



# San Francisco Infrastructure Level of Service Analysis

DECEMBER 2021

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## Acronyms

ADT .....	Average Daily Trips
AECOM .....	Architecture, Engineering, Consulting, Operations and Maintenance
ALS .....	Advanced Life Support
BSP .....	Better Streets Plan
CAD .....	Canadian Dollars
CCC .....	Child Care Center
CPAC .....	Child Care Planning and Advisory Council
DCYF .....	Department of Children, Youth and Their Families
DPH .....	Department of Public Health
EMS .....	Emergency Medical Services
FCC .....	Family Child Care Program
FY .....	Fiscal Year
LOS .....	Level of Service
LRT .....	Light Rail Transit
MTC .....	Metropolitan Transportation Commission
MTS .....	San Diego Metropolitan Transit System
MUNI .....	San Francisco Municipal Railway
NFPA .....	National Fire Protection Agency
NPRA .....	National Park and Recreation Association
NYC .....	New York City
OCII .....	Office of Community Investment and Infrastructure
SF .....	San Francisco
SF-CHAMP .....	San Francisco Chained Activity Modeling Process
SFDPW .....	San Francisco Department of Public Works
SFEMSA .....	San Francisco Emergency Medical Services Agency
SFFD .....	San Francisco Fire Department
SFMTA .....	San Francisco Municipal Transportation Agency
SFOECE .....	San Francisco Office of Early Care and Education
SFPL .....	San Francisco Public Library
SFPUC .....	San Francisco Public Utilities Commission
SFRPD .....	San Francisco Recreation and Park Department
SPU .....	Service Population Unit(s)
TAZ .....	Transportation Analysis Zone
TIDA .....	Treasure Island Development Authority
TIDF .....	Transit Impact Development Fee
TJPA .....	Transbay Joint Powers Authority
TSF .....	Transportation Sustainability Fee
UC .....	University of California

# 1 Executive Summary

## 1.1 Capital Improvement Program Prioritization

Infrastructure plays a critical role in creating a thriving economy and vibrant communities. The City of San Francisco Planning Department and the Capital Planning Program commissioned this study to continue the City's efforts to strategically address its infrastructure needs. In the past fifteen years or so, the City has moved forward on several initiatives to strengthen its capital planning process, including establishing the Capital Planning Program and creating the City's first 10-Year Capital Plan in 2006. The Capital Plan is a fiscally constrained, long-range plan that draws on existing planning documents, such as the City's General Plan and Neighborhood Area Plans, to guide policy and funding decisions related to infrastructure investments. The Plan is updated and approved by the Capital Planning Committee, the Board of Supervisors, and the Mayor every other year.

This study supports these capital planning efforts first by quantifying the current level of infrastructure services within the City, and second by developing target levels for those services based on agency directives and recommendations from the consultant. The study also recognizes the City has limited resources to fund and maintain infrastructure and that the City needs to set realistic infrastructure provision goals. The results of this report are intended to help inform the City's capital planning process and future infrastructure decisions. As part of this process, the following six infrastructure categories have been reviewed:

1. Recreational and Open Space Infrastructure
2. Child Care Facilities
3. Complete Streets Infrastructure
4. Transit Infrastructure
5. Library Facilities
6. Fire Department Facilities

For each of these categories, this study evaluates (1) the existing level of service (LOS), (2) an aspirational, long-term LOS standard, and (3) a realistic, short-term (2025<sup>1</sup>) LOS standard. Each of these LOS is described in greater detail below.

## 1.2 Project Objectives

The infrastructure LOS review and analysis study has four objectives:

- Evaluate existing levels of infrastructure provision and distribution throughout the City;
- Recommend aspirational and attainable LOS targets for the City considering fiscal, policy, physical, and social constraints;
- Use existing LOS provisions along with the developed LOS standards as a tool to understand potential opportunities for capital investment; and
- Provide guidelines for evaluating capital projects in terms of citywide standards.

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<sup>1</sup> In most cases the timeframe of analysis is from the year 2019 (the year this Report was drafted) until 2025. The exception is the transit infrastructure category, for which the timeframe of analysis extends until 2040. This selection of a longer timeframe is discussed in more detail in the relevant infrastructure chapter.

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## 1.3 Standards-Based Metrics

Where appropriate, this study uses standards-based metrics to quantify the appropriate LOS for each infrastructure category. Standards-based metrics are metrics that measure infrastructure provision against a measure of population – typically either population (residents) or service population (residents and a share of employees). An example of a standards-based metric would be: 2 miles of street per 1,000 residents.

The benefits of using standards-based metrics include being able to:

- Set clear City targets for infrastructure provision and capital planning;
- Measure infrastructure distribution across the City’s neighborhoods, thereby identifying areas of need;
- Allow infrastructure provisions to be benchmarked against past/future provision;
- Inform future planning and large-scale redevelopment decisions;
- Contribute to a common language and tool for agency policies and various infrastructure types;
- Measure and track the City’s infrastructure provision in relation to other comparable cities;
- Provide a visual tool to help prioritize capital investment; and
- Streamline the development impact fee nexus update process.

Given constraints associated with some infrastructure categories, not all LOS metrics within this study are standards-based. Each infrastructure category section describes its LOS metric and why that is the most appropriate for that infrastructure category.

## 1.4 Development Process

LOS metrics were developed based on existing City policies, department consultation, and an overview of best practices from comparable cities throughout North America. The key finding from the best practices review is that the consistency of infrastructure metrics vary greatly by infrastructure category; while recreational and open space had fairly consistent metrics (or at least a consistent approach to metrics) throughout the case study cities, child care had almost no metrics, and transit infrastructure had very different metrics across case study cities.

To develop LOS targets, the first step was to determine quantitative metrics for each infrastructure type. The current provision was then mapped onto this quantitative metric to understand distribution across neighborhoods. Next, the long-term aspirational goals were identified based on policy research, departmental input, and consistency with San Francisco’s General Plan. The long-term aspirational goals reflect policy goals that may become achievable over the long-term under alternate financing and social landscapes – i.e. given fewer constraints, financial and otherwise. After quantifying these two conditions, the current LOS and the long-term aspirational goal, short-term targets were developed to reflect infrastructure development objectives that are more feasible given fiscal and social constraints. The short-term (2025 in most cases) targets were developed in consultation with responsible departments and reflect a reasonable estimate of what the City intends to achieve based on prevailing fiscal conditions in San Francisco for both capital and operations & maintenance costs. In most cases, the short-term targets reflect a preservation of the current LOS.

In addition to supporting capital planning efforts, the short-term targets help inform future development impact fees: feasible short-term targets help set reasonable fee levels. By contrast, basing development impact

fees on the ambitious infrastructure provision of the long-term aspirational goals would create an undue burden on new development that the City is unable to match.

Finally, it is important to note that these goals and targets do not pre-ordain funding to specific locations but rather set up a systematic approach to help understand locations of potential infrastructure investment and determine potentially appropriate infrastructure projects to consider. Individual projects will be guided by a number of other factors including but not limited to departmental guidance, community support, and fiscal feasibility.

## 1.5 Findings

The Existing and Proposed Level of Service section summarizes the LOS metrics, the current provision, and the short-term targets for the six infrastructure categories, and it compares these points to the previous LOS study from 2014. The LOS targets developed as part of this work are consistent with current City plans and are intended to be applied as guidelines. The City may choose to aspire to higher goals or lower targets to account for unique neighborhood characteristics and/or available resources for investing in and maintaining new infrastructure.

Because few cities have well-defined LOS targets, it can be difficult to compare San Francisco's performance against comparable cities. However, where it is possible to do so, each section compares San Francisco's infrastructure provision to the case study cities. San Francisco is generally on par or better in terms of infrastructure provision.

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## 2 Introduction

In 2019, Hatch was retained by the San Francisco Planning Department, the Office of Resilience and Capital Planning, and the City Attorney's Office to conduct a review of the City and County of San Francisco's (the City's) infrastructure provision. The fundamental questions analyzed were:

1. What are the existing citywide levels of service (LOS) for the reviewed infrastructure categories?
2. What infrastructure LOS standards does the City aspire to if fiscally unconstrained?
3. What infrastructure LOS standards should the City realistically target?
4. Given LOS standards, for each infrastructure category, what is the anticipated citywide shortfall by 2025, based on population growth?

This report updates the San Francisco Infrastructure level of Service Analysis report completed by AECOM in 2014.

Specifically, this report provides insights into determining LOS targets for six infrastructure categories:

1. Recreational and Open Space Infrastructure
2. Child Care Facilities
3. Complete Streets Infrastructure
4. Transit Infrastructure
5. Library Facilities
6. Fire Department Facilities

To determine LOS metrics and standards, this report relied on existing City plans and reports related to the six infrastructure categories. This report is intended to inform infrastructure provision in the City to address existing and future shortfalls.

The LOS targets developed as part of this work are consistent with current City plans and are intended to be applied as guidelines. The City may choose to aspire to higher goals or lower targets to account for unique neighborhood characteristics and/or available resources for investing in and maintaining new infrastructure.

### 2.1 Project Objectives

The infrastructure LOS review and analysis portion of the project has four clear objectives:

- To evaluate existing levels of infrastructure provision and distribution throughout the City;
- To develop and propose aspirational and attainable LOS targets for the City consistent with the General Plan;
- To use the developed level of service standards as a capital planning tool; and
- To provide guidelines for evaluating capital projects in terms of citywide standards.

While this report does not cover the estimation of new developments' share of infrastructure provision, it does provide the foundation for the *2021 San Francisco Infrastructure Nexus Analysis*.



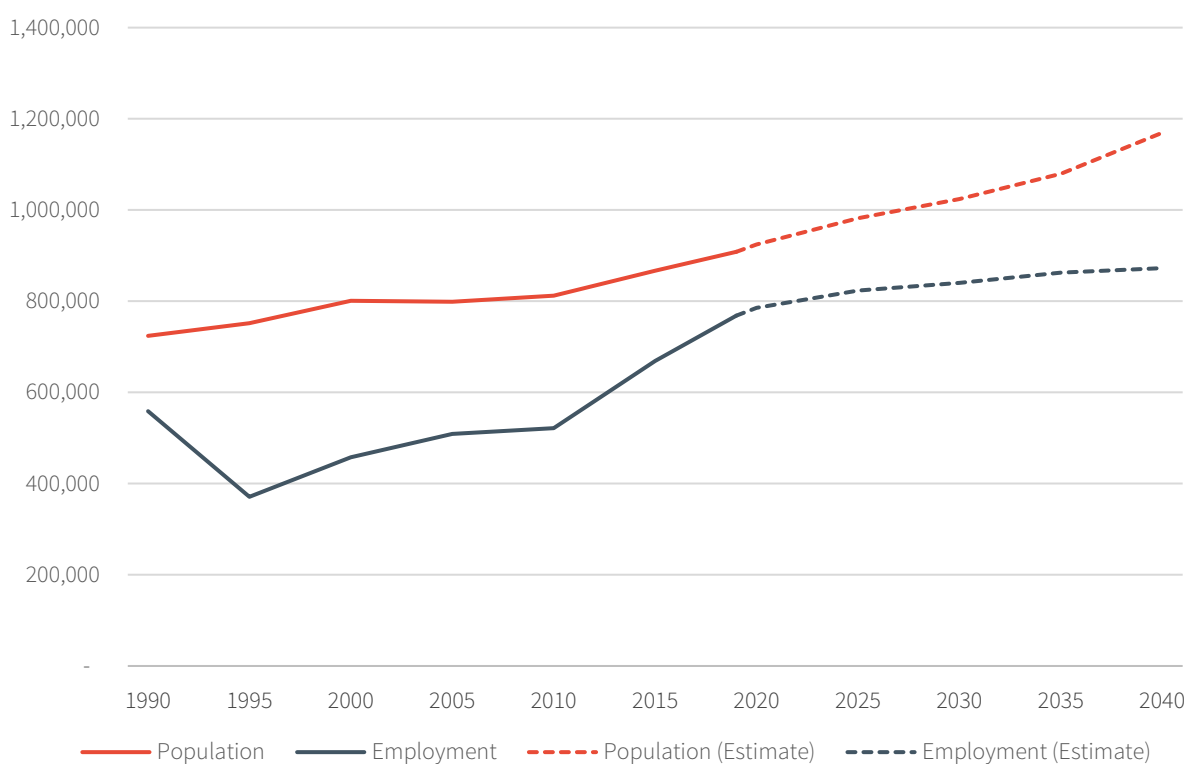
## 2.2 Capital Improvement Program Prioritization

Recognizing the critical role infrastructure plays in creating a thriving economy and vibrant communities, the City commissioned this study to continue its efforts to strategically address its infrastructure needs. The City has moved forward on several initiatives to strengthen its capital planning process, including establishing the Capital Planning Program and creating the City's first 10-Year Capital Plan in 2006. The Capital Plan is a fiscally-constrained, long-range plan that draws on existing planning documents, such as the City's General Plan and Neighborhood Area Plans, to guide policy and funding decisions related to infrastructure investments. The Plan is updated and approved by the Capital Planning Committee, the Board of Supervisors, and the Mayor every other year.

This study quantifies the current level of infrastructure services within the City and develops target levels for those services based on 2019 data and demographic projections. The time period covering the COVID-19 pandemic will be included in the next level of service analysis report.

## 2.3 Demographic Growth and Projected Infrastructure Shortfalls

FIGURE 1: SAN FRANCISCO POPULATION AND EMPLOYMENT, 1990-2040<sup>2</sup>



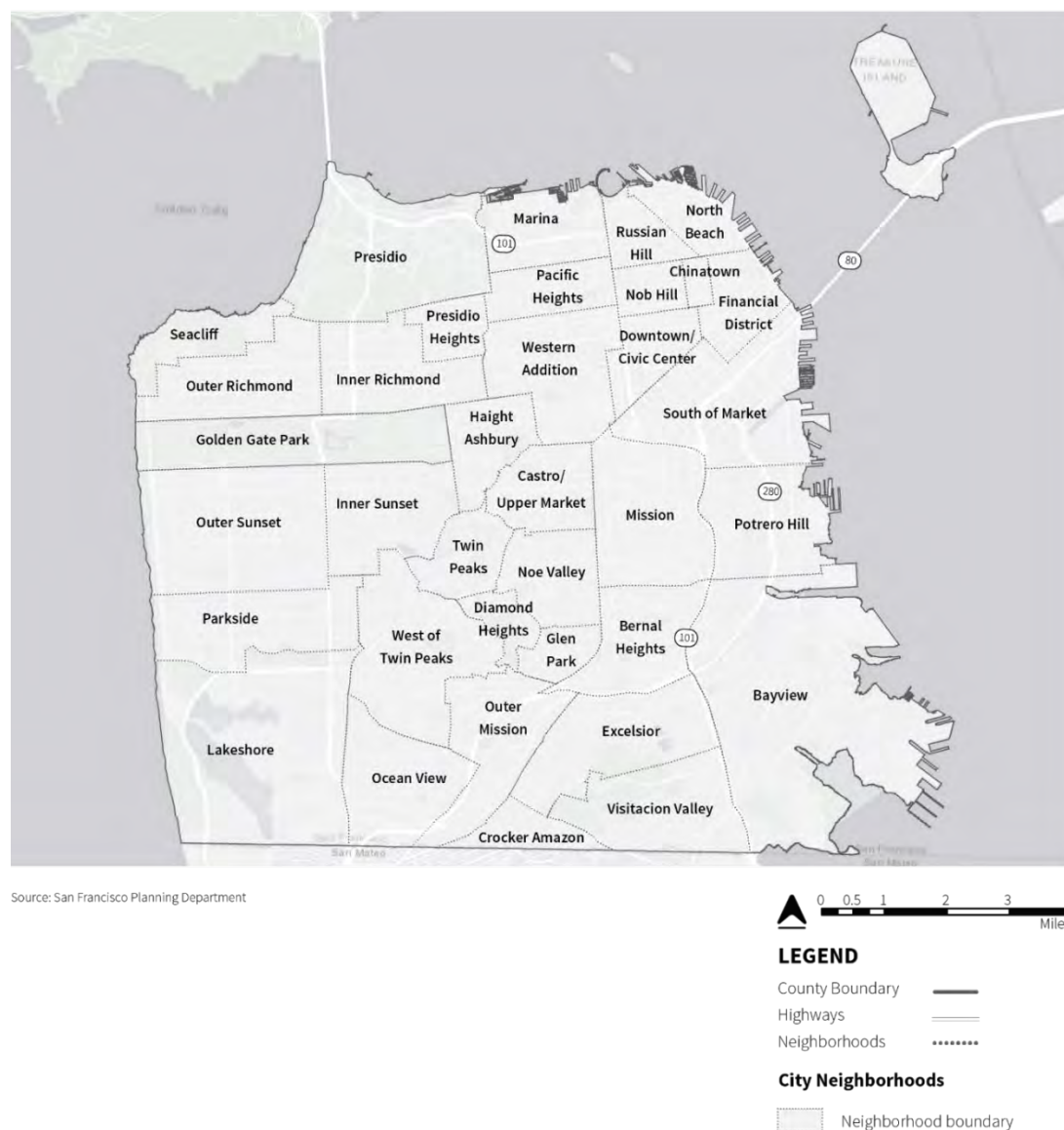
Both the City's residential and employment populations use City infrastructure on a daily basis. As the City grows, demand on that infrastructure will increase with growth. This report analyzes the current LOS for City infrastructure categories, in part, to establish the additional infrastructure necessary to support further growth

<sup>2</sup> Sources: San Francisco Commerce & Industry Reports (published by SF Planning), 2004, 2012, 2016. San Francisco Population and Employment Projections (from SF Planning).

and maintain the high quality of life San Francisco is known for. Figure 1 shows the projected growth in residential population and employment in the City through 2040<sup>3</sup>.

Part of establishing citywide infrastructure provision is analyzing the distribution of infrastructure throughout the City. For the most part, this is done at the neighborhood level. Figure 2 shows the neighborhoods used for analysis in this report<sup>4</sup>.

FIGURE 2: SAN FRANCISCO NEIGHBORHOODS



<sup>3</sup> The bulk of this report was completed in 2019, using 2019 data, costs, and demographic projections. The period of COVID-19 will be part of the next level of service analysis.

<sup>4</sup> The neighborhood boundaries shown in the Figure 2 are from the SF Planning Department's Division of Neighborhoods.

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## 2.4 Approach & Report Organization

This study begins with a chapter summarizing the infrastructure provision metrics and levels of service, comparing them to the prior (2014) report. The remainder of the report includes one chapter per infrastructure category. The Socio-Economic Analysis section presents an analysis of infrastructure provision in San Francisco's Equity Priority Communities. The appendix contains details of how several datapoints in the report were reached.

