29] Instead, the childcare nexus is based on future childcare demand estimates. Between

[29] In the service population calculation, both residents and employees are counted (residents at a weight of one and employees at a discounted weight). A resident-employee – i.e. someone who both lives and works in San Francisco – would be counted more than once. For recreation and open space and streetscape and pedestrian infrastructure, this "double-counting" represents the fact that a person requires, for example, parks and sidewalks at home as well as at work; for childcare, because a childcare slot is required only *either* at home or at work, this "double-counting" would overestimate the infrastructure requirements. Therefore, a childcare LOS cannot be based on the service population calculation like recreation and open space and streetscape and pedestrian infrastructure.

2013 and 2020, San Francisco is projected to generate demand for 2,529 new licensed infant and toddler childcare slots and 2,285 new licensed preschooler childcare slots.[30]

NEXUS METHODOLOGY & FEE CALCULATION

The childcare nexus analysis seeks to estimate the cost of maintaining the current LOS for childcare in the city as the demand for childcare grows over time (as population and employment grows), and to assign this cost to residential and non-residential construction on a per-square foot basis. Specifically, the childcare nexus analysis applies the existing ratio of capacity to demand by age group to the new childcare demand expected in the city over the next seven years to estimate the increased need for childcare spaces in the city. It then calculates the capital costs required to provide these childcare spaces to accommodate the new population (at the same ratio of capacity to demand). Lastly, the costs are assigned to new housing units and new non-residential development on a per-square-foot basis. Residential development assumes the cost of providing childcare that is required near the home, while commercial development assumes the cost of providing childcare that is required near the place of work. Based on survey data collected for the Child Care Planning and Advisory Council (CPAC) San Francisco Child Care Needs Assessment report, 80.5 percent of resident parents prefer childcare near their home, while 19.5 percent of resident parents prefer childcare near their place of work.[31] Non-resident parents who require childcare in San Francisco are assumed to require childcare at their place of work.[32] Based on these childcare location preferences, as shown in Table 11, residential development assumes 42 percent of the cost of providing infant and toddler care and 60 percent of the cost of providing preschooler care; non-residential development assumes 58 percent of the cost of providing infant and toddler care and 40 percent of the cost of providing preschooler care.

[30] See the *San Francisco Infrastructure Level of Service Analysis* report (Appendix: Childcare Demand Calculations), which contains a detailed summary of childcare demand calculations and assumptions for both 2013 and future (2020) demand.

[31] Survey data from the Resource and Referral Agency Parent Follow-up Survey (2007) indicates that 71 percent of parents prefer childcare at home, while 10 percent of parents prefer childcare at work (or en route to work). The remaining 19 percent prefer childcare either on the way to work or on the way home, near a sibling's school, or some other location. This outstanding 19 percent was apportioned equally between 'home' and 'work' designations for the purposes of this analysis, resulting in the assumption that 80.5 percent of parents prefer childcare near the home, while 19.5 percent of parents prefer childcare near their place of work. See CPAC San Francisco Child Care Needs Assessment Report, 2007 (Section V. Parent Choice).

[32] Non-resident parents who require childcare in San Francisco have homes outside San Francisco. Since they are demanding childcare in San Francisco, they are assumed to require care near their place of work. More detail about non-resident parents who require childcare in San Francisco is included in the *San Francisco Infrastructure Level of Service Analysis* report, Appendix Childcare Demand Calculations.

Table 11. Apportionment of Childcare Demand Between Residential and Non-Residential Development

*	Measure	Value	Source/Calculation
Infant-Toddlers (0-2) Requiring Care in San Francisco			
A	Resident-Children	4,144	Table 10 (see Table Note 2)
B	Non-Resident-Children	3,861	
Preschoolers (3-5) Requiring Care in San Francisco			
C	Resident-Children	10,878	Table 10 (see Table Note 3)
D	Non-Resident-Children	3,839	
Childcare Location			
E	Childcare near home	80.5%	CPAC San Francisco Child Care Needs Assessment 2007 (Chapter V. Parent Choice)
F	Childcare near work	19.5%	
Infant-Toddlers (0-2) Childcare Demand Attribution			
Childcare Attributable to Residential Development		42%	(A * E) / (A + B)
Childcare Attributable to Non-Residential Development		58%	(A * F + B) / (A + B)
Preschooler (3-5) Childcare Demand Attribution			
Childcare Attributable to Residential Development		60%	(C * E) / (C + D)
Childcare Attributable to Non-Residential Development		40%	(C * F + D) / (C + D)

Source: AECOM, 2013

Note: Values in Lines A to D represent 2013 demand estimates (see Table 10); values in lines E and F represent childcare location information from the 2007 CPAC San Francisco Child Care Needs Assessment Report (see Footnote 31). The childcare demand attribution percentages calculated based on these values are assumed to be relatively constant over time. All values rounded to the nearest integer, except for lines E and F, which are rounded to the nearest tenth.

Table 12. Nexus Methodology for Infant and Toddler Childcare Fee

*	Measure	Value	Source/Calculation
Service Population			
A	Total new infants and toddlers (2013-2020)	2,529	Table 10
Metric			
B	% of Capacity for Infant and Toddler Care Demand (0-2)	37%	LOS Metric
Cost			
C	Incremental # of childcare spaces (2013-2020)	936	A * B
D	City estimate of unit cost ($/childcare space)	$26,250	LIIF, OECE [1]
E	Total cost for new childcare spaces	$24,570,000	C * D
F	Cost attributable to incremental growth	$24,570,000	100% E[4]
G	Administrative costs (5% of fee)	$1,229,000	*Administrative Cost Memorandum* (November 4, 2013)
H	Total attributable cost with administrative costs	$25,799,000	F + G
Attributable Amounts			
I	Percent attributable to residential development based on preferred childcare location	42%	Table 11
J	Percent attributable to commercial development based on preferred childcare location	58%	Table 11
K	Amount attributable to residential development	$10,836,000	H * I
L	Amount attributable to non-residential development	$14,963,000	H * J
Unit Conversions			
M	Total new estimated residential development (GSF)	25,829,000[2]	See Table Note 2.
N	Total new estimated commercial development (GSF)	25,111,000[3]	See Table Note 3.
Nexus Fee Maximums			
Residential ($/GSF)		$0.42	K / M
Non-Residential ($/GSF)		$0.60	L / N

Source: AECOM, 2013

Note: All numbers and percentages are rounded to the nearest integer. All dollar values (except those specified by the City, i.e. Line D, and the nexus fee maximums) are rounded to the nearest thousand. Nexus fee maximums are rounded to the nearest cent.