Each infrastructure chapter is organized as follows:

- Each chapter opens with a discussion of background information about the infrastructure category and typical measures for infrastructure provision. A review of the provision of the infrastructure category within San Francisco is included, with reference to provision in case study cities.
- Metrics for that infrastructure category within San Francisco are proposed. San Francisco's current level of service is quantified, as per the proposed metric. An aspirational goal and a short-term target are identified, as per the proposed metric.
- New demand for infrastructure based on expected growth (through 2025 or 2040) is forecasted and assessed.

### 3 Existing and Proposed Level of Service

TABLE 1: COMPARISON OF INFRASTRUCTURE PROVISION METRICS, LEVELS OF SERVICE, AND GOALS FROM 2014 TO 2019

2014 LOS Analysis		2019 LOS Analysis	
Recreational and Open Space			
Metrics	<ul style="list-style-type: none"><li>• Acres of City-owned open space per 1,000 service population units</li><li>• Acres of open space per 1,000 adjacent residents</li></ul>	<ul style="list-style-type: none"><li>• Acres of City-owned open space per 1,000 service population units</li><li>• Percent of service population units within a 10-minute (half-mile) walk of open space</li></ul>	
Level of Service	<ul style="list-style-type: none"><li>• 4.0 acres of City-owned open space per 1,000 service population units</li><li>• Average of 2.7 acres of open space per 1,000 adjacent residents; Median of 0.7</li></ul>	<ul style="list-style-type: none"><li>• 3.0 acres of City-owned open space per 1,000 service population units</li><li>• 100% of SPU are within a 10-minute (half-mile) walk of open space</li></ul>	
Goals	<ul style="list-style-type: none"><li>• Maintain 4.0 acres of City-owned open space per 1,000 service population units</li><li>• Achieve 0.5 acres of open space per 1,000 adjacent residents at all parks</li></ul>	<ul style="list-style-type: none"><li>• Maintain 3.0 acres of City-owned open space per 1,000 service population units</li><li>• Maintain 100% of SPU within a 10-minute (half-mile) walk of public open space, and improve quality of open space</li></ul>	
Child Care Facilities			
Metrics	<ul style="list-style-type: none"><li>• Percent of infant/toddler child care demand served by available slots</li><li>• Percent of preschool child care demand served by available slots</li></ul>	<ul style="list-style-type: none"><li>• Percent of infant/toddler child care demand served by available slots</li><li>• Percent of preschool child care demand served by available slots</li></ul>	
Level of Service	<ul style="list-style-type: none"><li>• 37% of infant/toddler child care demand served by available slots</li><li>• 99.6% of preschool child care demand served by available slots</li></ul>	<ul style="list-style-type: none"><li>• 19% of infant/toddler child care demand served by available slots</li><li>• 88% of preschool child care demand served by available slots</li></ul>	
Goals	<ul style="list-style-type: none"><li>• Maintain 37% LOS capacity for infant/toddler child care demand</li><li>• Achieve 100% LOS capacity for preschool child care demand</li></ul>	<ul style="list-style-type: none"><li>• Accommodate 100% of new demand for infant/toddler child care space</li><li>• Accommodate 100% of new demand for preschool child care space</li></ul>	
Complete Streets Infrastructure			
Metrics	<ul style="list-style-type: none"><li>• Square feet of improved sidewalk per service population unit</li></ul>	<ul style="list-style-type: none"><li>• Square feet of Complete Streets Sidewalk per service population unit<sup>5</sup></li></ul>	
Level of Service	<ul style="list-style-type: none"><li>• 103 square feet of sidewalk per service population unit</li></ul>	<ul style="list-style-type: none"><li>• 118 square feet of Complete Streets Sidewalk per service population unit<sup>6</sup></li></ul>	
Goals	<ul style="list-style-type: none"><li>• 88 square feet of improved sidewalk per service population unit</li></ul>	<ul style="list-style-type: none"><li>• Maintain 118 square feet of Complete Streets Sidewalk per service population unit</li></ul>	
Transit Infrastructure			

<sup>5</sup> The 2019 Complete Streets Sidewalk metric includes bicycle infrastructure, whereas the 2014 improved sidewalk metric did not.

<sup>6</sup> Sidewalk area increased from the 2014 report due to errors found in the estimation of citywide sidewalk area in the 2014 report.

2014 LOS Analysis		2019 LOS Analysis	
Metrics	<ul style="list-style-type: none"> <li>Transit crowding: boardings exceeding 85% of vehicle capacity</li> <li>Transit travel time</li> </ul>	<ul style="list-style-type: none"> <li>Transit crowding: passenger miles in vehicles with less than three square feet per standing passenger</li> <li>Transit maintenance</li> </ul>	
Level of Service	<ul style="list-style-type: none"> <li>No LOS reported</li> <li>33.7 minutes per average travel time</li> </ul>	<ul style="list-style-type: none"> <li>15% of passenger miles systemwide in crowded conditions</li> <li>1.45 revenue service hours provided per 1,000 daily auto plus transit trips</li> </ul>	
Goals	<ul style="list-style-type: none"> <li>Decrease crowding</li> <li>33.6 minutes per average travel time</li> </ul>	<ul style="list-style-type: none"> <li>Improve existing LOS (decrease percent crowded passenger miles)</li> <li>Maintain existing LOS</li> </ul>	
Library Facilities			
Metrics	<ul style="list-style-type: none"> <li>Not included in 2014 report</li> </ul>	<ul style="list-style-type: none"> <li>Square feet of library per resident</li> </ul>	
Level of Service	<ul style="list-style-type: none"> <li>Not included in 2014 report</li> </ul>	<ul style="list-style-type: none"> <li>0.67 square feet of library per resident</li> </ul>	
Goals	<ul style="list-style-type: none"> <li>Not included in 2014 report</li> </ul>	<ul style="list-style-type: none"> <li>Maintain 0.6 square feet of library per resident</li> </ul>	
Firefighting Facilities			
Metrics	<ul style="list-style-type: none"> <li>Not included in 2014 report</li> </ul>	<ul style="list-style-type: none"> <li>Fire stations per 1,000 service population units</li> </ul>	
Level of Service	<ul style="list-style-type: none"> <li>Not included in 2014 report</li> </ul>	<ul style="list-style-type: none"> <li>0.04 fire stations per 1,000 service population units</li> </ul>	
Goals	<ul style="list-style-type: none"> <li>Not included in 2014 report</li> </ul>	<ul style="list-style-type: none"> <li>Maintain 0.04 fire stations per 1,000 service population units</li> </ul>	

For provision of recreational and open space, this report preserves the two metrics from the 2014 report but changes them slightly. As described in further detail in Section 4, the definition of service population units (SPU) has changed for the purposes of measuring parks and open space: the 2014 report counted 19% of all employees toward the total SPU count, but this report counts 50% of employees toward the parks SPU, due to additional research on San Francisco park usage by employees in the City, which shows that employees in San Francisco use City parks more than was previously assumed. This is one of the main contributing factors to why the current level of service for acres of City-owned parks per 1,000 SPU is so much lower in 2019 than 2014 (3.0 compared to 4.0).

This report also replaces the acres of open space per 1,000 adjacent residents metric from the 2014 report with a new metric, walking distance. The 2014 report discusses park access (via walking distance) in the background section, but does not include it as a metric, because the level of service across San Francisco is so high already (100% of SPU are within a 10-minute walk). However, this report cast a broader net for case study comparisons than the 2014 report, and found that walking distance is a common parks metric among peer cities. After discussions with the San Francisco Recreation and Park Department (SFRPD), it was decided that walking distance is more relevant than the adjacent parks metric. An updated acres of open space per 1,000 adjacent SPU map is included in the appendix.

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For provision of child care facilities, the City is no longer using a level of service methodology to calculate the nexus fee maximum. Instead, the *2021 San Francisco Infrastructure Nexus Analysis* uses a linkage methodology to examine the demand new development makes on child care infrastructure. This stands in contrast to the 2014 report, where child care is measured through a level of service metric. This report includes an assessment of child care level of service using the 2014 study’s metrics, but to the child care fee uses a linkage approach (see *2021 San Francisco Infrastructure Nexus Analysis for more information about linkage analysis*). The goal is no longer set relative to level of service, but rather to meet 100% of new demand created by new development.

The complete streets infrastructure category represents a combination of two infrastructure categories from the 2014 report: streetscape and pedestrian infrastructure, and bicycle infrastructure. However, in the 2014 report, there were no metrics given for bicycle infrastructure, so only the streetscape and pedestrian infrastructure metric is listed in Table 1.<sup>7</sup> This report uses the same metric, square feet of improved sidewalk space per service population unit. Improved sidewalk space, in this case, includes bike lanes as part of the “complete streets” environment. The metric will be referred to as “Complete Streets Sidewalk” from here on out.

In the transit category, the 2014 report used two LOS performance metrics: transit travel time and transit crowding. The 2015 Transportation Sustainability Fee (TSF) update modified these two metrics by keeping the transit crowding metric and substituting a transit maintenance demand metric for the transit travel time metric. These two updated metrics were developed to directly support the 2015 TSF nexus analysis. This 2019 update to the Level of Service Analysis uses the same two metrics used in the 2015 TSF update.

Library and firefighting facilities both represent new infrastructure categories for this report and were not included in the 2014 LOS report. The metrics for both categories are designed to estimate the amount of capital facilities per user for each infrastructure type.

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<sup>7</sup> In the 2014 report, bicycle infrastructure goals were set to achieve planned bicycle improvements at the time, rather than through an established level of service.

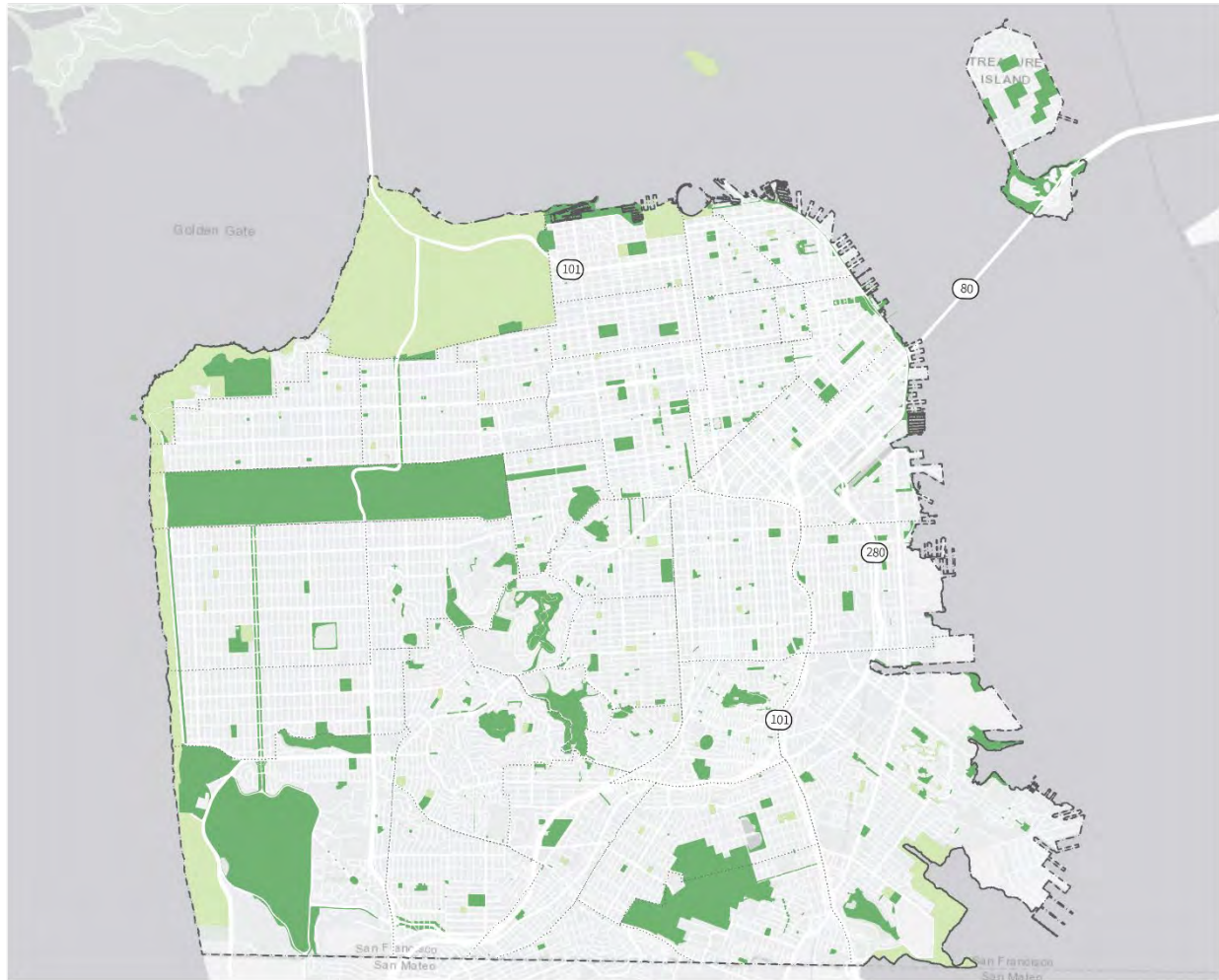
## 4 Recreational and Open Space Infrastructure

Recreational and open space infrastructure has received significant attention in San Francisco, both from City agencies and the public. This section outlines conventions among a set of case-study cities, examining the metrics they use and comparing existing levels of service. This section will then propose metrics and map existing conditions based on those metrics. Table 2 lists the City documents consulted for this section. Note that the terms parks, open space, and recreational space are used synonymously to refer to recreational and open space. For further information, see Figure 3, a map of San Francisco open space by ownership.

TABLE 2: RECREATION AND OPEN SPACE GUIDING AND REFERENCE POLICY DOCUMENTS

Policy Document	Year	Key Contributions
Recreation and Open Space Element	2014	<ul style="list-style-type: none"> <li>• Information on existing and proposed open space</li> <li>• Analysis of open space distribution</li> </ul>
San Francisco Infrastructure Level of Service Analysis	2014	<ul style="list-style-type: none"> <li>• Background information on open space standards</li> <li>• San Francisco open space data and analysis</li> </ul>
Transit Center District Plan	2012	<ul style="list-style-type: none"> <li>• Downtown-specific open space information</li> <li>• Analysis of Privately-Owned Public Open Spaces</li> </ul>
San Francisco Recreation and Park Department Acquisition Policy	2011	<ul style="list-style-type: none"> <li>• Historical and planned park acquisitions</li> <li>• Department priorities for new open space</li> </ul>

FIGURE 3 : TOTAL RECREATION AND OPEN SPACE BY OWNERSHIP (2018)



Total City Open Space (existing acres)	6,301
City-owned* open space	3,844
Non-city** owned open space	2,457
Total Acres / 1,000 Residents	6.9
Total Acres / 1,000 SPU***	4.9
Total City-Owned Acres / 1,000 Residents	4.2
Total City-Owned Acres / 1,000 SPU	3.0

\* City-owned open space includes open space controlled by SFRPD, SFDPW, the Port, SFMTA, SFPL, SFPUC, OCII, TIDA, and TJPA.

\*\* Non-city owned open space includes state and federally-owned open space.

\*\*\* Service Population Unit is calculated as one times the resident population plus 0.5 times the employee population, setting up a 1:0.5 ratio of intensity of use between residents and employees.

Source: San Francisco Recreation and Park Department, City Parks 2018



#### LEGEND

County Boundary	-----
Highways	———
Neighborhoods	———

#### Open Space by Ownership

<span style="display:inline-block; width:15px; height:15px; background-color:darkgreen; border:1px solid black;"></span>	City-owned open space
<span style="display:inline-block; width:15px; height:15px; background-color:lightgreen; border:1px solid black;"></span>	Non-city owned open space



## 4.1 Background

Traditionally, recreational and open space is measured as a ratio of acres of open space to residents. The National Park and Recreation Association (NPRA) defined a recommendation of 10 acres of park per 1,000 people in 1981,<sup>8</sup> and that recommendation has since become a common standard. More recently, however, city governments have begun adopting more appropriate standards for densely-populated cities.<sup>9</sup> Among the comparison cities for this report, service goals range from 2.8 acres of city-owned park space (San Diego<sup>10</sup>) to 7.5 acres of total open space including non-city-owned (San Jose<sup>11</sup>) per 1,000 residents. San Francisco currently provides 4.2 acres of city-owned recreation space per 1,000 residents, and 6.9 acres of total recreation space per 1,000 residents.<sup>12</sup>

The metric of open space provision, however, is more accurately measured per service population units (SPUs), not residents. Service population units consist of city residents and a proportion of city workers. The proportion is calculated to reflect the frequency with which San Francisco park users visit parks from their place of work (if that place of work is within San Francisco) relative to visiting parks from their place of residence (if that place of residence is within San Francisco). The standard assumption in most infrastructure categories is a worker ratio of 0.5, meaning San Francisco park users visit parks from their place of work with roughly half the frequency as from their place of residence.<sup>13</sup> However, for open space specifically, previous reports have used a lower ratio of workers to residents, 0.19:1. For this analysis, the Hatch team performed a survey of San Francisco park users and pedestrians to determine the relative frequency with which city park users visit parks from their place of work relative to their place of residence.<sup>14</sup> Based on the survey results, the ratio of workers to residents was determined to be closer to the standard 0.5:1 ratio than 0.19:1.<sup>15</sup> This means that the SPU total is defined to be all city residents and 50% of city workers. Using this figure, San Francisco provides 3.0 acres of City-owned open space per 1,000 SPU and 4.9 acres of total open space per 1,000 SPU.<sup>16</sup>

<sup>8</sup> Fogg, George E. National Recreation and Park Association, Park Planning Guidelines. 1981.

<sup>9</sup> San Francisco Infrastructure Level of Service Analysis. 2014.

<sup>10</sup> San Diego General Plan, Recreation Element. Updated 2015.

<sup>11</sup> Envision San Jose 2040 General Plan. Amended 2011.

<sup>12</sup> 2019 population data from SF Planning. Geospatial park data from SF Recreation and Park.

<sup>13</sup> This is consistent with previous fiscal impact studies prepared for the City, such as the 2011 Parkmerced Fiscal and Economic Impacts Analysis Overview, and the 2018 1690 Folsom Street Economic Impact Study. The 2014 San Francisco Citywide Nexus Study also used the 0.5:1 worker to resident ratio for infrastructure categories other than open space.

<sup>14</sup> 499 surveys were collected from 5 different parks across San Francisco. Each park was surveyed multiple times, and survey collection times included mornings, evenings, and weekends. For further information, see the survey memo in the Appendix, Section 11.5.

<sup>15</sup> More information on the Parks Survey can be found in the Appendix, Section 11.5.

<sup>16</sup> 2019 employment data from SF Planning.

TABLE 3: OPEN SPACE PER CAPITA

		CITY-OWNED OPEN SPACE	TOTAL OPEN SPACE
		3,844 acres	6,301 acres
RESIDENTS	908,336	4.2 acres per 1,000 residents	6.9 acres per 1,000 residents
SERVICE POPULATION UNITS	1,292,516	3.0 acres per 1,000 SPU	4.9 acres per 1,000 SPU

Another important criterion for open space is access. Many cities (Minneapolis<sup>17</sup>, Davis<sup>18</sup>, and Sacramento<sup>19</sup> among the case study cities) aim to provide park space within walking distance of residents' homes and measure their park access performance based on the percent of residents who live within walking distance of a park or other form of open space. The distance that is considered "walking distance" varies from city to city, but the most common figure is half a mile, or about a 10-minute walk.<sup>20</sup> As reported in the San Francisco General Plan's Recreation and Open space element, all locations in the City are within a half-mile buffer of recreational and open space.<sup>21</sup>

## 4.2 Case Study Comparisons

In a review of LOS metrics and goals in other cities, the most frequent criteria measured are *access* (percent of residents within a given distance of park space) and *quantity* (park space per capita). Both are reflected in the Recreation and Open Space Element of San Francisco's General Plan, although no quantifiable goals are listed. Table 4 compares park access and quantity across the case study cities. The access comparison uses the standard 10-minute walk shed. The Hatch team also analyzed the portion of the total land allocated to open space in the case study cities in order to account for the fact that land-constrained cities face different tradeoffs when planning for the provision of open space per capita. Although San Francisco, one of the densest cities on the list, provides less acres per 1,000 residents than less dense cities like Sacramento or Minneapolis, its allocation of open space as a percent of total land area is one of the highest. Cities like Vancouver and San Diego are outliers since they contain regional forests within their city boundaries.

<sup>17</sup> Minneapolis 2040 – The City's Comprehensive Plan. Draft update submitted for review June 2019.

<sup>18</sup> City of Davis General Plan, Parks and Open Space element. Updated 2007.

<sup>19</sup> City of Sacramento 2035 General Plan, Education, Recreation, and Culture. Adopted 2015.

<sup>20</sup> Moeller, John. American Society of Planning Officials, Standards for Outdoor Recreational Areas. Information Report No. 194. 1965.

<sup>21</sup> San Francisco General Plan, Recreation and Open Space Element. Updated 2014.

TABLE 4: LOS PROVISION COMPARISON – RECREATION AND OPEN SPACE

City	Percent of Total Area <sup>22</sup>	Acres per 1,000 Residents <sup>23</sup>	Percent of Residents within 10-Minute Walk <sup>24</sup>
San Francisco, CA	19.6%	6.9	100%
Minneapolis, MN	14.9%	12.4	97%
San Jose, CA	14.4%	15.8	77%
San Diego, CA	23.2%	34.9	77%
Los Angeles, CA	12.7%	9.5	56%
Vancouver, BC <sup>25</sup>	22.0%	22.4	93%
Portland, OR	17.8%	23.4	86%
Seattle, WA	12.5%	9.8	94%
New York, NY	21.2%	4.7	97%
Boston, MA	17.5%	7.9	99%
Sacramento, CA	8.0%	10.2	78%

<sup>22</sup> Percent of Total Area and Acres per 1,000 Residents comes from The Trust for Public Land, 2017 City park facts (except Vancouver).

<sup>23</sup> Note that, although Section 4 overall uses service population, this table just looks at residents, to provide a consistent comparison point across cities as done by the Trust for Public Land.

<sup>24</sup> ParkScore Index 2018, Trust for Public Land (except Vancouver)

<sup>25</sup> City of Vancouver Greenest City 2020 Action Plan (Percent of Total Area and Acres per 1,000 Residents)

TABLE 5: LOS METRICS AND SERVICE GOALS – RECREATION AND OPEN SPACE

City	Metric <sup>26</sup>	Service Goals
San Francisco, CA	<b>Proposed:</b> <ul style="list-style-type: none"> <li>Acres of City-owned open space per 1,000 service population units (SPU)</li> <li>Percent of SPU within a 10-minute (half-mile) walk of open space</li> </ul>	<b>Proposed:</b> <ul style="list-style-type: none"> <li>Maintain 3.0 acres of city-owned open space per 1,000 SPU up until total long-term acquisitions reach 500 acres<sup>27</sup></li> <li>Maintain 100% of SPU within a 10-minute (half-mile) walk of public open space, and improve quality of open space</li> </ul>
Minneapolis, MN	Distance to parks from each dwelling unit Parkland per household	Park access within 6 blocks of each dwelling unit 0.01 acres of parkland per household (or 10 acres per 1,000 households)
San Jose, CA	Acres per population (broken down into different types of park - see Service Goals)	1.5 acres of public park per 1,000 residents 2 acres of recreational school grounds open to the public per 1,000 residents 7.5 acres of total park/open space lands per 1,000 residents through the above and other public land agencies 500 sqft of community center space per 1,000 residents
San Diego, CA	"usable acres" of park per capita	2.8 usable acres per 1,000 residents
Vancouver, BC	Percent of population that lives within 5-minute walk of green space	The goal is to have 100% of the population within a 5-minute walk of green space
Davis, CA	Distance of closest park to all dwelling units Acres of park per capita	A neighborhood park with 3/8 mile of all dwelling units 5 acres of total park space (1.8 community park, 1.8 neighborhood park, 0.2 mini park, 1.2 other parks) per 1,000 residents
Boston, MA	Quality of parks (ranked from 1 to 5)	No goal
Sacramento, CA	Distance of closest park to all dwelling units Acres of park per capita	There should be a park within a half-mile of all dwelling units 5 acres of park space per 1,000 residents

<sup>26</sup> The Metrics and Service Goals for each city (except San Francisco) come from that city's most recent general or comprehensive plan update.

<sup>27</sup> This can be achieved by either acquiring new open space or by improving existing open space.

### 4.3 Level of Service Metrics

Two metrics have been identified to measure recreation and open space infrastructure LOS in San Francisco. They are intended to measure total provision of open space and access to open space. The metrics are:

- Acres of City-owned open space per 1,000 service population units (SPU)
- Percent of SPU within a 10-minute (half-mile) walk of open space

#### 4.3.1 Acres of City-Owned Open Space per 1,000 Service Population Units

TABLE 6: ACRES OF CITY-OWNED OPEN SPACE PER 1,000 SERVICE POPULATION UNITS – LOS PROVISION, GOAL, AND TARGET

LOS Measure	Value	Source
<b>Current Citywide Provision</b>	3.0 acres of City-owned open space per 1,000 SPU	2019 population and employment data from SF Planning. Geospatial park directory from SF Recreation and Park.
<b>Short-Term Target<sup>28</sup></b>	Maintain 3.0 acres of city-owned open space per 1,000 SPU	Meeting with SF Planning and Rec and Park, September 18, 2019.
<b>Long-Term Aspirational Goal</b>	The City will add 500 acres of open space <sup>29</sup>	Emails from SF Planning and Rec and Park, November 21, 2019.

This metric measures the overall provision of park space in San Francisco. The open space acreage metric is confined to City-owned open space in order to reflect the open space upon which the City can effect change. Although the metric speaks about it in terms of acquisition, the expansion of recreational and open space can include improvements that increase the intensity of potential use on already-existing parkland, such as building new sports facilities or playgrounds. For more information about the type of improvements that would meet this expectation, see the *2021 San Francisco Infrastructure Nexus Analysis*.

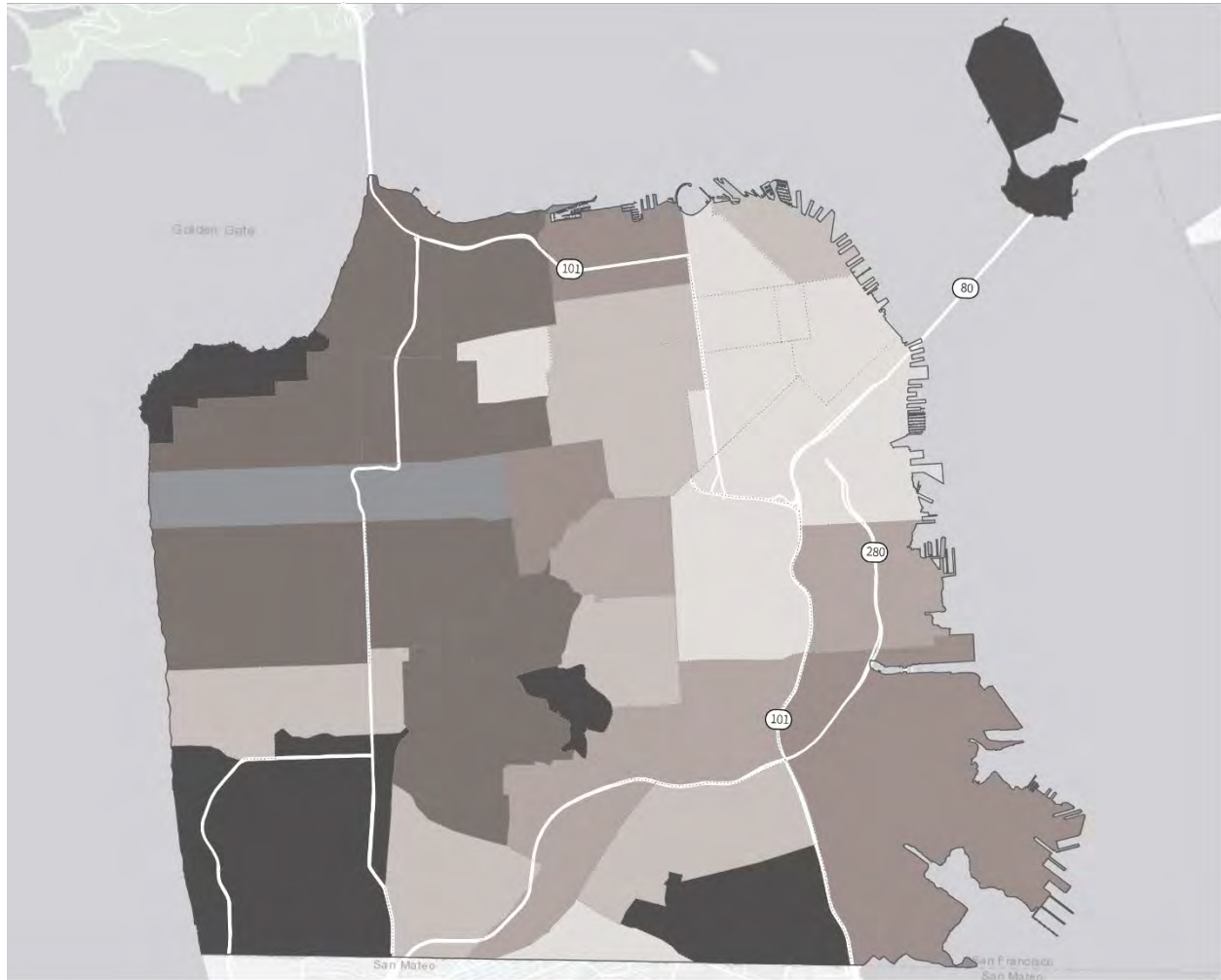
##### 4.3.1.1 Forecasted Demand

By 2025, the City's SPU is projected to grow by 101,000, which would mean adding 301 acres of new open space or park improvement equivalent in that time. By 2040, SPU is projected to grow a further 212,000, to a total of 1,606,000 SPU. If the City maintains the 3.0-acre ratio, there will be sufficient development to finance the 500 acres of total acquisition goal by 2040. However, due to the use of funding for park improvement equivalent and the delay between the collection of funds and use of funds for park space acquisition, the City may not have reached the long term goal by 2040.

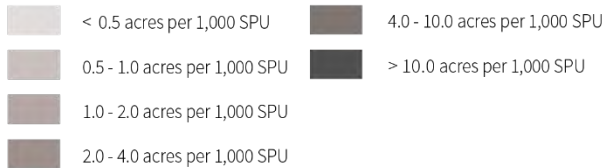
<sup>28</sup> To be reached by 2025.

<sup>29</sup> As San Francisco's population and workforce continues to grow, keeping the same ratio of open space to SPU will become increasingly difficult. For this reason, the long-term goal sets a total long-term park acquisition number rather than a per-SPU number.

FIGURE 4 : CITY-OWNED OPEN SPACE PER 1,000 SPU, BY NEIGHBORHOOD (2018)



City-Owned\* Open Space Per 1,000 Service Population Unit\* (SPU) by Neighborhood



#### LEGEND

County Boundary

Highways

Neighborhoods

City-owned open space: 3,844 acres

Citywide Average: 3.0 acres per 1,000 SPU

\*City-owned open space includes open space owned by SFRPD, SFDPW, the Port, SFMTA, SFPL, SFPUC, OCII, TIDA, and TJPA

\*\*The service population unit is calculated based on a 1:0.5 ratio between residents and employees

Note: Golden Gate Park was allocated between the five neighborhoods next to it (Inner and Outer Sunset, Inner and Outer Richmond, and Haight Ashbury).

Source: San Francisco Recreation and Park Department, City Parks 2018

### 4.3.2 Walking Distance to the Nearest Park

TABLE 7: WALKING DISTANCE TO THE NEAREST PARK – LOS PROVISION, GOAL, AND TARGET

LOS Measure	Value	Source
<b>Current Citywide Provision</b>	100% of SPU are within a 10-minute (half-mile) walk of open space	2019 population and employment data from SF Planning. Geospatial park directory from SF Recreation and Park. Walking network data from Open Street Map.
<b>Short-Term Target</b>	Maintain 100% of SPU within a 10-minute (half-mile) walk of public open space, and improve quality of open space	Meeting with SF Planning and Rec and Park, September 18, 2019.
<b>Long-Term Aspirational Goal</b>	100% of SPU will be within a 10-minute (half-mile) walk of public open space, and improve quality of open space	Meeting with SF Planning and Rec and Park, September 18, 2019.

Walking distance to the nearest park measures the level of park access for San Francisco residents and workers. Note that, unlike the prior metric, this metric includes all publicly-owned open space in San Francisco, including that which is controlled by state or federal agencies.

The current average walk to the nearest park is 3 minutes (725 feet). Roughly 91% of SPU are within a 5-minute (quarter-mile) walk of open space. Walk distances are calculated by measuring the distance along roads and walking paths (rather than “as the crow flies”) from each intersection in the City to the edge of the nearest park, and then averaged across all intersections within each Traffic Analysis Zone (TAZ).<sup>30</sup> 100% of SPU are within a 10-minute (half-mile) walk of open space.

#### 4.3.2.1 Forecasted Demand

The City of San Francisco is engaged in numerous park improvement projects, from trail restorations to playground improvements to full park renovations. The recently completed Alamo Square Park renovation, for example, included adding a new restroom, over 100 new trees, and a complete overhaul of the irrigation system.<sup>31</sup> Nearly 100 projects are currently underway, bringing improvements of all kinds to San Francisco park space across the City.<sup>32</sup>

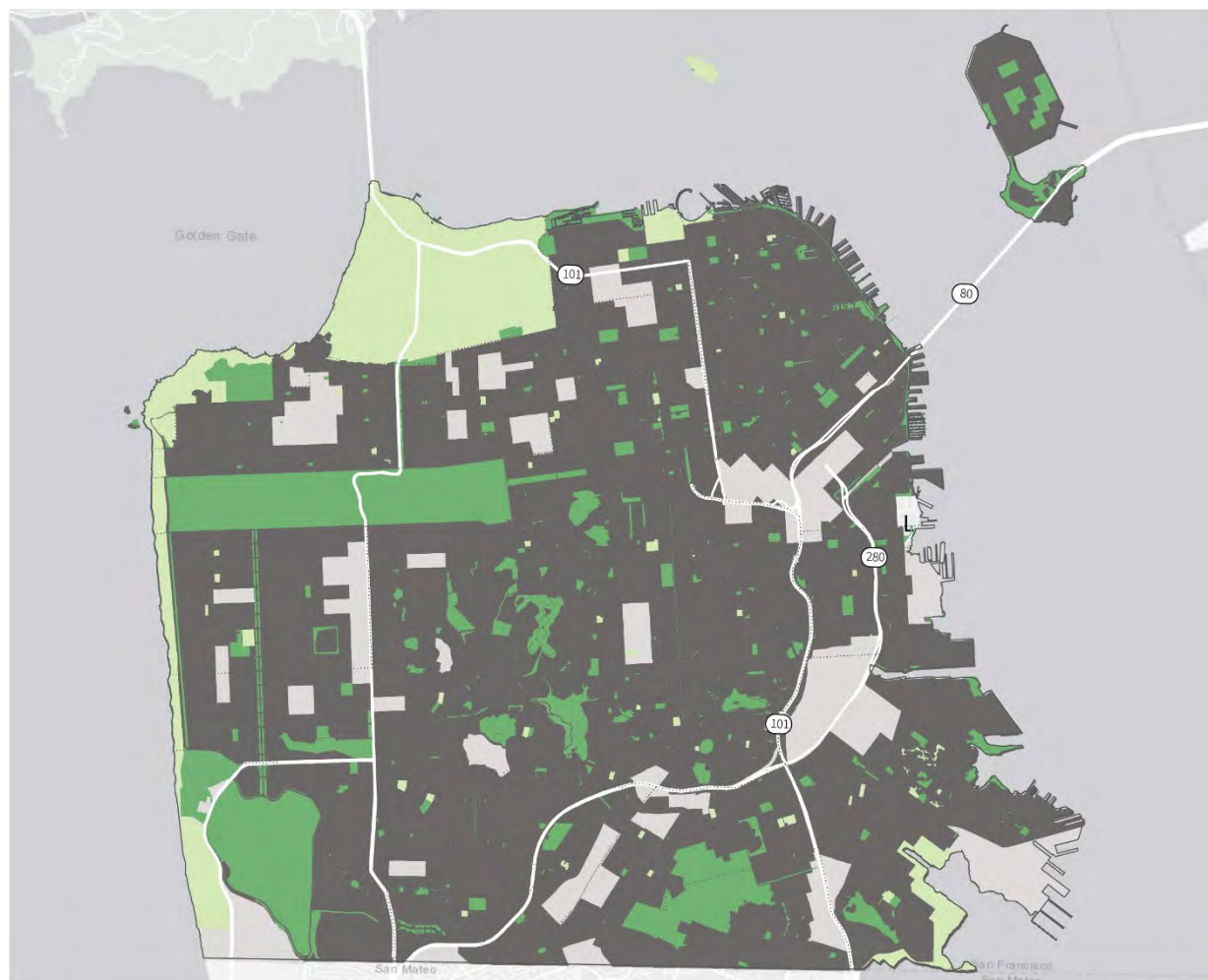
<sup>30</sup> Traffic Analysis Zones (TAZs) are a way of dividing land area into discrete measurable units for planning purposes. The US Census Bureau designates these zones based on physical land constraints, population and employment density, and certain municipal boundaries. These are sometimes referred to as TAZs or “analysis zones” throughout the report. Note that the walk analysis measures the distance from each intersection, and averages the distance from every intersection in each TAZ to create the value for that TAZ.