1. This amount was determined by Asian Neighborhood Design, with updated cost estimates from the San Francisco Child Care Facilities Interagency Committee. As of 2013 (per email dated October 3, 2013 from Graham Dobson, Administrative Analyst for Office of Early Child Care and Education), the average cost of new construction per childcare space is estimated to be $350 per square foot. Licensing requires 35 square feet indoors per child and 75 square feet outdoors per child; however LIIF uses 75 square feet per child both indoor and outdoor as a measure of a quality child care environment. The resulting fee is $26,250 ($350 per square foot multiplied by 75 square feet). This same cost is used regardless of age of children served.

2. Estimated new residential development is calculated at the average GSF per residential person (498, see Table 4) times the total 2013-2020 new residential population (51,866, Table 10).

3. Estimated new commercial development is calculated at the average GSF per commercial employee (327, see Table 4) times the total 2013-2020 new employee population (76,791, Table 10).

4. Refer to the report section entitled Growth Projections for a discussion of the one-to-one relationship between population and employment growth and physical development.

Table 13. Nexus Methodology for Preschooler Childcare Fee

*	Measure	Value	Source/Calculation
Service Population			
A	Total new preschool age children (2013-2020)	2,256	Table 10
Metric			
B	% of Capacity for Preschool Age Care Demand (3-5)	99.6%	LOS Metric
Cost			
C	Incremental # of childcare spaces (2013-2020)	2,247	A * B
D	City estimate of unit cost ($/childcare space)	$26,250	LIIF, OECE [1]
E	Total cost for new childcare spaces	$58,984,000	C * D
F	Cost attributable to incremental growth	$58,984,000	100% E
G	Administrative costs (5% of fee)	$2,949,000	*Administrative Cost Memorandum* (November 4, 2013)
H	Total attributable cost with administrative costs	$61,933,000	F + G
Attributable Amounts			
I	Percent attributable to residential development based on preferred childcare location	60%	Table 11
J	Percent attributable to commercial development based on preferred childcare location	40%	Table 11
K	Amount attributable to residential development	$37,160,000	H * I
L	Amount attributable to non-residential development	$24,773,000	H * J
Unit Conversions			
M	Residential (GSF/residential service population)	498	Table 4
N	Total new residential population (2013-2020)	51,866	Table 10
O	Total new estimated residential development (GSF)	25,829,000	M * N
P	Commercial (GSF/employee)	327	Table 4
Q	Total new employee population (2013-2020)	76,791	Table 10
R	Total new estimated commercial development (GSF)	25,111,000	P * Q
Nexus Fee Maximums			
Residential ($/GSF)		$1.44	K / O
Non-Residential ($/GSF)		$0.99	L / R

Source: AECOM, 2013

Note: All numbers and percentages are rounded to the nearest integer. All dollar values (except those specified by the City, i.e. Line D, and the nexus fee maximums) are rounded to the nearest thousand.

1. This amount was determined by Asian Neighborhood Design, with updated cost estimates from the San Francisco Child Care Facilities Interagency Committee. As of 2013 (per email dated October 3, 2013 from Graham Dobson, Administrative Analyst for Office of Early Child Care and Education), the average cost of new construction per childcare space is estimated to be $350 per square foot. Licensing requires 35 square feet indoors per child and 75 square feet outdoors per child; however LIIF uses 75 square feet per child both indoor and outdoor as a measure of a quality child care environment. The resulting fee is $26,250 ($350 per square foot multiplied by 75 square feet). This same cost is used regardless of age of children served.

NEXUS FINDINGS

Based on the above methodology, the maximum estimated nexus is $1.86 per gross square foot for residential buildings and $1.59 per gross square foot for non-residential buildings (Table 14). Charging both residential and commercial development the maximum supportable fee would not result in double-counting the impact on childcare because the total impact has been allocated proportionally to the two development types (as per Table 11).

Table 14. Maximum Supportable Impact Fees for Childcare

	Maximum supportable Citywide Fee
Childcare for Infant and Toddler Care Demand (0-2)	
Residential ($/GSF)	$0.42
Non-Residential ($/GSF)	$0.60
Childcare for Preschooler Care (3-5)	
Residential ($/GSF)	$1.44
Non-Residential ($/GSF)	$0.99
Total Childcare Fee	
Residential ($/GSF)	$1.86
Non-Residential ($/GSF)	$1.59

Source: AECOM, 2013

Note: All values rounded to the nearest cent.

As Table 15 demonstrates, the highest current fees are less than the maximum amount supported by the nexus analysis. The highest existing residential nexus fee represents 90 percent of the maximum supportable amount, and the highest existing non-residential fee represents 70 percent of the maximum supportable amount.

Table 15. Comparing Proposed Maximum Supportable Childcare Fees to Existing (2013) Fees

	Proposed (Max)	Existing (Max)	Percent of Maximum Supportable Nexus Recovered by Existing Fee (Existing/Proposed)	Proposed Max > 10% Above Existing
Residential ($/GSF)	$1.86	$1.68	90%	YES
Non-Residential ($/GSF)	$1.59	$1.12	70%	YES

Source: AECOM, 2013

Note: All fee values rounded to the nearest cent; all percentages rounded to the nearest integer.

4. Streetscape and Pedestrian Infrastructure

This chapter summarizes the nexus analysis for streetscape and pedestrian infrastructure. After providing brief background, this chapter will outline the relevant growth assumptions, the LOS standard developed in the associated *San Francisco Infrastructure Level of Service Analysis*, the methodology used to determine the nexus fee, and the final determination of the nexus fee.