<sup>31</sup> San Francisco Recreation & Park, Alamo Square Park is Now Open. <https://sfrecpark.org/alamo-square-park-is-now-open/>

<sup>32</sup> San Francisco Recreation & Park, Active Capital Projects. <https://sfrecpark.org/park-improvements/currentprojects/>



FIGURE 5: PROXIMITY OF RESIDENTS TO OPEN SPACE



Proximity of Service Population to Recreation and Open Space

- Within 5 minutes walk
- 5 to 10 minutes walk

The walking network for the City of San Francisco was obtained from Open Street Map as a series of nodes and a database of distances and connections between nodes. "Node" refers to any intersection of two or more paths. Any node located inside of or next to (within 50 feet of) a park was set as a Point of Interest (POI), and then the network distance from each node to the nearest POI was calculated based on the database of distances and connections between nodes (as opposed to "as the crow flies"). Finally, each analysis zone was assigned the average walking distance of the nodes within its boundaries.

Source: San Francisco Recreation and Park Department, San Francisco Open Street Map, City Parks 2018, San Francisco population estimates 2019.



**LEGEND**

- County Boundary
- Highways
- Neighborhoods

**Open Space by Ownership**

- City-owned open space
- Non-city owned open space



## 5 Child Care Facilities

While the City of San Francisco is not directly responsible for funding or operating child care facilities, the Office of Early Care and Education (OECE), First 5 San Francisco, and San Francisco Child Care Planning and Advisory Council (CPAC) work to promote the access to quality child care for San Francisco’s children and families. The City’s role includes subsidizing child care costs for low/moderate income families, funding support services and resources for early education programs (such as health screenings, mental health consultation, and quality initiatives), and counseling policy-makers, planners, and funders about child care needs in San Francisco. Finally, the City helps acquire funds for facility construction of new child care facilities.

This section discusses child care in San Francisco and describes two metrics to measure and evaluate the City’s current provision of child care infrastructure. Note that the child care nexus fee, calculated in the *2021 San Francisco Infrastructure Nexus Analysis*, uses a linkage methodology, and the current level of service is not factored into the maximum fee calculation. Furthermore, the nexus calculation, which was completed after this report and had additional data available, includes 5-year-olds in its estimation of child care demand, whereas this report only includes child care demand from children under 5 (i.e., children ages 0-4 years old). For more information, see the *2021 San Francisco Infrastructure Nexus Analysis*. The policy documents reviewed in this section’s creation are enumerated in Table 8.

TABLE 8: CHILD CARE PROVISION GUIDING POLICY DOCUMENTS

Policy Document	Year	Key Contributions
<b>San Francisco Early Care and Education Needs Assessment</b>	2017	<ul style="list-style-type: none"> <li>Information on the provision of child care slots in traditional child care centers and family care centers</li> <li>Information on the percentage of total child care slots available to each age group</li> </ul>
<b>San Francisco Infrastructure Level of Service Analysis</b>	2014	<ul style="list-style-type: none"> <li>Background information on child care standards</li> <li>Methodology for calculating child care need</li> </ul>

### 5.1 Background

The City of San Francisco recognizes the importance of child care, particularly for young children. Child care needs differ depending on age, and typically care is divided into three age-based brackets: infant/toddler, preschool, and school-age. The City defines infants/toddlers as children aged 0 to 2, preschoolers as children aged 3 to 4, and school-age children as being 5 or older.<sup>33</sup>

Child care can be divided into types of care as well: licensed child care centers (CCCs), licensed family child care homes (also known as family child care, or FCCs), and license exempt child care. License exempt care can mean formal programs, like the YMCA or programs run by San Francisco Recreation and Park, or it can refer to more informal care, like stay-at-home parents, nannies, and that provided by families, friends, and neighbors. License exempt care is beyond the purview of this report.

<sup>33</sup> The San Francisco Early Care and Education Needs Assessment defines preschool as ages 3 to 5 and school-age as starting at age 6. However, this report defines preschool as ages 3 to 4, and school-age as starting at age 5. This narrower definition of preschool age is consistent with other municipalities such as Vancouver, San Diego, and San Jose.

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Licensed child care centers, or CCCs, are institutions that provide facilities typically located in a commercial building. CCCs generally offer care for larger numbers of children divided into narrow age groups and have separate staff for each group. Family child care programs, or FCCs, are private homes where the homeowner provides child care, sometimes with a small number of support staff. FCCs have lower capacity, typically mix children of different age groups together, and are more likely to offer care at non-traditional hours than CCCs.<sup>34</sup>

The discussion in this section will focus on both CCCs and FCCs (excluding license exempt care) since both types of facilities require licensing from the State of California, and the City only provides capital funding to licensed facilities. Furthermore, since school-age care is primarily provided at school district sites by San Francisco Unified School District and community partners, the discussion of child care here will focus only on infant/toddler care and preschool care.

Both previous studies and current data indicate that there is a strong demand for licensed child care. CPAC's 2017 report, the *San Francisco Early Care and Education Needs Assessment*, indicates that infant/toddler care is difficult to provide in large part due to the high cost of providing the appropriate staff-to-infant ratio.<sup>35</sup> As a result, there is large demand for this type of care. Preschool care is more adequately supplied than infant/toddler care, in part due to Proposition H, a Charter Amendment passed in 2004 to fund preschool care.<sup>36</sup>

Demand for child care comes from a combination of City residents and non-residents who work within San Francisco. Although most parents seek child care near their place of residence, a small portion seek child care near their place of work instead. The large number of workers in San Francisco who commute in from outside the City create a moderate demand for child care based on place of employment.

Child care demand is calculated by estimating the pool of children requiring licensed child care, based on labor force participation rates and an estimated proportion of parents who use formal licensed care. Detailed child care demand calculations are included in the appendix (Section 11.7: Child Care Demand Calculations). All child care demand values used in this section are based on the calculations described in the appendix, section 11.7.

## 5.2 Case Study Comparisons

Considering child care provision as infrastructure is not a common policy for city governments (compared to streets or parks, for example), and it is less frequently addressed by municipal plans and policies. In a survey of case study cities, none were found to have both metrics and service goals for measuring the provision of child care facilities. A number of cities (or their respective county governments) track the provision of child care slots, but do not use a defined metric to determine level of service. See Table 10 for more details.

Table 9 compares the provision of infant/toddler and preschool care slots relative to need across case study municipalities. The Hatch team used the broadly applicable metric of total infant/toddler/preschool-aged children with all parents in labor force to estimate the level of service. This measure is referred to as child care

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<sup>34</sup> Child Care Aware of America, Types of Child Care. <https://www.child-careaware.org/types-child-care/>

<sup>35</sup> San Francisco Early Care and Education Needs Assessment (2017), page 71.

<sup>36</sup> San Francisco Unified School District. "Public Education Enrichment Fund (PEEF)." Web. 30 Jul. 2019. <http://www.sfusd.edu/en/about-sfusd/voter-initiatives/public-education-enrichment-fund.html>

“need” throughout this report, to distinguish it from the recommended child care demand metric detailed later in this section.

TABLE 9: LOS PROVISION COMPARISON – CHILD CARE

City	Infant/Toddler Care Slots	Preschool Slots	Infant/Toddler and Preschool age children with all parents in labor force	% of total estimated need met
San Francisco, CA <sup>37</sup>	1,414 <sup>38</sup>	14,774 <sup>38</sup>	31,871	51%
Minneapolis, MN <sup>39</sup>	16,746	n/a	23,204	72%
San Jose, CA <sup>40</sup>	7,408	43,778	87,597	58%
San Diego, CA <sup>41</sup>	13,248	74,629	148,010	59%
Los Angeles, CA <sup>42</sup>	27,977	178,853	454,048	46%
Vancouver, BC <sup>43</sup>	57,367	n/a	70,470	81%
Portland, OR <sup>44</sup>	23,153	unknown	34,598	67%
Seattle, WA <sup>45</sup>	15,463	28,263	90,018	49%
New York, NY <sup>46</sup>	228,997	n/a	394,292	58%
Davis, CA <sup>47</sup>	unknown	1,743	1,945	90%
Boston, MA <sup>48</sup>	20,785	unknown	29,743	70%
Sacramento, CA <sup>49</sup>	36,090	unknown	71,057	51%

Note. Some cities do not separate infant/toddler care from preschool care, or even school-age care. Licensed capacity information for cities/counties with missing information in other categories may represent a

<sup>37</sup> San Francisco Early Care and Education Needs Assessment (2017)

<sup>38</sup> To be consistent with the other cities in this table, this figure does not include FCCs.

<sup>39</sup> Think Small, Minnesota Child Care Programs Summary (2019)

<sup>40</sup> Santa Clara County 2018 Child Care Needs Assessment (2018)

<sup>41</sup> San Diego County Child Care and Development Planning Council (LPC) County Needs Assessment (2016)

<sup>42</sup> Los Angeles County 2017 Needs Assessment Technical Report (2017)

<sup>43</sup> A Municipal Survey of Child Care Spaces and Policies in Metro Vancouver (2015); StatCan: Families with Children by Age of Children and Children by Age Groups (2016); StatCan: Employment Patterns of Families with Children (2014)

<sup>44</sup> Child Care and Education in Multnomah County (2014)

<sup>45</sup> Child Care Aware of Washington, Annual Data Report: Trends, Child Care Supply, Cost of Care, & Demand for Referrals (2017)

<sup>46</sup> New York State Child Care Demographics (2017)

<sup>47</sup> Assessing the Need for Preschool for All in Yolo County (2016)

combination of infant/toddler care and preschool care. For this reason, one LOS-number is given for meeting total child care need, rather than separating it out by age.

TABLE 10: LOS METRICS AND SERVICE GOALS – CHILD CARE

City	Metric <sup>50</sup>	Service Goals
San Francisco, CA	<b>Proposed:</b> <ul style="list-style-type: none"> <li>Percent of infant/toddler care demand met by licensed capacity</li> <li>Percent of preschool care demand met by licensed capacity</li> </ul>	<b>Proposed:</b> <ul style="list-style-type: none"> <li>Near term: Licensed capacity to meet 20% of infant/toddler care demand and 100% of preschool care demand</li> <li>Long term: Licensed capacity to meet 50% of infant/toddler care demand and 100% of preschool care demand</li> </ul>
San Jose, CA	Need relative to capacity for infant/toddler care, preschool, and school-age care	None
San Diego, CA	Need relative to capacity for infant/toddler care, preschool, and school-age care	None
Los Angeles, CA	Need relative to capacity for infant/toddler care, preschool, and school-age care	None
Vancouver, BC <sup>51</sup>	None	Spend \$86 million (CAD) on child care infrastructure (new development and maintenance) by the end of 2022
New York, NY	Total capacity for infant/toddler care, preschool, and school-age care	None
Davis, CA	Need relative to capacity for infant/toddler care, preschool, and school-age care	None
Sacramento, CA	Need relative to capacity for infant/toddler care, preschool, and school-age care	None

<sup>48</sup> Child Care Aware of Massachusetts, Mapping the Gap: Supply & Demand for Child Care in MA (2018)

<sup>49</sup> First 5 Sacramento Annual Evaluation Report (2017)

<sup>50</sup> Sources the same as for Table 9 (except Vancouver).

<sup>51</sup> City of Vancouver 2019-2022 Capital Plan (2018)

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## 5.3 Level of Service Metrics

Two metrics were identified to measure child care LOS provision:

- Percent of infant/toddler care demand met by licensed capacity
- Percent of preschool care demand met by licensed capacity

Note that this section calculates child care demand from children under the age of 5. The *2021 San Francisco Infrastructure Nexus Analysis*, which was completed after this report and had additional data available, includes 5-year-olds in its child care demand calculation (i.e., children ages 0-4 years old).

### 5.3.1 Percent of Infant and Toddler Child Care Demand Served by Available Slots

TABLE 11: PERCENT OF INFANT/TODDLER CARE DEMAND SERVED BY AVAILABLE SLOTS – LOS PROVISION, GOAL, AND TARGET

LOS Measure	Value	Source
<b>Current Citywide Provision</b>	19% of demand for infant/toddler care met by licensed capacity	Child care demand methodology detailed in the appendix. Child care supply data provided by SFOECE.
<b>Short-Term Target</b>	100% of new demand for infant/toddler care created by new development will be met by new licensed capacity	Email from Mathew Snyder (SF Planning) on 4/15/2020, and consistent with the SFOECE 2017 Needs Assessment.
<b>Long-Term Aspirational Goal</b>	100% of new demand for infant/toddler care created by new development will be met by new licensed capacity	Email from Mathew Snyder (SF Planning) on 4/15/2020, and consistent with the SFOECE 2017 Needs Assessment.

This metric measures the provision of infant and toddler care slots relative to demand in San Francisco. Demand is calculated based on the number of resident infants and toddlers in San Francisco, the percentage of young children in San Francisco with both parents working, the number of workers commuting in to San Francisco who might seek child care in the City close to where they work rather than where they live, and the percent of San Francisco residents who work outside the City and may bring their child out of the city with them for child care. For further details, see Table 43 in the appendix.

Citywide, licensed infant/toddler care provision in San Francisco is estimated at 3,515 slots, which meets 19% of the estimated 18,096 slots demanded for licensed infant/toddler care. On a neighborhood level, the results are more varied, as shown in Figure 6. The median neighborhood meets 16% of its locally generated infant/toddler care demand, while the bottom quartile has a level of service of 5% or lower and the top quartile has a level of service of 27% or higher. From 2014 (the previous San Francisco LOS report) to 2019, infant/toddler care level of service dropped from 37% to 19% due to residential and employment growth outpacing growth in licensed infant/toddler care capacity.

#### 5.3.1.1 Forecasted Demand

Residential and employment growth in San Francisco from 2019 to 2025 is projected to create demand for an additional 1,359 infant/toddler care slots, bringing total infant/toddler care demand to 19,455. To meet the short-term target, San Francisco would need to add 1,359 slots of infant/toddler care through 2025, bringing total citywide infant/toddler care provision to 4,874 slots in 2025. By 2040, demand for infant/toddler care is expected to grow a further 2,085 slots beyond 2025 demand levels, to a total citywide demand of 21,540 slots. To continue meeting 100% of new demand for infant/toddler care, San Francisco would need to add 2,085 slots of infant/toddler care from 2025 through 2040, bringing total citywide licensed capacity to 6,959 slots in 2040.<sup>52</sup> This would be consistent with the SFOECE 2017 Needs Assessment, which calls for more licensed capacity for infant/toddler care.

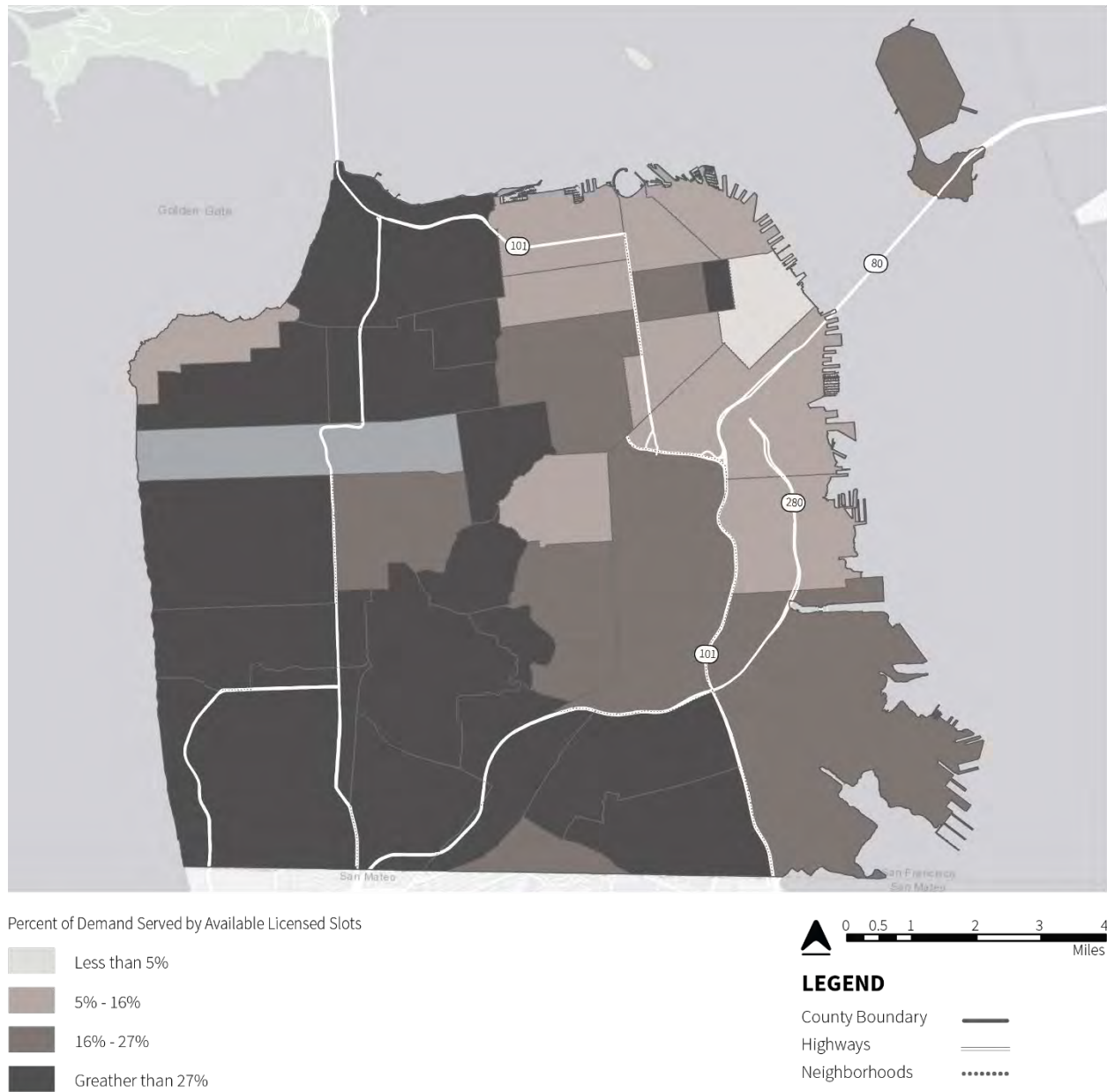
The neighborhoods experiencing the highest levels of service for infant/toddler care tend to be concentrated on the west side of the City, as shown in Figure 6. The high concentration of jobs in the financial district and surrounding neighborhoods means that demand in those neighborhoods is unusually high, which reduces the overall LOS in those neighborhoods. Projected growth in demand for infant/toddler care is concentrated in the eastern neighborhoods, with South of Market experiencing the largest raw growth in demand (440 by 2025, 949 by 2040) and Potrero Hill experiencing the largest percent growth in demand (35% by 2025, 81% by 2040<sup>53</sup>).

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<sup>52</sup> Note that the 4,874 infant/toddler care slots by 2025 and 6,959 slots by 2040 targets are dependent on fee revenue from growth that will be happening through those target years. Due to the time it takes to construct new child care space, actual provision of infant/toddler care slots may not reach the target number in the target years.

<sup>53</sup> Technically, Treasure Island is expected to experience the largest percent growth by 2040 (116%). This, however, is because current demand there is so low; Treasure Island is expecting a growth in infant/toddler care demand of 35 slots by 2040, compared with Potrero Hill's projected demand growth of 295 slots.

FIGURE 6: SHARE OF INFANT AND TODDLER (0-2) CHILD CARE DEMAND SERVED BY AVAILABLE LICENSED SLOTS



Citywide average: 19% of infant and toddler slots demand served by available licensed slots.  
 Note: Due to security reasons specific location of childcare facilities are not shown on the maps.

Source: San Francisco Human Services Agency, San Francisco Early Care and Education Needs Assessment (2017), San Francisco Infrastructure Level of Service Analysis (2014)



### 5.3.2 Percent of Preschool Demand Served by Available Slots

TABLE 12: PERCENT OF PRESCHOOL DEMAND SERVED BY AVAILABLE SLOTS – LOS PROVISION, GOAL, AND TARGET

LOS Measure	Value	Source
<b>Current Citywide Provision</b>	88% of demand for preschool care met by licensed capacity	Child care demand methodology detailed in the appendix. Child care supply data provided by SFOECE.
<b>Short-Term Target</b>	100% of new demand for preschool care created by new development will be met by new licensed capacity	Email from Mathew Snyder (SF Planning) on 4/15/2020, and consistent with the SFOECE 2017 Needs Assessment.
<b>Long-Term Aspirational Goal</b>	100% of new demand for preschool care created by new development will be met by new licensed capacity	Email from Mathew Snyder (SF Planning) on 4/15/2020, and consistent with the SFOECE 2017 Needs Assessment.

This metric measures the provision of preschool slots relative to demand in San Francisco. Like the previous metric, demand is calculated based on the number of resident preschool-age children in San Francisco, the percentage of children in San Francisco with both parents working, the number of workers commuting to San Francisco who may seek child care in the City, and the percent of San Francisco residents who work outside the City and may bring their child with them for child care. For further details, see Table 44 in the appendix.

Citywide, licensed preschool provision in San Francisco is estimated at 18,971 slots, which meets 88% of the estimated 21,540 slots demanded for preschool care. On a neighborhood level, the results are more varied, as shown in Figure 7. The median neighborhood meets 77% of its locally generated preschool care demand, while the bottom quartile has a level of service of 38% or lower. The top quartile has a level of service of 114% or higher. The high levels of service found in the top quartile of neighborhoods indicate that the market for child care, and preschool care, spans across neighborhoods. In other words, there is a market willingness to seek care outside of one's own neighborhood, though it is unclear whether those consumers would seek care in their own neighborhood if it were available. From 2014 (the previous San Francisco LOS report) to 2019, preschool care level of service dropped from 99.6% to 88% due to residential and employment growth outpacing growth in licensed preschool capacity.

#### 5.3.2.1 Forecasted Demand

Residential and employment growth in San Francisco from 2019 to 2025 is projected to create demand for an additional 1,638 preschool slots, bringing total preschool care demand to 23,178. To meet the short-term target, San Francisco would need to add 1,638 slots of preschool care through 2025, bringing total citywide preschool provision to 20,609 slots in 2025. By 2040, demand for preschool care is expected to grow a further 2,796 slots beyond 2025 demand levels, to a total citywide demand of 25,974 slots. To continue meeting 100%

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of new demand for preschool care, San Francisco would need to add 2,796 slots of preschool care from 2025 through 2040, bringing total citywide licensed capacity to 23,405 slots in 2040.<sup>54</sup>

The neighborhoods experiencing the highest levels of service for preschool care tend to be concentrated on the west side of the City, as shown in Figure 7. The high concentration of jobs in the financial district and surrounding neighborhoods means that demand in those neighborhoods is unusually high and pushes the LOS down in those neighborhoods. Projected growth in demand for preschool care, however, is concentrated in the eastern neighborhoods, with South of Market experiencing the largest raw growth in demand (473 by 2025, 1,060 by 2040) and Potrero Hill experiencing the largest percent growth in demand (32% by 2025, 77% by 2040<sup>55</sup>).

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<sup>54</sup> Note that the 20,609 preschool slots by 2025 and 23,405 slots by 2040 targets are dependent on fee revenue from growth that will be happening through those target years. Due to the time it takes to construct new child care space, actual provision of preschool slots may not reach the target number in the target years.

<sup>55</sup> Technically, Treasure Island is expected to experience the largest percent growth by 2040 (108%). This is because child care demand in Treasure Island is relatively low. Treasure Island is expecting a growth in preschool care demand of 41 slots by 2040, compared with Potrero Hill's projected demand growth of 338 slots.

FIGURE 7: SHARE OF PRESCHOOL-AGE (3-4) CHILD CARE DEMAND SERVED BY AVAILABLE LICENSED SLOTS



Citywide average: 88% of preschool age children demand served by available licensed slots.  
 Note: Due to security reasons specific location of childcare facilities are not shown on the maps.

Source: San Francisco Human Services Agency, San Francisco Early Care and Education Needs Assessment (2017), San Francisco Infrastructure Level of Service Analysis (2014)

## 6 Complete Streets Infrastructure

Complete Streets infrastructure covers the streetscape, pedestrian, and bicycle infrastructure in the City of San Francisco. This includes right-of-way components such as sidewalks, street trees, curb ramps, lighting, bulb-outs, and bicycle lanes. In the previous Infrastructure LOS report, bicycle infrastructure was evaluated separately from streetscape and pedestrian infrastructure. As bicycle and pedestrian elements work in tandem to create a safer and more sustainable transportation system, this report represents a new method for combining them all into a single metric. The policy documents referenced in this section are listed in Table 13.

TABLE 13: COMPLETE STREET GUIDING AND REFERENCE POLICY DOCUMENTS

Policy Document	Year	Key Contributions
Better Streets Plan	2011	<ul style="list-style-type: none"><li>• Overview of recommended streetscape and pedestrian infrastructure elements</li><li>• Pedestrian, bicycle, safety, and lighting goals</li></ul>
ConnectSF	2018	<ul style="list-style-type: none"><li>• Guidance on the future of San Francisco's transportation infrastructure</li></ul>
San Francisco Transportation Plan	2013	<ul style="list-style-type: none"><li>• Planned transportation infrastructure investments and mode share goals</li></ul>
San Francisco Transportation 2045 Task Force Report	2018	<ul style="list-style-type: none"><li>• Proposed methods for funding the infrastructure investment called for in other transportation plans</li></ul>
SFMTA Strategic Plan	2018	<ul style="list-style-type: none"><li>• Contains several metrics to measure improvements in the mobility, accessibility, and sustainability of San Francisco's transportation system. Also includes goals to be achieved by 2020.</li></ul>
Transportation Climate Action Strategy	2017	<ul style="list-style-type: none"><li>• Contains plans and goals for reducing emissions from San Francisco's transportation system</li></ul>
San Francisco Infrastructure Level of Service Analysis	2014	<ul style="list-style-type: none"><li>• Background information on streetscape standards, including pedestrian and bicycle</li><li>• Information on the previous LOS estimate for bicycle and pedestrian complete streets infrastructure</li></ul>

### 6.1 Background

#### 6.1.1 Streetscape and Pedestrian Infrastructure

The concept of “complete streets” is articulated in the 2011 San Francisco Better Streets Plan (BSP), along with Section 2.4.13 of San Francisco's Public Works Code.<sup>56</sup> The BSP puts forward streetscape specifications through guidelines for pedestrian environment design that balance the needs of all street users. The BSP highlights three categories in its recommendations: safety, creation of social space on the sidewalk, and pedestrian aesthetic. Sidewalk widths, street trees, intersection safety, street lighting, curb ramps, and bulb-

<sup>56</sup> 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, including the construction of transit, bicycle, stormwater, and pedestrian improvements. Pedestrian environment improvements include sidewalk lighting, pedestrian safety measures, traffic calming devices, landscaping, and other pedestrian elements listed as defined in the Better Streets Plan.

outs are the main components that form the complete street concept. Limited data availability for most of these key components is the major obstacle to achieving a complete measure of their provision.

Sidewalks are the foundation of pedestrian infrastructure, providing a path of travel and an opportunity for place-making. Sidewalk width is the key factor affecting pedestrian capacity, pedestrian comfort, and providing space for amenities, landscaping, and other streetscape elements. Curb ramps are a key component of sidewalks, providing pedestrian access between the sidewalk and roadway for people using wheelchairs, strollers, walkers, crutches, handcarts, and bicycles, and for pedestrians who have trouble stepping up and down high curbs. Bulb-outs are another key safety measure, extending the sidewalk into the parking lane to narrow the roadway and provide additional pedestrian space at key locations, enhancing pedestrian safety by increasing pedestrian visibility, shortening crossing distances, slowing turning vehicles, and visually narrowing the roadway.<sup>57</sup>

The BSP provides a clear guideline on sidewalk widths for different types of streets. Major new development or redevelopment areas that create new streets must meet or exceed recommended sidewalk widths per Planning Code Section 138.1. Roughly 62% of City sidewalks meet the BSP recommended widths, which range from 9 feet on alleys to 15 feet on park edge streets.<sup>58</sup> Although the unique nature of each street sometimes makes it impossible to reach the BSP-defined sidewalk width minimum or goal, these metrics provide a reasonable census of the City's current sidewalk infrastructure.

Street trees are the archetypal street landscaping that contribute to the pedestrian environment. Streets with trees planted in lines along side of the road are perceived as narrower, which slows down the traffic speed and increases pedestrian safety.<sup>59</sup> In addition, tree-lined streets enhance the aesthetic environment, making people more comfortable spending time on the street as pedestrians. Trees also mitigate the urban heat island effect by providing shade over paved sidewalks and roads. There are currently about 125,000 street trees existing on roughly 1,200 miles of roads in San Francisco.<sup>60</sup> The Urban Forest Plan, in collaboration with SFDPW, has provided a long-term goal of increasing the number of street trees in San Francisco up to 155,000 by 2034.<sup>61</sup>

As a comparison, the city of Boston, with a land area about the same size as San Francisco, currently has an estimated 150,000 street trees.<sup>62</sup> Most of these were introduced as part of a 2013 plan to plant 100,000 street trees by 2020. Similarly, New York City has an ambitious Million Trees NYC program that aims to add an additional one million trees to the city's urban forest over the next decade.<sup>63</sup>

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<sup>57</sup> SF Better Streets, <https://www.sfbetterstreets.org/>.

<sup>58</sup> Hatch internal analysis based on data from SF Department of Public Works

<sup>59</sup> Wolf, K.L. 2010. Safe Streets - A Literature Review. In: Green Cities: Good Health ([www.greenhealth.washington.edu](http://www.greenhealth.washington.edu)). College of the Environment, University of Washington.

<sup>60</sup> Data from SF Planning Department and SF Department of Public Works

<sup>61</sup> San Francisco Urban Forest Plan (2015) was developed in collaboration with San Francisco Public Works, the Urban Forestry Council, and Friends of the Urban Forest, providing a long-term vision and strategy to improve the health and sustainability of the City's urban forest.

<sup>62</sup> Boston Open Data, retrieved on July 31, 2019 from: [https://bostonopendata-boston.opendata.arcgis.com/datasets/ce863d38db284efe83555caf8a832e2a\\_1?geometry=-72.363%2C42.181%2C-69.75%2C42.536](https://bostonopendata-boston.opendata.arcgis.com/datasets/ce863d38db284efe83555caf8a832e2a_1?geometry=-72.363%2C42.181%2C-69.75%2C42.536)

<sup>63</sup> Million Trees NYC. Million Trees NYC. MTNYC, 2013. <http://www.milliontreesnyc.org/html/home/home.shtml>

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### 6.1.2 Bicycle infrastructure

The City currently manages 430 miles of bicycle network<sup>64</sup> on the City's roughly 1,200 miles of road, with a bicycle mode share of approximately 2%.<sup>65</sup> Traditionally, bicycle networks are classified into four categories:

- **Class I** bikeways, also known as bike paths or shared-use paths, are facilities with exclusive right of way for bicyclists and pedestrians, away from the roadway and with cross flows by motor traffic minimized. In some instances, separate pedestrian facilities are provided. Note that, although Class I bikeways are not on roadways, they are included in the general “bike lanes” concept as used in the remainder of this report.
- **Class II** bikeways are bike lanes established along streets and are defined by pavement striping and signage to delineate a portion of a roadway for bicycle travel. Bike lanes are one-way facilities, typically striped adjacent to motor traffic travelling in the same direction.
- **Class III** bikeways, or bike routes, designate a preferred route for bicyclists on streets shared with motor traffic not served by dedicated bikeways to provide continuity to the bikeway network. Bike routes are generally not appropriate for roadways with higher motor traffic speeds or volumes.
- **Class IV** refers to a separated bikeway and is often referred to as a “cycle track” or “protected bike lane.” The bikeway is for the exclusive use of bicycles, physically separated from motor traffic with a vertical feature.

Almost half of San Francisco's bikeway network is Class III (209 miles), while Class IV makes up the smallest portion (20 miles). Most of the City's planned improvements to the bikeway network involve upgrading the existing network (for example, upgrading Class III bikeway to Class II or Class IV) rather than increasing the size of the network.<sup>66</sup>

A typical measure of bicycle transportation is bicycle mode share. Mode share measures the percentage of all transportation trips that use a given “mode” – in this case, the percentage of all trips made by bicycle. As noted above, San Francisco currently has a bicycle mode share of approximately 2%, meaning that 2% of all trips in San Francisco are taken via bicycle. The City does not currently have a bicycle-specific mode share target, but does have a target to reach an 80% sustainable mode share by 2030.<sup>67</sup> Achieving this target would mean that, by 2030, 80% of all trips in San Francisco would be bicycle, pedestrian, or transit trips. San Francisco's current sustainable mode share is 47%.<sup>68</sup>

While it is useful to evaluate how people are traveling, as a metric, mode share has no direct connection to infrastructure; for example, a percentage point of mode share cannot defensibly be equated to miles of bikeway. Instead, in the 2017 update to the San Francisco Transportation Plan, the Transportation Authority has identified the bike infrastructure necessary to move towards the City's target mode share.<sup>69</sup>

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<sup>64</sup> Note that this measure counts bike lanes on opposite sides of the same street separately.

<sup>65</sup> Fehr & Peers, 2013 - 2017 Travel Decision Survey Data Analysis and Comparison Report

<sup>66</sup> Meeting with SFMTA, 6/19/2019

<sup>67</sup> SFMTA, San Francisco Transportation Sector Climate Action Strategy (2017)

<sup>68</sup> SFMTA Travel Decision Survey 2019

<sup>69</sup> SFCTA, San Francisco Transportation Plan, 2017 update

## 6.2 Case Study Comparisons

Due to the variety of Complete Streets components and the numerous ways to measure them, Table 14 combines existing LOS with metrics and service goals to show how each case study city is performing according to its own metrics. Unlike other infrastructure categories, there is no consensus among case study cities for how to measure Complete Streets. The proposed Complete Streets metric for San Francisco combines all of the numerous Complete Streets infrastructure components into a single metric, and is detailed in Section 6.3.