INTRODUCTION

STREETSCAPE AND PEDESTRIAN INFRASTRUCTURE BACKGROUND

Streetscape and pedestrian infrastructure encompasses a wide range of right-of-way facilities, and plays an important role in the City's transportation goals, health and safety promotion, and environmental objectives. In 2010, the City of San Francisco published the Better Streets Plan (BSP) with design and maintenance guidelines for the pedestrian environment. Constructing "complete streets"[33] – considering safety, creation of social space on the sidewalk, and pedestrian aesthetic – is broadly the main motivator underlying the BSP recommendations. City stakeholders rely heavily on the BSP as their foremost streetscape policy document, representing thorough analysis and much design and engineering consideration.

As new development occurs, it attracts new residents and employees, who, in turn, require new (or expanded and improved) streetscape and pedestrian infrastructure. This relationship between new development, an influx of residents and workers, and a demand for streetscape and pedestrian infrastructure provides the nexus for an impact fee. Providing streetscape and pedestrian is a capital intensive undertaking. Streetscape and pedestrian infrastructure fees, levied on new development, are collected to help fund the construction of new streetscape and pedestrian infrastructure for the additional residents and workers directly attributable to new development.

[33] Complete Streets are defined as streets which "are safe, comfortable, and convenient for travel for everyone, regardless of age or ability – motorists, pedestrians, bicyclists, and public transportation riders." Metropolitan Transportation Commission, "MTC One Bay Area Grant: Complete Streets Policy Development Workshop." 16 October 2012. Section 2.4.13 of San Francisco's Public Works Code outlines San Francisco's complete streets policy, which includes the construction of transit, bicycle, stormwater, and pedestrian environment improvements, where pedestrian environment improvements are defined as sidewalk lighting, pedestrian safety measures, traffic calming devices, landscaping, and other pedestrian elements as defined in the Better Streets Plan.

Note that the terms “streetscape” or “pedestrian infrastructure” may be used in this section as shorthand to denote both streetscape and pedestrian infrastructure. Streetscape and pedestrian infrastructure includes sidewalk space and relevant streetscape and pedestrian amenities in that space, such as lighting, pedestrian signals, street trees, bulb-outs, sidewalk furniture, and any other pedestrian elements defined in the Better Streets Plan (BSP) or Section 2.4.13 of San Francisco’s Public Works Code.

PURPOSE AND USE OF REVENUES

The primary purpose of the streetscape and pedestrian infrastructure development impact fee is to fund capital improvements to San Francisco’s streetscape and pedestrian infrastructure. As discussed in the BSP, the City aims to improve the pedestrian environment for all of San Francisco’s residents and employees. The impact fees will be used to make improvements to San Francisco’s pedestrian infrastructure. Acceptable uses of the fees include (but are not limited to) sidewalk paving, lighting installation, pedestrian signalization of crosswalks or intersections, street tree planting, bulb-out construction, street furnishing, landscaping, traffic calming, and other streetscape improvements cited in the BSP or Public Works Code (Section 2.4.13).

In addition to the streetscape and pedestrian infrastructure fee analyzed here, Planning Code Section 138.1 contains urban design requirements that authorize the Planning Department to require a project to provide physical streetscape and pedestrian improvements in certain instances and only for certain projects. Section 138.1 and the development impact fee may cover similar infrastructure but, as described more thoroughly in the *Streetscape Cost Memorandum* (March 20, 2014)**,** the Section 138.1 requirements and the fee analyzed here will not overlap for several reasons. First, Section 138.1’s requirements have limited application in that, in most instances, they apply only to larger projects and are not mandatory. Second, the cost estimates outlined in this analysis anticipate both requirements and insure that they do not overlap by removing the cost of items in Section 138.1 from the costs used to calculate the fee. Thus, even if a particular development is subject to both Section 138.1 and this fee, the City is not requiring a project sponsor to pay for pedestrian and streetscape improvements already required as part of its project under Section 138.1.[34]

The maximum supportable impact fee aims to ensure that new development contributes its fair share of funding to pedestrian and streetscape improvements. Because the LOS metric upon which the nexus is developed addresses demand of the entire service population, existing and projected, there is a clear relationship between new development, which increases housing and employment space, and an increase in pedestrian infrastructure.

This study estimates the maximum supportable fee based on the relationship between the cost to provide streetscape and pedestrian infrastructure and the LOS provision to accommodate new development. However, the City may choose to adopt a lower fee as appropriate.

NEXUS DETERMINATION

The maximum supportable fee calculation for streetscape and pedestrian infrastructure combines the proposed streetscape and pedestrian infrastructure provision LOS metric with total population and employment growth projections and the cost to provide streetscape and pedestrian infrastructure.

LOS METRIC

Because streetscape and pedestrian infrastructure encompasses a wide range of components the LOS metric put forth in the *San Francisco Infrastructure Level of Service Analysis* – square feet of improved sidewalk per service

[34] Refer to the *Streetscape Cost Memorandum* (March 20, 2014) for a more detailed discussion.

population unit – serves as a proxy for all types of pedestrian-related improvements, and reflects the level of investment that the City has committed to making in the pedestrian environment.

'Improved sidewalk' is a term that denotes sidewalk with some amount of streetscape and pedestrian infrastructure, where streetscape and pedestrian infrastructure includes sidewalk space and relevant streetscape and pedestrian amenities in that space, such as lighting, pedestrian signals, street trees, bulb-outs, sidewalk furniture, and any other pedestrian elements defined in the Better Streets Plan (BSP) or Section 2.4.13 of San Francisco's Public Works Code. While the proscription for improved sidewalk is not uniform across San Francisco (i.e. the BSP calls for different streetscape and pedestrian infrastructure improvements depending on the site considerations, the street type, the traffic patterns, and so on), the intent of the BSP is to improve all San Francisco streetscape. Therefore, the basic square footage of sidewalk is denoted 'improved sidewalk' to reflect the investments the City is committed to make in the pedestrian right-of-way in terms of streetscape and pedestrian infrastructure.

As noted in the *San Francisco Infrastructure Level of Service Analysis*, the City intends to provide 88 square feet of improved sidewalk per service population unit into the future. This metric assumes that, by 2030, the City will improve its current amount of sidewalk hardscape (115 million square feet[35]), where the level of improvement will vary across streetscape segments based on street type, site conditions, built environment constraints, traffic patterns, and so on, as per the BSP.

GROWTH PROJECTIONS

The development horizon for streetscape and pedestrian infrastructure is 2030. Between 2013 and 2030, San Francisco is projected to house 127,040 more people and employ 106,108 more workers, as shown in Table 16.

Table 16. Growth Projections for Streetscape and Pedestrian Infrastructure (2013 - 2030)

	2013	2030	Growth (2013 - 2030)	Percent Increase
Population				
Population	820,585	947,625	127,040	15%
Employment				
Jobs	600,740	706,848	106,108	18%
Service Population				
Service population[1]	1,120,955	1,301,049	180,094	16%

Source: Overall population and employment taken directly from the San Francisco Planning Department 2013 projections from Aksel Olsen, Planner/Geographer in Citywide Information and Analysis Group, received May 14, 2013. See appended documents for files. Projections were given at five year intervals beginning in 2010, so AECOM used linear interpolation to arrive at 2013 estimates.

Note: All values rounded to the nearest integer.

1. Service population is a weighted sum of residents and employees, where residents are weighted at 100% and employees are weighted at 50%. Service population equals one times the number of residents plus 0.5 times the number of employees. For a more detailed discussion of the service population concept, refer to the Service Population section of the report, under the Additional Assumptions section.

[35] This value is based on AECOM's analysis of DPW's database of sidewalk data (Stwidths1.xls). Refer to the *San Francisco Infrastructure Level of Service Analysis* report.

NEXUS METHODOLOGY & FEE CALCULATION

The fee calculation methodology (Table 17) calculates the total cost of providing adequate pedestrian and streetscape elements for San Francisco's service population (2013-2030).

In order to assign a development cost to the new infrastructure, a conservative value of $43 per square feet of improved sidewalk is applied. This number is based on DPW estimates for the cost of undertaking streetscape improvements, in accordance with the BSP.[36] The value does not reflect the cost of installing all possible streetscape improvements or the cost of constructing a complete street as per the Public Works Code (Section 2.4.13); rather, this value reflects the cost of installing some streetscape amenities, representative of the average San Francisco sidewalk improvement project. To develop the cost estimate, DPW provided costs for five prototypical streetscape and pedestrian infrastructure improvement projects. The five prototypical projects include: (1) a project where no streetscape and pedestrian infrastructure improvements are undertaken; (2) a project where curb ramps are installed or upgraded; (3) a project where sidewalks are repaved and bulb-outs constructed; (4) a project where sidewalks are repaved, bulb-outs are constructed, and streetscape amenities such as benches, trash cans, lighting, and street trees are installed; and (5) a project where sidewalks are repaved and widened, bulb-outs are constructed, and streetscape amenities such as benches, trash cans, lighting, street trees, medians, special crosswalk paving, pedestrian signals, and accessible pedestrian signals are installed. These five projects range from basic to elaborate. The average cost across these five prototypical projects represents an average cost to construct improved sidewalk. This cost was applied to reflect that not all sidewalks offer all streetscape amenities, and to ensure that developers are held to a reasonable standard that reflects what the City provides. Note that although an average cost value is used, reflecting a suite of possible streetscape elements, the fees may be used for any streetscape and pedestrian improvement measure outlined in the BSP or Public Works Code (Section 2.4.13).

The residential fee is based on the percentage of service population units arising from the new resident population, and the non-residential (commercial) fee is based on the percentage of service population units arising from the employee population.

[36] Refer to the *Streetscape Cost Memorandum* (March 20, 2014) – listed in Appendix A and included in the accompanying background materials compact disc – for a detailed discussion of the streetscape cost estimate.

Table 17. Nexus Methodology for Streetscape and Pedestrian Infrastructure Fee

*	Measure	Value	Source / Calculation
Service Population			
A	Total projected service population (2030)	1,301,049	Table 16
B	Total new service population (2013-2030)	180,094	Table 16
Unit Conversions			
C	Residential (SF/service population)	498	Table 4
D	Commercial (SF/service population)	654	Table 4
Metric			
E	SF of improved sidewalk per service population	88	*San Francisco Infrastructure Level of Service Analysis* report (March 2014)
Cost			
F	City estimate of unit cost ($/SF of improved sidewalk)	$43	*Streetscape Cost Memorandum* (March 20, 2014)
G	Total cost for new streetscape improvements	$681,476,000	B * E * F
H	Cost attributable to incremental growth	$681,476,000	G * 100%
I	Administrative costs (5% of fee)	$34,074,000	*Administrative Cost Memorandum* (November 4, 2013)
J	Total attributable cost with administrative costs	$715,550,000	H* (1 + I)
Justified Nexus Fee Maximums			
Residential ($/GSF)		$7.98	J / (B * C)
Non-Residential ($/GSF)		$6.08	J / (B * D)

Source: AECOM, 2013

Note: All numbers and percentages are rounded to the nearest integer. All dollar values are rounded to the nearest thousand (except those specified by the City, i.e. Line I (which is rounded to the nearest dollar), and the nexus fee maximums (which are rounded to the nearest cent)).

NEXUS FINDINGS

Based on the approach summarized in Table 17, the maximum supportable residential fee is $7.98 per gross square foot, and the maximum supportable non-residential fee is $6.08 per gross square foot

Table 18. Maximum Supportable Impact Fees for Streetscape and Pedestrian Infrastructure

	Maximum supportable Citywide Fee
Total Streetscape Fee	
Residential ($/GSF)	$7.98
Non-Residential ($/GSF)	$6.08

Source: AECOM, 2013

Note: All values rounded to the nearest cent.

As Table 19 demonstrates, both the residential and the non-residential maximum supportable nexus fees are above the highest fees currently charged. The highest existing residential fee for streetscape and pedestrian infrastructure recovers 83 percent of the maximum supportable nexus; the highest existing non-residential fee recovers 35 percent of the maximum supportable nexus.

Table 19. Comparing Proposed Maximum Supportable Streetscape and Pedestrian Infrastructure Fees to Existing (2013) Fees

	Proposed (Max)	Existing (Max)	Percent of Maximum Supportable Nexus Recovered by Existing Fee (Existing/Proposed)	Proposed Max > 10% Above Existing
Residential ($/GSF)	$7.98	$6.66	83%	YES
Non-Residential ($/GSF)	$6.08	$2.14	35%	YES

Source: AECOM, 2013

Note: All fee values rounded to the nearest cent; all percentages rounded to the nearest integer.