TABLE 14: LOS METRICS, PROVISION, AND SERVICE GOALS – COMPLETE STREETS

City	Metric	Existing Condition	Service Goals
San Francisco, CA <sup>70</sup>	Traffic Fatalities	23 (2018)	0 by 2024
	Increase Enforcement Hours focused on Speeding	N/A	Increase by 30%
	Increase Sustainable Mode Share	9–10% walking, 2.5% biking, 715,000 average weekday MUNI trips	80% sustainable mode share by 2030
Minneapolis, MN <sup>71</sup>	Miles of bikeways	3,908 miles	6,773 miles by 2,020
	Percent of bicycle mode share increasing among underrepresented communities	N/A	5% faster than citywide increase
	Percent of major transportation hubs with adequate bicycle parking	50% (2015)	100% (2020)
	Percent of intersections with actuated signals and detection	50% (2015)	100% (2020)
	Number of bicycle parking spaces	N/A	Increase by 300 spaces per year
San Jose, CA <sup>72</sup>	Bikeway Network	342 (2016)	Complete 25 miles each year, and complete 500 miles by 2020
	Bike mode share	1% Citywide, 4% Downtown (2016)	5% by 2020

<sup>70</sup> San Francisco Infrastructure Level of Service Analysis (2014); San Francisco Transportation Sustainability Fee Nexus Study (2013); SFMTA Strategic Plan Performance Metrics & Targets (2018); San Francisco Pedestrian Strategy (2013); San Francisco Bicycle Strategy (2013)

<sup>71</sup> Vision Zero Minneapolis (2019); Minneapolis Pedestrian Master Plan (2009); City of Minneapolis Bicycle Master Plan (2011); The 2040 Transportation Policy Plan (2015)

<sup>72</sup> San José Access & Mobility Plan: Transportation Directives (2019); San José Bike Plan 2020 (2009); Vision Zero San Jose 2017-2018 Action Plan (2016)

City	Metric	Existing Condition	Service Goals
	Bike parking	2,570 (2016)	Install 500 new spaces each year, and add 5,000 spaces by 2020
San Diego, CA <sup>73</sup>	Bike mode share of commute trips	0.0346	n/a
	Class 1 bicycle network	72.3 miles	166.4 miles
	Class 2 bicycle network	309.4 miles	450.0 miles
	Class 3 bicycle network	112.9 miles	284.1 miles
Los Angeles, CA <sup>74</sup>	Miles of class 1 bike facility	341 miles (2014)	Increase 10% per year
	Miles of class 2 bike facility	1,046 miles (2014)	Increase 10% per year
	Miles of class 3 bike facility	614 miles (2014)	Increase 10% per year
	Miles of class 4 bike facility	6 miles (2014)	Increase 100% per year
Portland, OR <sup>75</sup>	Bike mode share of commute trips	N/A	25% by 2035
	Miles of regional trails	229 miles	Increase 50% by 2040
	Miles of regional bikeways	623 miles	Increase 50% by 2040
Seattle, WA <sup>76</sup>	Bicycle network completed	167 miles (2016)	608 miles by 2035
New York, NY <sup>77</sup>	Miles of bike lanes	N/A	Add 50 miles each year; Add 200 miles by 2021
	Number of accessible pedestrian signals		Install 75+ signals each year
Davis, CA <sup>78</sup>	Bicycle mode share of all trips	N/A	30% by 2020
Boston, MA <sup>79</sup>	Number of street trees excluding park trees	37,000 street trees (2015)	Plant 100,000 trees and increase the City's green canopy 20% by 2020 and 35% by 2030
	Miles of bicycle network	120 miles (2013)	356 miles by 2043
Santa Monica, CA <sup>80</sup>	Number of on- and off-street public charging stations for electric vehicles		300 by 2020
		89 (2017)	1,000 by 2025
	Percent of bike commuters	12% (2015)	25% by 2030

<sup>73</sup> Vision Zero: Traffic Deaths and Severe Injuries (2018); City of San Diego Pedestrian Master Plan (2006); City of San Diego Bicycle Master Plan (2013)

<sup>74</sup> LA Metro Active Transportation Strategic Plan (2016); Los Angeles Mobility Plan 2035 (2016)

<sup>75</sup> Portland Transportation System Plan (2018); Portland Regional Transportation Plan (2014)

<sup>76</sup> Seattle Bicycle Master Plan (2017) - 2017-2021

<sup>77</sup> NYCDOT Strategic Plan (2016); NYCDOT Mobility Report (2018); OneNYC Progress Report (2018)

<sup>78</sup> City of Davis Beyond Platinum Bicycle Action Plan (2014)

<sup>79</sup> Boston Complete Streets Design Guidelines (2013); Boston Bike Network Plan (2013)

<sup>80</sup> Electric Vehicle Action Plan (2017); Santa Monica Bike Action Plan (2011); Santa Monica Pedestrian Action Plan (2016); Santa Monica Urban Forest Master Plan



City	Metric	Existing Condition	Service Goals
	Miles of bike lanes/paths	69 miles (2015)	88.7 miles (2030)
	Miles of bike lane/path per square mile	1.9	n/a
	Miles of Bike Lane/Path per 100,000 Residents	33.1 (2010)	n/a
	Percent of intersections lacking curb ramps	0.045	n/a
Sacramento, CA <sup>81</sup>	Bicycle mode share for commute trips	0.025	7% by 2020
	On-street bikeways	316 miles	464 miles
	Off-street bikeways	88 miles	208 miles

### 6.3 Level of Service Metrics

Although there are a number of infrastructure components that make up Complete Streets, the Hatch team uses one metric to represent the infrastructure category:

- Square Feet of Complete Streets Sidewalk per Service Population Unit (SPU)<sup>82</sup>

#### 6.3.1 Square Feet of Complete Streets Sidewalk per Service Population Unit

TABLE 15: SQUARE FEET OF SIDEWALK PER SPU – LOS PROVISION, GOAL, AND TARGET

LOS Measure	Value	Source
<b>Current Citywide Provision</b>	118 square feet of Complete Streets Sidewalk per SPU	Data from SF Planning and SF Department of Public Works.
<b>Short-Term Target</b>	Maintain 118 square feet of Complete Streets Sidewalk per SPU	Meeting with SF Planning, October 16, 2019.
<b>Long-Term Aspirational Goal</b>	Maintain 118 square feet of complete streets sidewalk per SPU	Meeting with SF Planning, October 16, 2019.

This metric is intended to measure the overall provision of complete streets infrastructure in San Francisco, including sidewalks, gutters, street trees, curb ramps, bulb outs, and bike lanes, and street lights. Because square feet of sidewalk is the most plentiful of the above infrastructure components, it is used as the representative metric; each square foot of sidewalk represents a certain amount of bike lane, street light, etc,

<sup>81</sup> City of Sacramento Bicycle Master Plan (2018)

<sup>82</sup> Note that, while other infrastructure categories measure infrastructure provision per 1,000 SPU, Complete Streets measures per SPU, not per 1,000 SPU.

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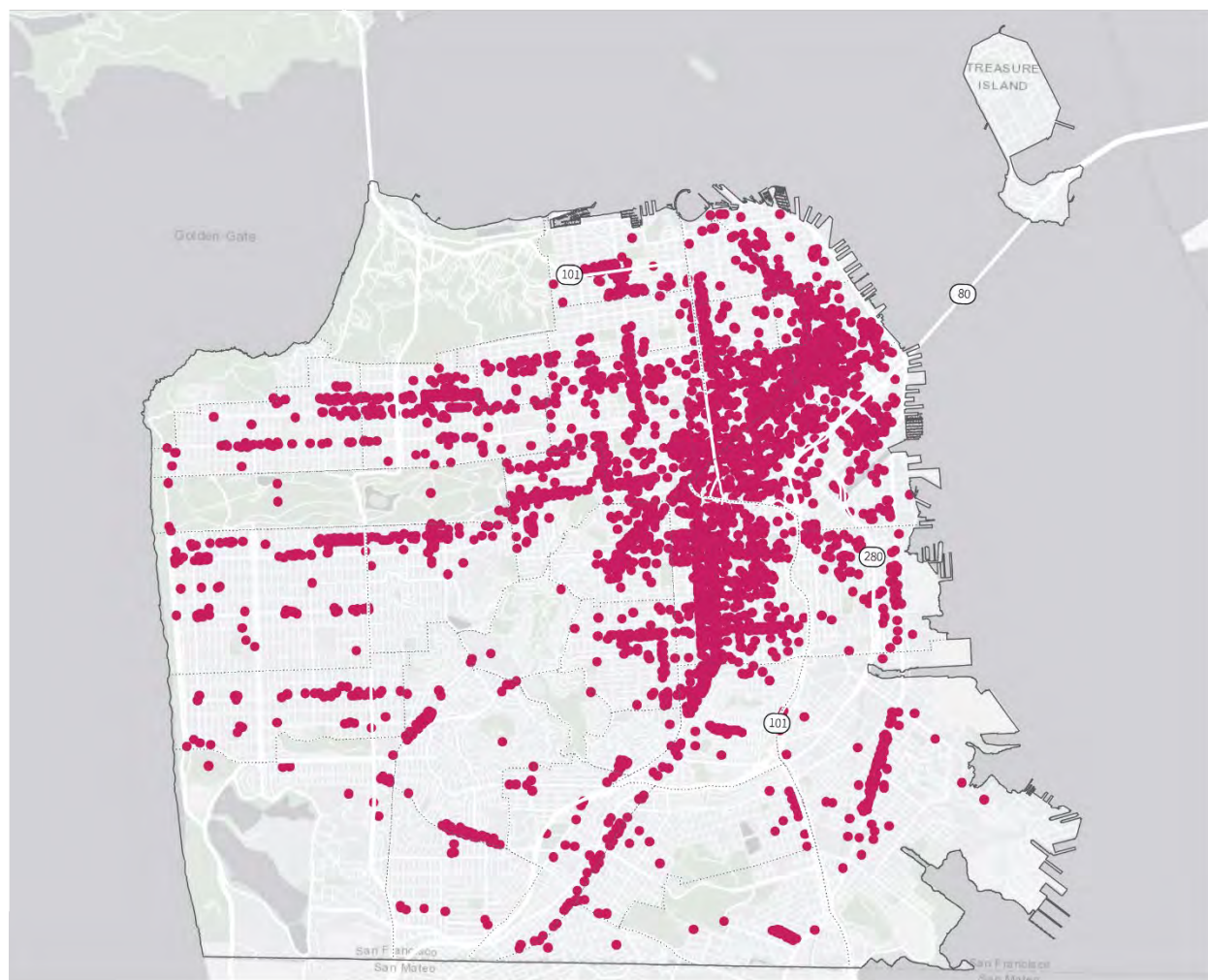
that creates a square foot of Complete Streets Sidewalk. Figure 8 through Figure 17 illustrate the distribution of the infrastructure components considered as part of this metric.

As San Francisco continues to grow, complete streets will be augmented in a variety of ways. Although some sidewalk widening may be necessary, adding other complete streets components such as bulb outs or street lights may be more important. As stated in Section 6.1.2, the SFMTA's current focus is to upgrade the existing bike paths. Although these improvements will not contribute to the number of square feet of sidewalk per SPU, they will contribute to the quality of the complete streets.

#### 6.3.1.1 Forecasted Demand

Current population and employment projections anticipate a growth of 101,000 SPU by 2025, and a further growth of 212,000 SPU by 2040. In order to maintain the current LOS, the City will need to invest in the equivalent of 12 million new square feet of Complete Streets Sidewalk by 2025 and a further 25 million square feet of Complete Streets Sidewalk by 2040. This may include infrastructure upgrades such as expanded bicycle lanes, improved street lights, and more street trees. Most of the anticipated SPU growth is concentrated in South of Market, Bayview, and Lakeshore.

FIGURE 8: LOCATION OF BICYCLE PARKING LOCATIONS



Bicycle Parking Locations

Total Number of Parking Locations 13,104

Source: SFMTA Bike Parking

**LEGEND**

- County Boundary ———
- Highways ———
- Neighborhoods .....

**Biking Facilities**

- Bicycle parking locations

FIGURE 9 - BIKESHARE DOCKING STATIONS AND BIKE LANES BY CLASS



- Class I<sup>1</sup>: 62 miles
- Class II<sup>2</sup>: 139 miles
- Class III<sup>3</sup>: 209 miles
- Class IV<sup>4</sup>: 20 miles

1. Bikeways, also known as bike paths or shared-use paths, are facilities with exclusive right of way for bicyclists and pedestrians, away from the roadway and with cross flows by motor traffic minimized. Some systems provide separate pedestrian facilities
2. Bikeways are bike lanes established along streets and are defined by pavement striping and signage to delineate a portion of a roadway for bicycle travel. Bike lanes are one-way facilities, typically striped adjacent to motor traffic travelling in the same direction.
3. Bikeways, or bike routes, designate a preferred route for bicyclists on streets shared with motor traffic not served by dedicated bikeways to provide continuity to the bikeway network. Bike routes are generally not appropriate for roadways with higher motor traffic speeds or volumes.
4. Separated bikeway, often referred to as a cycle track or protected bike lane, is for the exclusive use of bicycles, physically separated from motor traffic with a vertical feature.

Source: SFMTA Bikeway Network, Bike Share Stations, Bikeway Classification Brochure by Caltrans



#### LEGEND

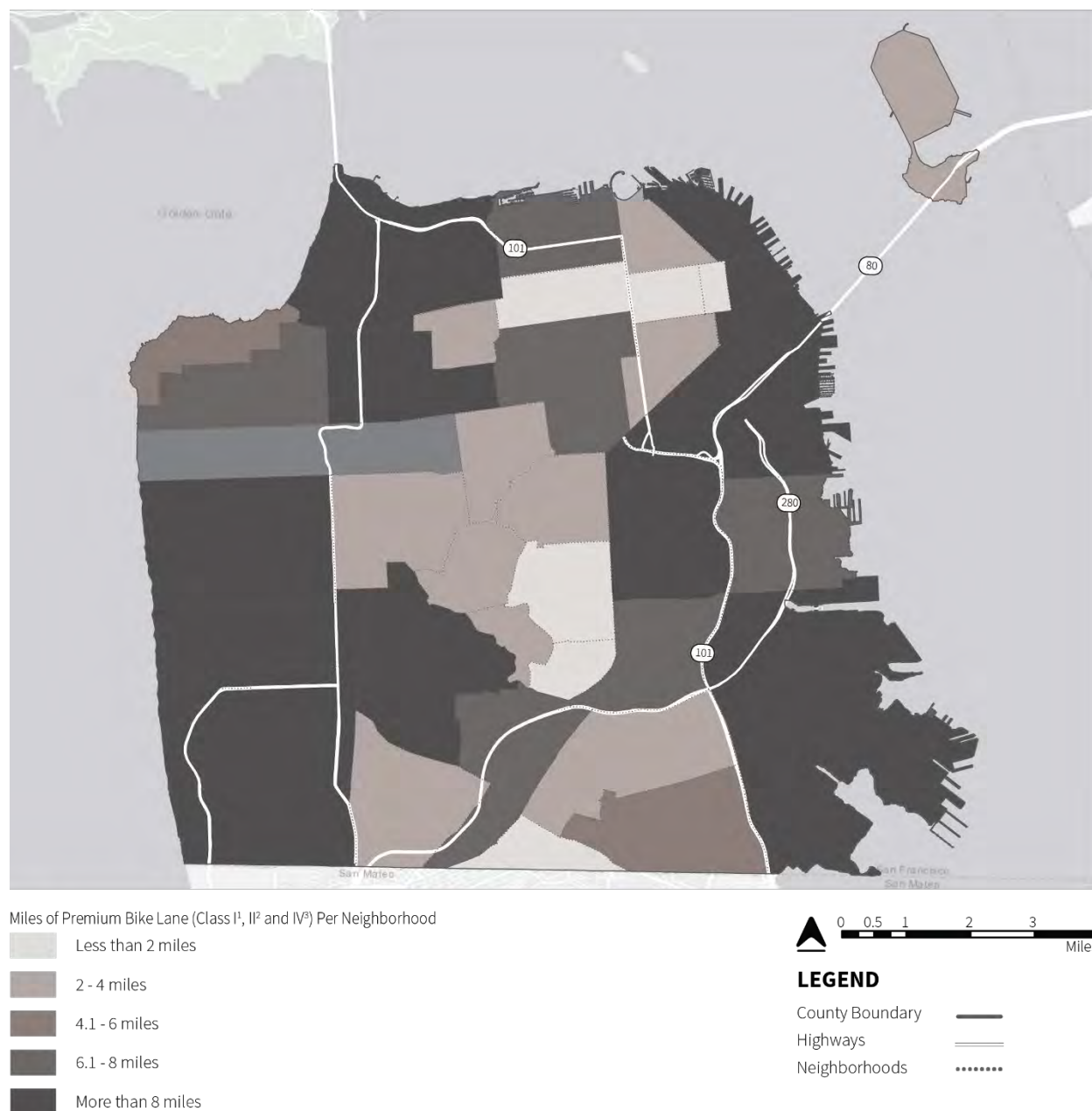
- County Boundary ———
- Highways ———
- Neighborhoods ·····

#### Bike Share Facilities

- Bike Share Docking Stations



FIGURE 10 - MILES OF PREMIUM CLASS (I, II AND IV) BIKE LANES PER NEIGHBORHOOD

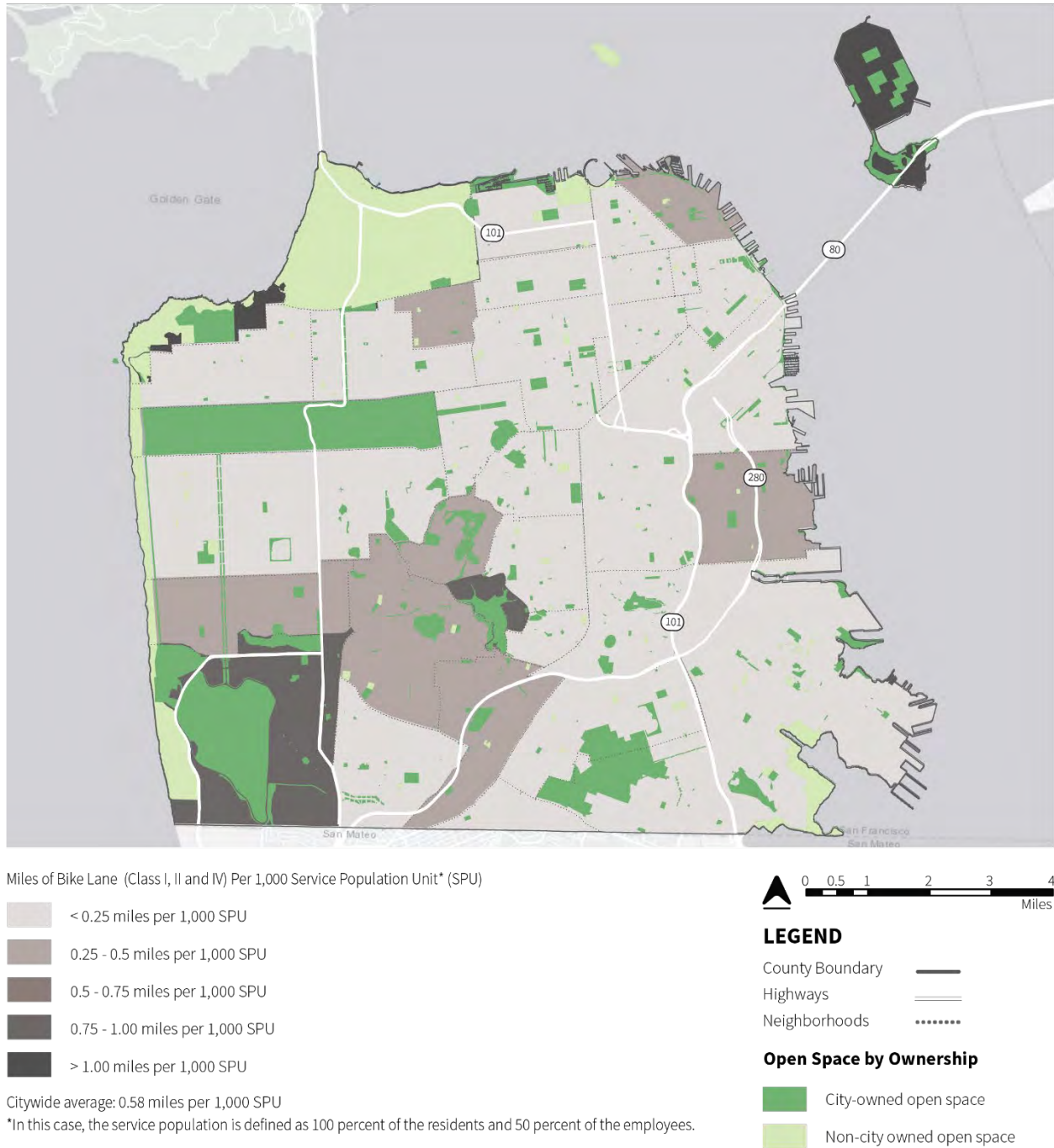


Average miles of bike lane per neighborhood: 7.0 miles

1. Bikeways, also known as bike paths or shared-use paths, are facilities with exclusive right of way for bicyclists and pedestrians, away from the roadway and with cross flows by motor traffic minimized. Some systems provide separate pedestrian facilities. 2. Bikeways are bike lanes established along streets and are defined by pavement striping and signage to delineate a portion of a roadway for bicycle travel. Bike lanes are one-way facilities, typically striped adjacent to motor traffic travelling in the same direction. 3. Bikeways, or bike routes, designate a preferred route for bicyclists on streets shared with motor traffic not served by dedicated bikeways to provide continuity to the bikeway network. Bike routes are generally not appropriate for roadways with higher motor traffic speeds or volumes.