5. Bicycle Infrastructure

This chapter summarizes the nexus analysis for bicycle infrastructure. After providing a brief background, this chapter will outline the relevant growth assumptions, the methodology used to determine the nexus fee, and the final determination of the nexus fee.

INTRODUCTION

BICYCLE INFRASTRUCTURE BACKGROUND

Bicycle infrastructure refers primarily to the City's bicycle network of bike lanes, bike paths, and sharrows, but also includes bicycle parking spaces, bicycle signals, and bicycle-sharing bikes and stations. Like streetscape and pedestrian infrastructure, bicycle infrastructure plays an important role in the City's transportation goals, health and safety promotion, and environmental objectives. While not all residents and employees use bike infrastructure on a regular basis, improving the bicycle network benefits all, as it reduces congestion in other forms of transportation, and lowers the carbon emissions from the transportation sector.[37]

As new development occurs, it attracts new residents and employees, who, in turn, require new (or expanded and improved) bicycle infrastructure. This relationship between new development, an influx of residents and workers, and a demand for bicycle facilities provides the nexus for an impact fee. However, providing bicycle infrastructure – such as bicycle parking, bicycle signals, bicycle lanes, and bicycle-share bikes and stations – is a capital intensive undertaking. Bicycle infrastructure fees, levied on new development, are collected to help fund the construction of new bicycle infrastructure for the additional residents and workers directly attributable to new development. Other sources of funding for bicycle infrastructure include Caltrans, the Metropolitan Transportation Commission (MTC), the Bay Area Air Quality Management District, City propositions, and SFMTA.[38]

PURPOSE AND USE OF REVENUES

The primary purpose of a bicycle infrastructure development impact fee is to fund capital improvements to San Francisco's bicycle infrastructure. As is thoroughly discussed in San Francisco's 2013 *SFMTA Bicycle Strategy*, the City aims to improve the bike environment for all of San Francisco's residents and employees to promote a

[37] San Francisco Municipal Transportation Agency, "San Francisco Bicycle Plan." 26 June, 2009.
[38] San Francisco Municipal Transportation Agency, "SFMTA Bicycle Strategy." January 2013. While this document is still a draft, SFMTA staff directed the consultant to use it because SFMTA is developing the CIP project list to be put forward for San Francisco Board of Supervisors (Board) approval in April 2014 based on this document. Although no plans exist to take the 2013 *Bicycle Strategy* to the Board for adoption, the project list derived from it will be taken to the Board for CIP approval (in April 2014).

higher bike mode share. The impact fees will be used to make improvements to San Francisco's bicycle infrastructure in line with the discrete implementation strategies of the *SFMTA Bicycle Strategy*.

The proposed maximum supportable impact fee aims to ensure that new development contributes its fair share of funding to bicycle infrastructure improvements.

As with all impact fees, the fee revenue may not be used to address existing infrastructure deficiencies.

This analysis assumes that the City will fund 100 percent of the development-based demand for bicycle infrastructure improvements through the fee. This study presents a maximum supportable fee assignment – however, the City may choose to adopt a lower fee as appropriate.

NEXUS DETERMINATION

The maximum supportable fee calculation for bicycle infrastructure combines the proposed bicycle infrastructure project list with total population and employment growth projections, as well as the cost to provide bicycle infrastructure.

LOS METRIC

In 2013, the SFMTA produced the *SFMTA Bicycle Strategy*, outlining the proposed plan for San Francisco's bike network. This document sets the direction for bicycle infrastructure, and sets a distinct bicycle infrastructure goal for 2018. The *Bicycle Strategy* represents a comprehensive effort by SFMTA that has been accepted by SFMTA as its roadmap forward. As a result, the objectives of this policy form the basis for the nexus as opposed to an LOS metric standard.

The *Bicycle Strategy* outlines three potential scenarios for build-out of San Francisco's bike network by 2018. Of the three potential scenarios, the "Bicycle Plan Plus" scenario was selected, in consultation with SFMTA staff, as the best short-term infrastructure target for this nexus study. The Bicycle Plan Plus proposes upgrading the existing bicycle network to premium bike facilities, installing bike signals, adding bike parking spaces, and deploying a bike sharing system.[39] While the Bicycle Plan Plus improvements are through 2018, for the purposes of this nexus, it is assumed that the average annual improvements proposed in the Bicycle Plan Plus will continue through 2020, to allow for the impact fee to be calculated on an incremental basis through 2020. Table 20 summarizes the four improvement types expected as a result of the Bicycle Plan Plus strategy through 2020. The provision of these four items is the basis of the nexus.

[39] Premium facilities are bikeways rated Level of Traffic Street (LTS) 1 or LTS 2, based on San Francisco's Comfort Index rating of bikeways. Refer to the appended SFMTA presentation – "Bicycle Strategy Update Needs Assessment & Next Steps" (June 18, 2013) – for a more detailed description of bikeway classification in San Francisco. For further information on the bike sharing network see the *San Francisco Infrastructure Level of Service Analysis* report (March 2014).

Table 20. Bicycle Plan Plus Improvements

Improvements	Bicycle Plan Plus Proposal (2013-2018)	Assumed Incremental Improvements (2019-2020)[1]	Total Improvements Expected (2013-2020)
Incremental miles of premium bike lanes (2013-2020)	10	3	13
Incremental upgraded intersections (2013-2020)	10	3	13
Incremental bicycle parking (2013-2020)	4,000	1,333	5,333
Incremental bicycle share program bicycles (2013-2020)[2]	500	167	667

Source: *SFMTA Bicycle Strategy*; AECOM, 2013.

1. These numbers reflect AECOM's projections based on the average annual infrastructure improvements identified by the Bicycle Plan Plus proposal.

2. The bicycle share program, in addition to 667 bicycles, includes 67 stations – i.e. 50 bicycle share program stations in the Bicycle Plan Plus proposal (2013-2018) plus 17 assumed incremental stations (2019-2020).