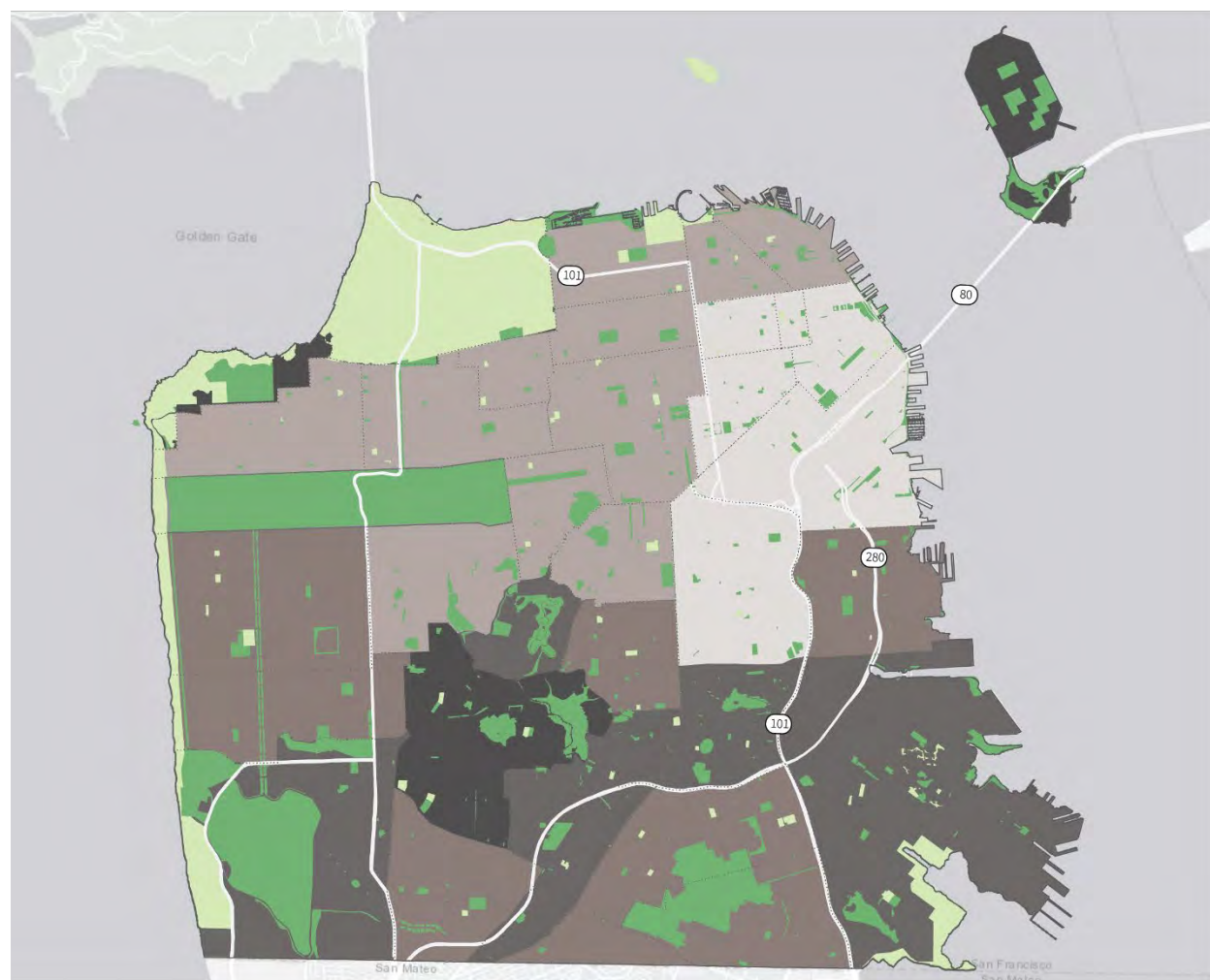
Source: SFMTA Bikeway Network, Bikeway Classification Brochure by Caltrans

FIGURE 11 - MILES OF PREMIUM CLASS (I, II AND IV) BIKE LANES PER CAPITA

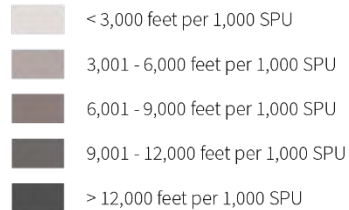


Source: SFMTA Bikeway Network, SF Planning 2019 population estimates

FIGURE 12 - LINEAR FEET OF SIDEWALK PER CAPITA



Linear Feet of Sidewalk Per 1,000 Service Population Unit\* (SPU)



Citywide Average: 14,192 feet per 1,000 SPU

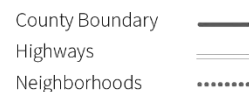
Total Sidewalk Distance: 6,392,286 feet / 1,210 miles

\*In this case, the service population is defined as 100 percent of the residents and 50 percent of the employees.

Source: SFMTA Sidewalk Widths, SF Planning 2019 population estimates, SFCTA Communities of Concern



#### LEGEND



#### Open Space by Ownership

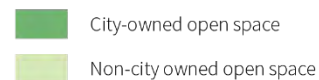
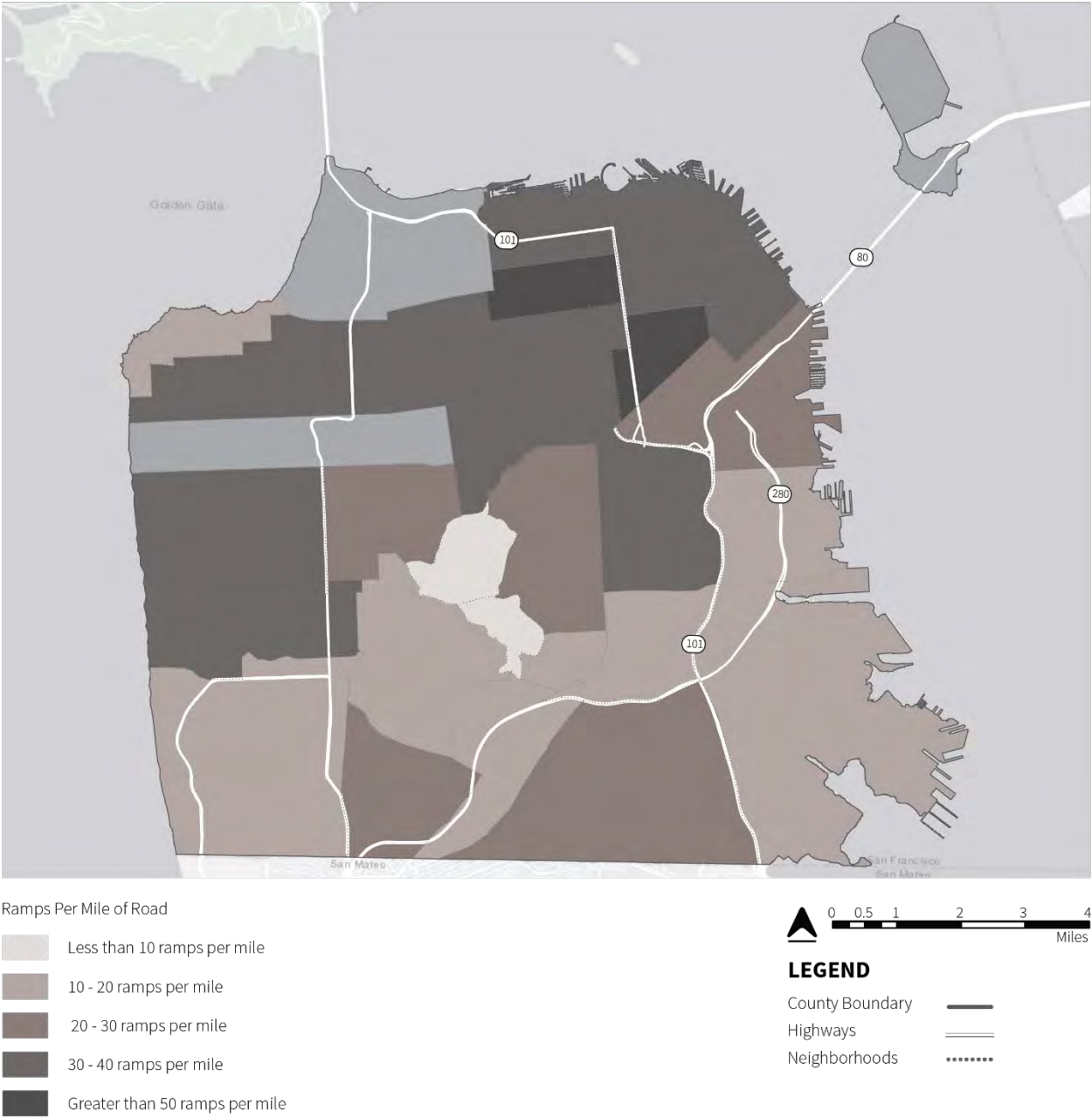


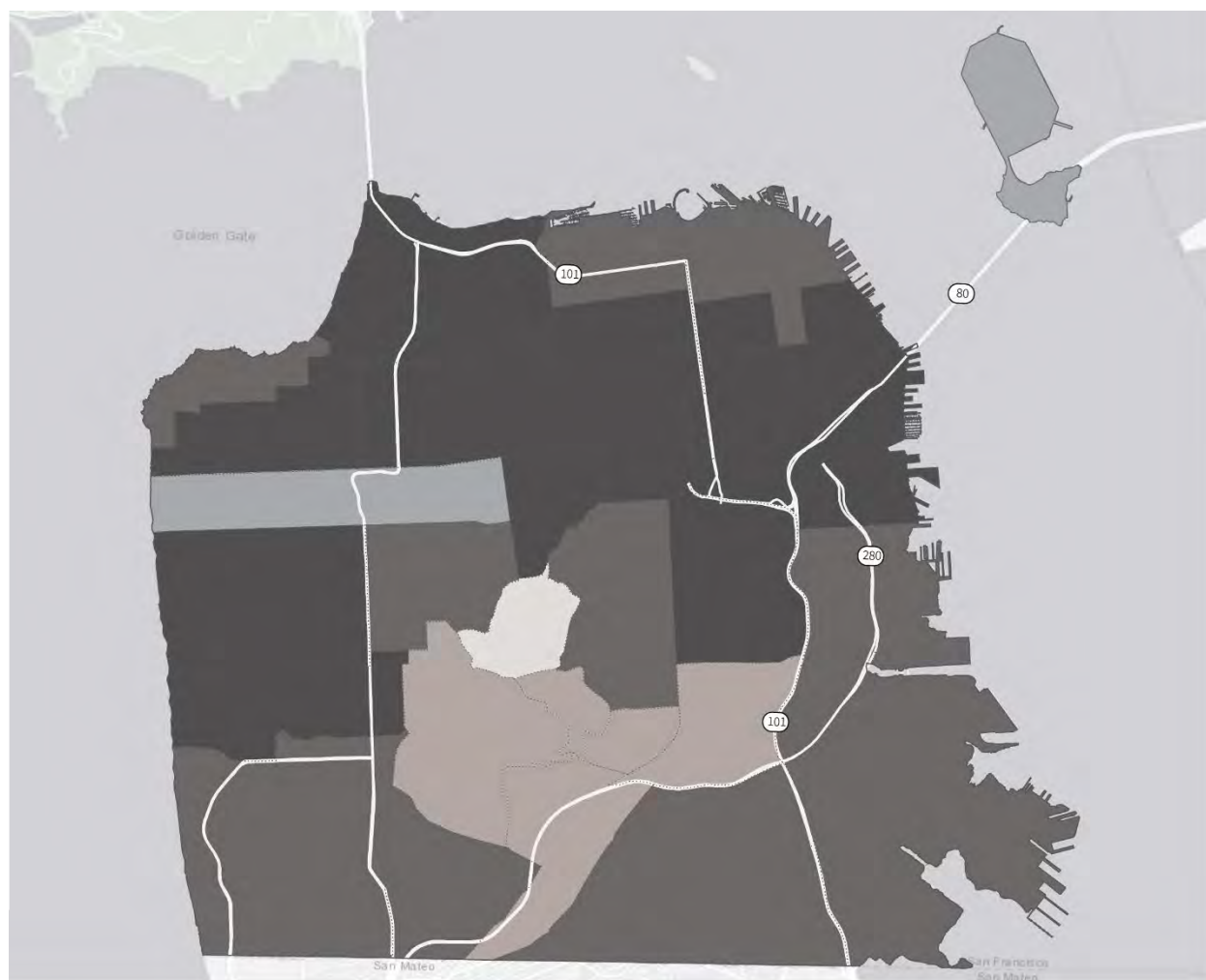
FIGURE 13 - NUMBER OF RAMPS PER MILE OF ROAD



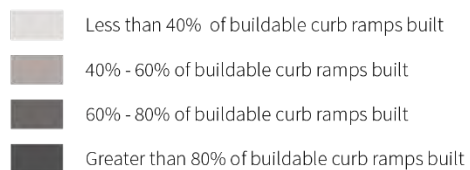
Note: There was no data available on number of ramps in Treasure Island