GROWTH PROJECTIONS

The development horizon for bicycle infrastructure is 2020. This shorter-term development horizon mirrors the timeframe of the *SFMTA Bicycle Strategy*. Between 2013 and 2020, San Francisco will house 51,866 more people and employ 76,791 more workers, as shown in Table 21.

Table 21. Growth Projections for Bicycle Infrastructure (2013 – 2020)

	2013	2020	Growth (2013 - 2020)	Percent Increase
Population				
Population	820,585	872,451	51,866	6%
Employment				
Jobs	600,740	677,531	76,791	13%
Service Population				
Service population[1]	1,120,955	1,211,217	90,261	8%

Source: Overall population and employment taken directly from the San Francisco Planning Department 2013 projections from Aksel Olsen, Planner/Geographer in Citywide Information and Analysis Group, received May 14, 2013. See appended documents for files. Projections were given at five year intervals beginning in 2010, so AECOM used linear interpolation to arrive at 2013 estimates.

1. Service population is a weighted sum of residents and employees, where residents are weighted at 100% and employees are weighted at 50%. Service population equals one times the number of residents plus 0.5 times the number of employees. For a more detailed discussion of the service population concept, refer to the Service Population section of the report, under the Additional Assumptions section.

NEXUS METHODOLOGY & FEE CALCULATION

The fee calculation methodology (Table 22 to Table 25) calculates the total cost of providing adequate bicycle infrastructure elements for San Francisco's service population (2013-2020). Because the new facilities will be used by both existing and new service population, the total cost of providing the bicycle improvements is split proportionally, and only the proportional cost of the improvements are assigned to new development. The costs are distributed between residential and non-residential land uses based on their associated contributions to total incremental service population growth.

The residential fee is based on the percentage of service population units arising from the new resident population, and the non-residential (commercial) fee is based on the percentage of service population units arising from the employee population.

Table 22. Nexus Methodology for Upgrading Bikeway Miles to Premium Facilities Fee

*	Measure	Value	Source / Calculation
Service Population			
A	Total projected service population (2020)	1,211,217	Table 21
B	Total new service population (2013-2020)	90,261	Table 21
C	New growth as % of total service population (2020)	7.5%	B / A
Unit Conversions			
D	Residential (GSF new development/service population)	498	Table 4
E	Commercial (GSF new development/service population)	654	Table 4
Metric			
F	Incremental miles of premium bike lanes (2013-2020)	13	*SFMTA Bicycle Strategy*
Cost			
G	City estimate of unit cost ($/mile of upgraded premium lane)	$1,852,000	SFMTA Bicycle Strategy Cost Estimates[1]
H	Total cost for upgraded lanes	$24,076,000	F * G
I	Cost attributable to incremental growth	$1,806,000	C * H
J	Administrative costs (5% of fee)	$90,000	*Administrative Cost Memorandum* (November 4, 2013)
K	Total attributable cost with administrative costs	$1,896,000	I + J
Nexus Fee Maximums			
Residential ($/GSF)		$0.042	K / (B * D)
Non-Residential ($/GSF)		$0.032	K / (B * E)

Source: AECOM, 2013

Note: All numbers and percentages are rounded to the nearest integer. All dollar values are rounded to the nearest thousand (except those specified by the City, i.e. Line G, and the nexus fee maximums). Nexus fee maximums are rounded to the nearest tenth of a cent.

1. Cost based on data from Seleta Reynolds, Section Leader of Livable Streets within the Sustainable Streets Division of SFMTA (received via email attachment on June 26, 2013, as spreadsheet entitled Bike Strategy Cost Estimate 20121101.xls).

Table 23. Nexus Methodology for Upgrading Intersections Fee

*	Measure	Value	Source / Calculation
Service Population			
A	Total projected service population (2020)	1,211,217	Table 21
B	Total new service population (2013-2020)	90,261	Table 21
C	New growth as % of total service population (2020)	7.5%	B / A
Unit Conversions			
D	Residential (GSF new development/service population)	498	Table 4
E	Commercial (GSF new development/service population)	654	Table 4
Metric			
F	Incremental upgraded intersections (2013-2020)	13	*SFMTA Bicycle Strategy*
Cost			
G	City estimate of unit cost ($/upgraded intersection)	$71,250	SFMTA Bicycle Strategy Cost Estimates[1]
H	Total cost for upgraded intersection	$926,000	F * G
I	Cost attributable to incremental growth	$69,000	C * H
J	Administrative costs (5% of fee)	$3,000	*Administrative Cost Memorandum* (November 4, 2013)
K	Total attributable cost with administrative costs	$72,000	I + J
Nexus Fee Maximums			
Residential ($/GSF)		$0.002	K / (B * D)
Non-Residential ($/GSF)		$0.001	K / (B * E)

Source: AECOM, 2013

Note: All numbers and percentages are rounded to the nearest integer. All dollar values are rounded to the nearest thousand (except those specified by the City, i.e. Line G, and the nexus fee maximums). Nexus fee maximums are rounded to the nearest tenth of a cent.

1. Cost based on data from Seleta Reynolds, Section Leader of Livable Streets within the Sustainable Streets Division of SFMTA (received via email attachment on June 26, 2013, as spreadsheet entitled Bike Strategy Cost Estimate 20121101.xls).

Table 24. Nexus Methodology for Bicycle Parking Fee

*	Measure	Value	Source / Calculation
Service Population			
A	Total projected service population (2020)	1,211,217	Table 21
B	Total new service population (2013-2020)	90,261	Table 21
C	New growth as % of total service population (2020)	7.5%	B / A
Unit Conversions			
D	Residential (GSF new development/service population)	498	Table 4
E	Commercial (GSF new development/service population)	654	Table 4
Metric			
F	Incremental bicycle parking (2013-2020)	5,333	*SFMTA Bicycle Strategy*
Cost			
G	City estimate of unit cost ($/parking space)	$280	SFMTA Bicycle Strategy Cost Estimates[1]
H	Total cost for bicycle parking spaces	$1,493,000	F * G
I	Cost attributable to incremental growth	$112,000	C * H
J	Administrative costs (5% of fee)	$6,000	*Administrative Cost Memorandum* (November 4, 2013)
K	Total attributable cost with administrative costs	$118,000	I + J
Nexus Fee Maximums			
Residential ($/GSF)		$0.003	K / (B * D)
Non-Residential ($/GSF)		$0.002	K / (B * E)

Source: AECOM, 2013

Note: All numbers and percentages are rounded to the nearest integer. All dollar values are rounded to the nearest thousand (except those specified by the City, i.e. Line G, and the nexus fee maximums). Nexus fee maximums are rounded to the nearest cent.

1. Cost based on data from Seleta Reynolds, Section Leader of Livable Streets within the Sustainable Streets Division of SFMTA (received via email attachment on June 26, 2013, as spreadsheet entitled Bike Strategy Cost Estimate 20121101.xls).

Table 25. Nexus Methodology for Bicycle Sharing System Fee

*	Measure	Value	Source / Calculation
Service Population			
A	Total projected service population (2020)	1,211,217	Table 21
B	Total new service population (2013-2020)	90,261	Table 21
C	New growth as % of total service population (2020)	7.5%	B / A
Unit Conversions			
D	Residential (GSF new development/service population)	498	Table 4
E	Commercial (GSF new development/service population)	654	Table 4
Metric			
F	Incremental bicycle share program stations (2013-2020)	667	*SFMTA Bicycle Strategy*
Cost			
G	City estimate of unit cost ($/bicycle share program stations)	$6,600	SFMTA Bicycle Strategy Cost Estimates[1]
H	Total cost for stations	$4,402,200	F * G
I	Cost attributable to incremental growth	$330,000	C * H
J	Administrative costs (5% of fee)	$17,000	*Administrative Cost Memorandum* (November 4, 2013)
K	Total attributable cost with administrative costs	$347,000	I + J
Nexus Fee Maximums			
Residential ($/GSF)		$0.008	K / (B * D)
Non-Residential ($/GSF)		$0.006	K / (B * E)

Source: AECOM, 2013

Note: All numbers and percentages are rounded to the nearest integer. All dollar values are rounded to the nearest thousand (except those specified by the City, i.e. Line G, and the nexus fee maximums). Nexus fee maximums are rounded to the nearest tenth of a cent.

1. Cost based on data from Seleta Reynolds, Section Leader of Livable Streets within the Sustainable Streets Division of (received via email attachment on June 26, 2013, as spreadsheet entitled Bike Strategy Cost Estimate 20121101.xls).

NEXUS FINDINGS

Based on the approach summarized in Table 22 to Table 25, the maximum supportable residential fee is $0.06 per GSF, and the maximum supportable non-residential fee is $0.04 per GSF.

Table 26. Maximum Supportable Impact Fees for Bicycle Infrastructure

	Maximum Citywide Fee
Premium (LTS 1, 2) Network Miles	
Residential ($/GSF)	$0.042
Non-Residential ($/GSF)	$0.032
Upgraded Intersections	
Residential ($/GSF)	$0.002
Non-Residential ($/GSF)	$0.001
Bicycle Parking	
Residential ($/GSF)	$0.003
Non-Residential ($/GSF)	$0.002
Bicycle Share Bicycles (with Accompanying Stations)	
Residential ($/GSF)	$0.008
Non-Residential ($/GSF)	$0.006
Total Bicycle Infrastructure Fee	
Residential ($/GSF)	$0.06
Non-Residential ($/GSF)	$0.04

Source: AECOM, 2013

Note: All values rounded to the tenth of a cent, except for the fee totals which are rounded to the nearest cent.

As Table 27 demonstrates, both determined maximum supportable fees are above the highest existing fee for bicycle infrastructure. For both residential and non-residential fees, the highest existing fee recovers under 85 percent of the maximum supportable nexus.

Table 27. Comparing Proposed Maximum Supportable Bicycle Infrastructure Fees to Existing (2013) Fees

	Proposed (Max)	Existing (Max)	Percent of Maximum Supportable Nexus Recovered by Existing Fee (Existing/Proposed)	Proposed Max > 10% Above Existing
Residential ($/GSF)	$0.06	$0.05	83%	YES
Non-Residential ($/GSF)	$0.04	$0.02	50%	YES

Source: AECOM, 2013

Note: All fee values rounded to the nearest cent; all percentages rounded to the nearest integer.

6. Conclusion

As described in the previous sections, the maximum supportable fees determined for the four infrastructure categories (recreation and open space, childcare, streetscape and pedestrian infrastructure, and bicycle infrastructure) all exceed the highest current fees charged at either the citywide or neighborhood level. While the City may choose to charge a lesser fee to new residential or non-residential development, this report demonstrates that the current fees continue to be supported through a demonstrated nexus between new development and the scale of the fee.

Table 28. Potential Maximum Supportable Fees Per Infrastructure Category (2013)

	Citywide Nexus Fees	Maximum Supportable Fee
	**Recreation and Open Space Provision**	
	Residential ($/GSF)	$14.99
	Non-Residential ($/GSF)	$4.34
	**Childcare**	
	Residential ($/GSF)	$1.86
	Non-Residential ($/GSF)	$1.59
	**Streetscape and Pedestrian Infrastructure**	
	Residential ($/GSF)	$7.98
	Non-Residential ($/GSF)	$6.08
	**Bicycle Infrastructure**	
	Residential ($/GSF)	$0.06
	Non-Residential ($/GSF)	$0.04

Source: AECOM, 2013

Note: All values rounded to the nearest cent.

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Addendum

The bulk of this report was completed in 2013, using 2013 data, costs, and demographic projections. However, since the report was finalized in 2014 and will face adoption in 2014, the maximum supportable nexus fees in Table 28 must be adjusted from 2013 dollars to 2014 dollars.

The City annually adjusts all developer impact fees using an Annual Infrastructure Construction Cost Inflation estimate (AICCIE). To derive an appropriate AICCIE, the Capital Planning Committee (CPC) reviews cost inflation data, market trend analyses, the Planning Department's pipeline report, and a variety of national, state, and local commercial and institutional construction cost inflation indices. In 2014, the CPC adopted an AICCIE of 4.5%. Therefore, all maximum supportable nexus fees determined in this report in 2013 dollars (Table 28) must be increased by 4.5% as an adjustment to 2014 dollars. The adjusted maximum supportable nexus fees for 2014 are shown in Table 29.

Table 29. Potential Maximum Supportable Fees Per Infrastructure Category (2014)

	Citywide Nexus Fees	Maximum Supportable Fee
	**Recreation and Open Space Provision**	
	Residential ($/GSF)	$15.66
	Non-Residential ($/GSF)	$4.54
	**Childcare**	
	Residential ($/GSF)	$1.94
	Non-Residential ($/GSF)	$1.66
	**Streetscape and Pedestrian Infrastructure**	
	Residential ($/GSF)	$8.34
	Non-Residential ($/GSF)	$6.35
	**Bicycle Infrastructure**	
	Residential ($/GSF)	$0.06
	Non-Residential ($/GSF)	$0.04

Source: AECOM, 2014

Note: All values rounded to the nearest cent.

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Appendix A

This appendix includes a list of all documents, presentations, emails, spreadsheets, webpages, and other reference sources cited in the text of this report. For the full-text copies of any of the listed documents, refer to the accompanying compact disc.

List of Documents Cited

Document Title / Citation	File Name
Service Population Concept Memorandum (September 24, 2013)	Service_Population_Concept_Memorandum_20130924.doc
Belsky, Eric. *Rental Vacancy Rates: A Policy Primer*. National Association of Home Builders. Housing Policy Debate, Volume 3, Issue 3. 793-813. 1992.	Rental_Vacancy_Rates_Belsky_1992.pdf
Eastern Neighborhoods Impact Fee and Affordable Housing Analysis	EN_Nexus_2008.pdf
Hausrath Economics Group. *Phoenix Park and Library EDU Factors Study*. A Report to City of Phoenix Planning Department. September 1998.	Phoenix_Library_Report_1998.pfd
Administrative Cost Memorandum (November 4, 2013)	Administrative_Cost_Memo_20131104.pdf
Parks Acquisition Policy (August 2011)	RPD_Acquisition_Policy_2011.pdf
RPD Cost Assumptions Memorandum (March 26, 2014)	RPDCostAssumptionsMemo_20140326.pdf
FY 2010-2011 Development Impact Fee Report. Controller's Office. City and County of San Francisco. December 1, 2011.	Development_Impact_Fee_Report_2011.pdf
CPAC *San Francisco Child Care Needs Assessment* (2007)	ChildCareNeedsAssessment_2007.pdf
San Francisco Better Streets Plan (December 7, 2010)	BetterStreetsPlan_20101207.pdf
Streetscape Cost Memorandum (March 20, 2014)	StreetscapeCostMemo_20140320.pdf
SFMTA Bicycle Strategy (January 2013)	SFMTABicycleStrategy_20130129.pdf
San Francisco Bicycle Plan (June 26, 2009)	SFBicyclePlan_20090626.pdf

List of Presentations Cited

Presentation Description	File Name
Slides from MTC's complete streets policy workshop	MTC_Complete_Streets_Policy_Workshop _slides.pdf
Slides from CPC presentation of 2014 AICCIE	2014_AICCIE_Presentation.pdf
SFMTA presentation entitled "Bicycle Strategy Update Needs Assessment & Next Steps" (June 18, 2013)	SFMTA_BicycleStrategyUpdatePresentation_20130618.pdf

List of Emails Cited

Email Description	File Name
Average employment densities	EmploymentDensities_Email_FromAOlsen_ToVLauf_20130715.pdf
Average residential unit size	AvgResUnitSize_Email_FromKDischinger_ToARoth_20130626.pdf
Confirmation from RPD regarding the commitment to construct 55 acres of recreation and open space by 2030 and the infeasibility of constructing 566 acres	RPDAcreages_Email_FromDKamalanathan_ToVLAuf_20140214.pdf
Bicycle Strategy as the basis for bicycle infrastructure CIP project list	BicycleStrategybasisforCIPprojectlist_Email_FromSReynolds_ToVLauf_20140116.pdf
Cost per child care slot	ChildCareSlotCost_Email_FromGDobson_ToARoth_20131003.pdf

List of Spreadsheets Cited

Spreadsheet Description	File Name
Apportionment of existing community fees among infrastructure categories	Max_fee_by Category_Planned.xlsx
Population and employment projections from San Francisco Planning Department received by AECOM on May 14, 2013 from Aksel Olson, Planner/Geographer in Citywide Information and Analysis Group, San Francisco Planning Department (GIS export)	Pop&EmplProjections_GISExport_20130611.xlsx
Supporting spreadsheet for RPD Cost Assumptions Memorandum	RPDCostAssumptionsMemoCalcs_20140321.xlsx
DPW spreadsheet of sidewalk widths across the city	Stwidths1.xls
AECOM analysis of DPW's sidewalk width data	20130814_SFNexus_sidewalks.xlsx
Cost estimate for bicycle infrastructure	Bike_Strategy_Cost_Estimate_20121101.xlsx
AECOM analysis of cost estimate for bicycle infrastructure	Bike_Strategy_Cost_Estimate_20121101_AECOM.xlsx
Average household size from ACS data (DP02)	ACS_11_3YR_DP02.pdf
Child population projections from DOF data	P-3_Total_DetailedAge_CAProj_2010-2060.pdf

List of Webpages Cited

Webpage Citation	File Name
Peterson, Justin. San Francisco Apartment Sector Amongst the Strongest. Reis Report.	San_Francisco_Apartment_Sector_ReisReport_20121003.pdf
Jones Lang Lasalle. Office Outlook: United States. Q2 2013.	USOO_Q2_2013.pdf
CoStar. Market Trend: San Francisco's Retail Vacancy Decreases to 2.7%.	San_Francisco's_Retail_Vacancy_Decreases_Costar_20130726.pdf
Krainer, John. Natural Vacancy Rates in Commercial Real Estate Markets. Federal Reserve Bank of San Francisco. October 5, 2001.	Natural_Vacancy_Rates_FRBSF_20011005.pdf

List of Meeting Notes Cited

Meeting Notes Description	File Name
Meeting notes showing acreage of City-owned recreation and open space	CityOwnedAcreage_MtgNotes_20131114.pdf