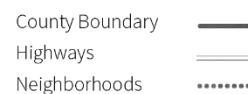
FIGURE 14 - PERCENT OF BUILDABLE CURB RAMPS BUILT PER NEIGHBORHOOD



Percent of Buildable Curb Ramps Built

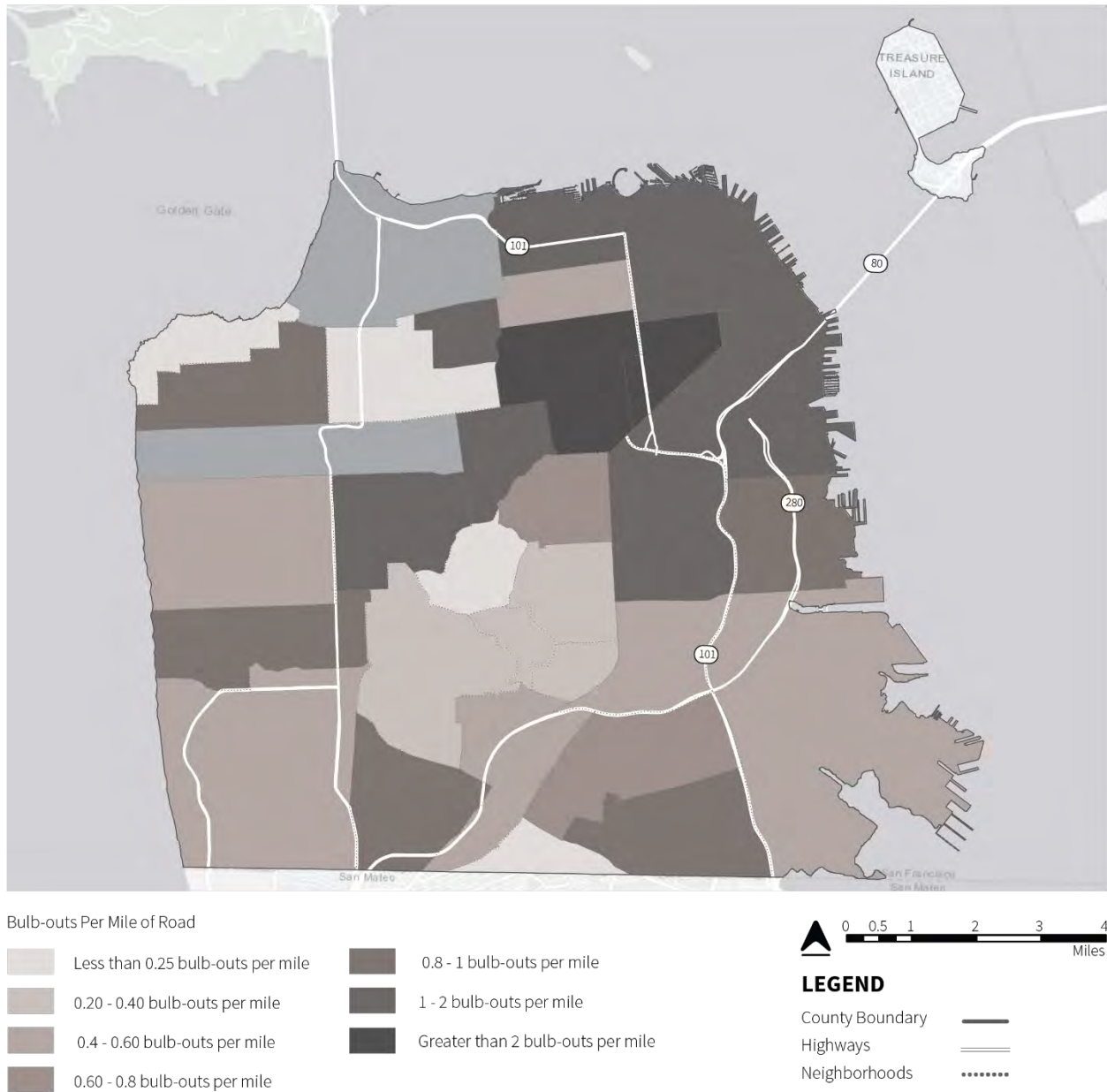


#### LEGEND



Citywide Average: 75% of buildable curb ramps built

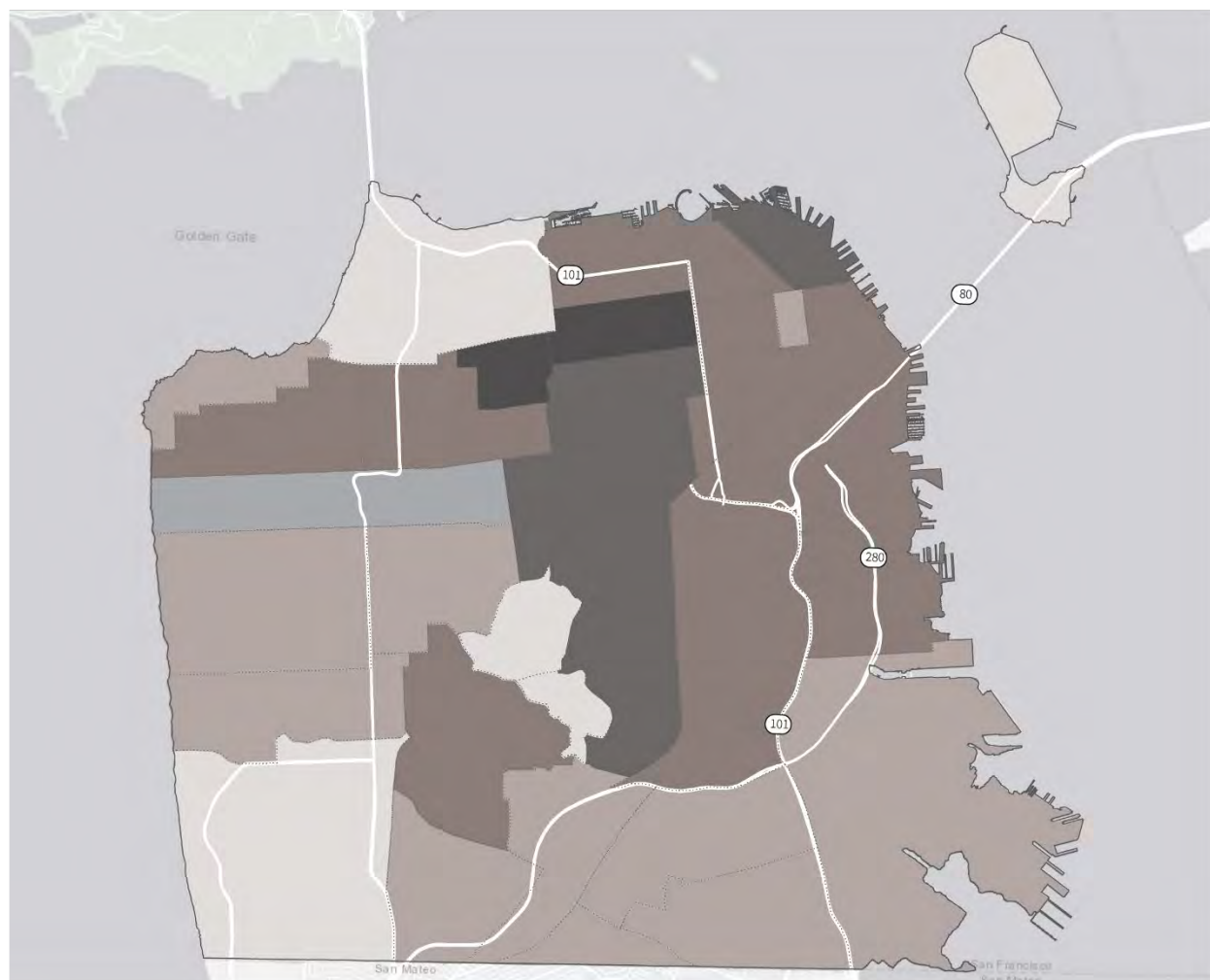
FIGURE 15 - NUMBER OF BULB-OUTS PER MILE OF ROAD



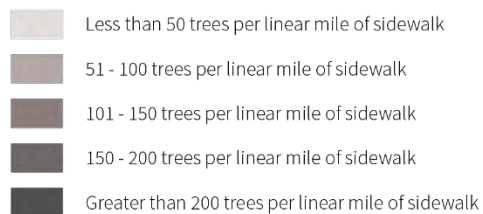
Citywide Average: 0.9 bulb-outs per mile

Note: There was no data available on number of ramps in Treasure Island

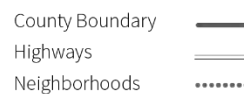
FIGURE 16 - STREET TREES PER LINEAR MILE OF SIDEWALK



Tress per Linear mile of Sidewalk



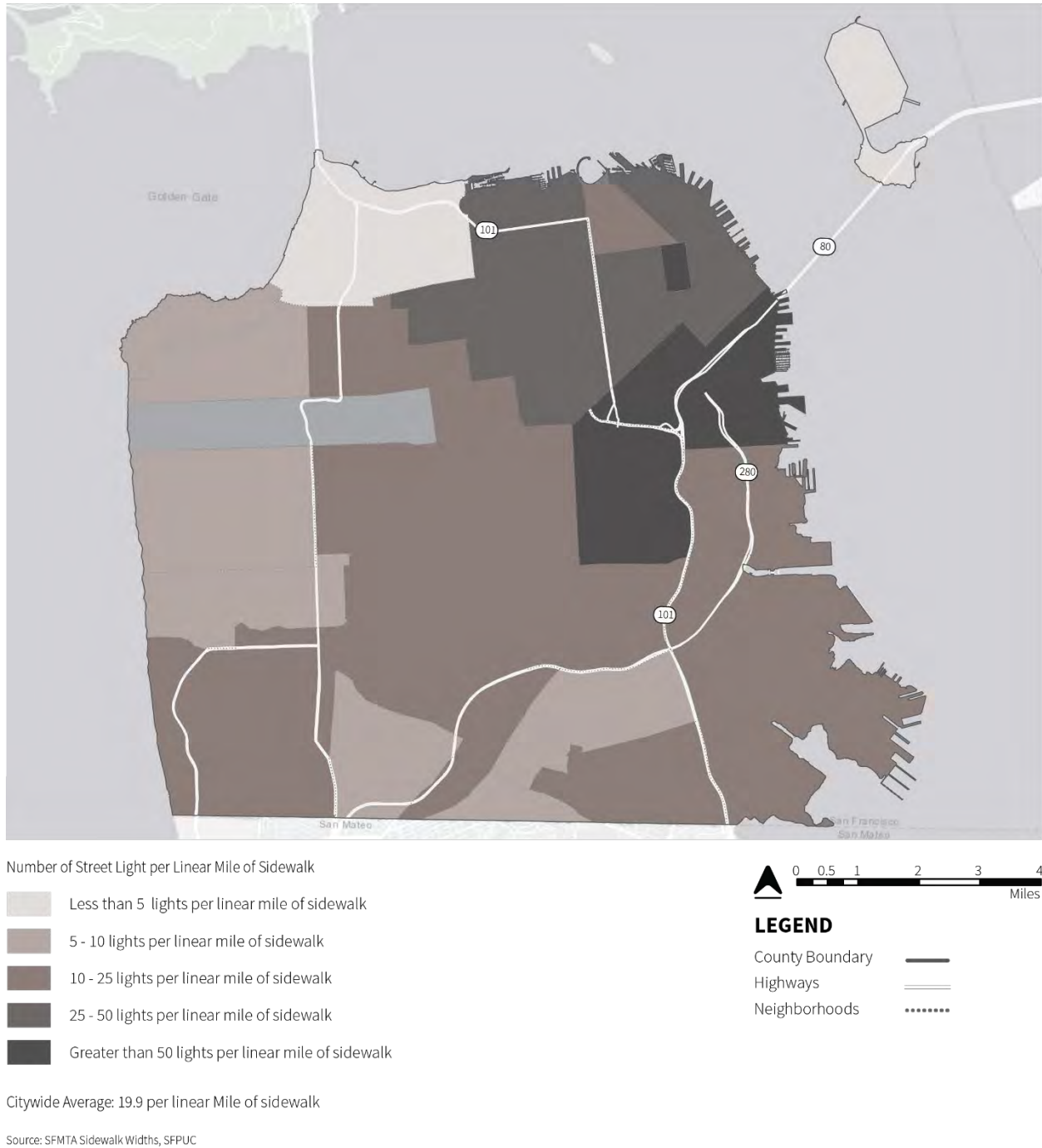
#### LEGEND



Citywide Average: 102 trees per linear mile of sidewalk

Source: SFMTA Sidewalk Widths, San Francisco Tree Census 2017

FIGURE 17 - STREET LIGHT PER LINEAR MILE OF SIDEWALK



## 7 Transit Infrastructure

Transit infrastructure, including trolleys, buses, and subways, complements the other transportation modes within the City. San Francisco aims to increase transit ridership by 2% in FY 2019 and 5% in FY 2020.<sup>83</sup> The following section provides a background on San Francisco's transit infrastructure and service and reviews previously determined metrics and targets for transit network provision.

### 7.1 Background

The SFMTA's 2012 San Francisco Transportation Sustainability Fee (TSF) Nexus Study is an important guiding document for the evaluation of San Francisco's transit system within the context of a development impact fee nexus analysis. This evaluation of transit infrastructure defers to that report and its subsequent updates. In 2015, the City revised and adopted an updated Transportation Sustainability Fee (TSF) to achieve the following three objectives:

1. Replace the existing Transit Impact Development Fee (TIDF) with the TSF and expand the fee to include residential in addition to non-residential development citywide.
2. Incorporate a complete streets fee component into the citywide TSF for bicycle and pedestrian facilities to support those travel modes.<sup>84</sup>
3. Establish the maximum justified transportation impact fee for all development citywide, whether subject to an area plan transportation fee or not.

This document updates the LOS metrics and analysis to support an updated 2019 Transportation Sustainability Fee to provide the maximum justifiable fee for use citywide and for justification of adopted neighborhood and specific plan transit fees.

### 7.2 Case Study Comparisons

Due to the variety of transit components and the numerous ways to measure them, Table 16 combines existing LOS with metrics and service goals to show how each case study city is performing according to its own metrics. The proposed transit metrics for San Francisco are designed to be consistent with prior transit studies in the City, and are detailed in Section 7.3.

TABLE 16: LOS METRICS, PROVISION, AND SERVICE GOALS – TRANSIT

City	Metric	Existing Condition	Service Goals
San Francisco, CA <sup>85</sup>	On-time performance	57%	85%
	Percent of Muni bus trips over capacity during AM/PM peak	AM Peak: 14.6% PM Peak: 15.8%	AM Peak: 13% PM Peak: 13%
	Bus on-time performance	86%	N/A

<sup>83</sup> SFMTA Strategic Plan 2018

<sup>84</sup> TSF funds may be used to cover pedestrian and bicycle improvements insofar as they reduce auto congestion and transit overcrowding, but the transit infrastructure LOS does not include complete streets infrastructure.

<sup>85</sup> SFMTA Strategic Plan Performance Metrics & Targets (2018)

City	Metric	Existing Condition	Service Goals
Minneapolis, MN <sup>86</sup>	Average vehicle miles between service calls	7,915 miles	N/A
San Jose, CA <sup>87</sup>	On-time Performance	Bus: 86.4% (2018)	Bus: 92.5% (Short-term)
		LRT: 84.7% (2018)	LRT: 95%( Short-term)
	Percent of Scheduled Service Operated	Bus: 99.66% (2018)	Bus: 99.50% (Short-term)
		LRT: 99.96% (2018)	LRT: 99.90% (Short-term)
San Diego, CA <sup>88</sup>	On-time performance (MTS bus)	82.7% (2017)	85%
	Percent of vehicle trips exceeding the maximum lag factor of 1.5	N/A	<20%
Los Angeles, CA <sup>89</sup>	On-time performance on Transit Enhanced Network:	N/A	95% (2035)
	Bus Frequency on Transit Enhanced Network:	N/A	Off-peak 5 minute bus frequency on 25% of the Transit Enhanced Network, off-peak 10 minute bus frequency on 50% of the Transit Enhanced Network, and off-peak 15 minute bus frequency on 100% of the Transit Enhanced Network by 2035
Vancouver, BC <sup>90</sup>	Service hours	5,125,269	8,125,000 by 2027
	On-time performance for frequent bus	76%	N/A
	On-time performance for non-frequent bus	79%	N/A
Portland, OR <sup>91</sup>		N/A	<15 min (short-term)

<sup>86</sup> Twin Cities Transit System Performance Evaluation (2009); Metro Transit Arterial Transit way Corridor Study (2012)

<sup>87</sup> VTA Performance Report (2018); San José Access & Mobility Plan: Transportation Directives (2019)

<sup>88</sup> SANDAG The Coordinated Plan (2018)

<sup>89</sup> Los Angeles Mobility Plan 2035 (2016); LA Metro Vision 2028 Strategic Plan (2018)

<sup>90</sup> TransLink Financial and Performance Report (2018); TransLink 10-Year Vision 2018 - 2027 INVESTMENT PLAN (2018); TransLink Statutory Annual Report (2017)

<sup>91</sup> Portland Enhanced Transit Corridors Plan (2018); Portland Regional Transportation Plan (2014); TriMet Business Plan for Fiscal Years 2019-2023 (2018); Portland Transportation System Plan (2018)



City	Metric		Existing Condition	Service Goals
	Transit frequency for a majority of the day			<12 min (within 10 years)
				<10 min (within 20 years)
	On-time performance		Bus: 85.6%	Bus: 85% by 2022
			Light rail: 88.4%	Light rail: 90% by 2022
	Overloaded weekday peak trips		2%	2% or fewer
Seattle, WA <sup>92</sup>	Percent of Frequent Transit Network that is maintained and modernized by rehabilitating the pavement		22% (2014)	35%(2025)
	Percent of “Seattle” bus route trips that are on-time in the afternoon peak period		68%	80%
New York, NY <sup>93</sup>	Overall transit capacity (number of passengers) into the Manhattan Central Business District during the AM peak hour		642,290 passengers (2017)	Increase 20% by 2040
	PM peak median citywide bus speed		10.7 mph	Increase bus travel speeds by the year 2020, especially on bus corridors with high ridership and on streets where bus speeds fall below 5 miles per hour.
Davis, CA <sup>94</sup>	Convenience	Peak-hour service frequency for routes with 60+ passengers/hour	15 to 60-minute	15-minute
	Reliability	% within 5 min of scheduled time	94%	90%
		Vehicle miles between road calls	11955	20000
	Capacity	Peak loading conditions not to exceed 150% of seats	94% of bus trips; 88% of bus riders	95 % of bus trips; 90% of bus riders
Boston, MA <sup>95</sup>			93% for bus	95% for bus

<sup>92</sup> Seattle TRANSIT MASTER PLAN (2016); King County Metro Transit 2017; Strategic Plan Progress Report (2018)

<sup>93</sup> MTA Mission Statement, Measurements and Performance Indicator Report (2017)

<sup>94</sup> City of Davis Short-Range Transit Plan Fiscal Years 2015-2021

<sup>95</sup> Massachusetts Bay Transportation Authority (MBTA) Service Delivery Policy (2017)

City	Metric		Existing Condition	Service Goals
	Service Availability Standards	Span of Service - hours meeting the expected span of service	100% for rail	100% for rail
		Frequency of Service - hours meeting the expected frequency of service	93% for bus	95% for bus
			100% for rail	100% for rail
	Reliability Service Standards	Bus - percent of time points meeting scheduled time points	65%	75-80%
		Light Rail - percent of all station departures over the entire service day that pass their on-time tests	89%	90%
Santa Monica, CA <sup>96</sup>	On-time performance		Varies by route	Routes that fall below 50% of system wide average, or 150% of average are examined for possible service improvements or corrections
	Total ridership by route			
	Passenger load factor			
Sacramento, CA <sup>97</sup>	Service Frequency		5-15 min depending on the mode	10 minutes or better

### 7.3 Level of Service Metrics

In 2012, the SFMTA's San Francisco Transportation Sustainability Fee Nexus Study established guidelines for the evaluation of San Francisco's transit system using citywide metrics. The Hatch team used a citywide geographic analysis because of the dispersion of trip origins and destinations citywide and regionally, and the interdependence of transit system components. The 2012 study used two LOS performance metrics that were also reported in the 2014 LOS Analysis: transit travel time and transit crowding. The 2015 TSF update modified these two metrics by keeping the transit crowding metric and substituting a transit maintenance demand metric for the transit travel time metric. The transit travel time metric proved too complex to maintain because of the extensive travel modeling required, and the transit maintenance demand metric supported the use of TSF funds for transit maintenance that increases available transit capacity to serve new development. These two updated metrics were developed to directly support the 2015 TSF nexus analysis. This 2019 update to the

<sup>96</sup> Fiscal Year 2015-16 Big Clue Bus Year End Performance Report (2016)

<sup>97</sup> Sacramento Transit Action Plan Regional Transit Master Plan



Level of Service Analysis uses the same two metrics used in the 2015 TSF update. Both of these metrics are calculated at the citywide level. The two metrics are:

- Transit crowding: Level of service is measured in terms of passenger miles traveled in crowded versus uncrowded conditions systemwide on an average daily basis. Crowded conditions occur when there is less than three square feet per standing passenger.<sup>98</sup>
- Transit maintenance level of service: The existing transit maintenance LOS is the current ratio of the supply of transit services (measured by transit revenue service hours) to the level of transportation demand (measured by number of auto plus transit trips).

Table 17 calculates the transit crowding level of service both for the 2015 base year and for a 2040 projection. The calculation of passenger miles comes from the ConnectSF Needs Assessment, which completed 2015 and 2040 SF-CHAMP travel demand model runs on the current and future transit system links. The Hatch team adjusted the calculation of crowded passenger miles to consider the latest transit vehicle crowding capacities specified by SFMTA. The analysis indicates that in 2040, despite a projected increase in transit infrastructure, crowding will increase relative to the existing LOS standard.

TABLE 17: TRANSIT CROWDING LOS STANDARD<sup>99</sup>

	2015	2040
Uncrowded Passenger Miles	1,375,899	1,926,271
Crowded Passenger Miles	233,455	485,189
Total Passenger Miles	1,609,354	2,411,460
Percent Crowded Passenger Miles	15%	20%

Figure 18 compares the crowded to uncrowded passenger miles in 2015 to 2040. As shown, crowding will increase compared to the existing LOS standard.

<sup>98</sup> Exhibit 5-17, TCRP 165 – Transit Capacity and Quality of Service Manual, 2013, 3<sup>rd</sup> Ed.

<sup>99</sup> ConnectSF Needs Assessment; SF-CHAMP travel demand model, 2019; Urban Economics

FIGURE 18: TRANSIT CROWDING LOS STANDARD IN 2015 AND 2040



Table 18 calculates the transit maintenance level of service standard in terms of revenue service hours per 1,000 vehicle trips. The analysis utilizes data from the U.S. Department of Transportation and the San Francisco Planning Department calculate revenue service hours per 1,000 vehicle trips. The current LOS standard is 1.45 revenue service hours per 1,000 daily trips.

TABLE 18: TRANSIT MAINTENANCE LOS STANDARD<sup>100</sup>

	Amount	Calculation
Annual Revenue Service Hours	3,885,640	A
Days per Year	365	B
Average Daily Revenue Service Hours	10,646	C = A / B
2019 Average Daily Trips (ADT) <sup>1</sup>	7,335,000	D
Revenue Service Hours per 1,000 ADT	1.45	C / D * 1,000

<sup>100</sup> Auto and transit trip ends only within San Francisco. Excludes bicycle and pedestrian trip ends.

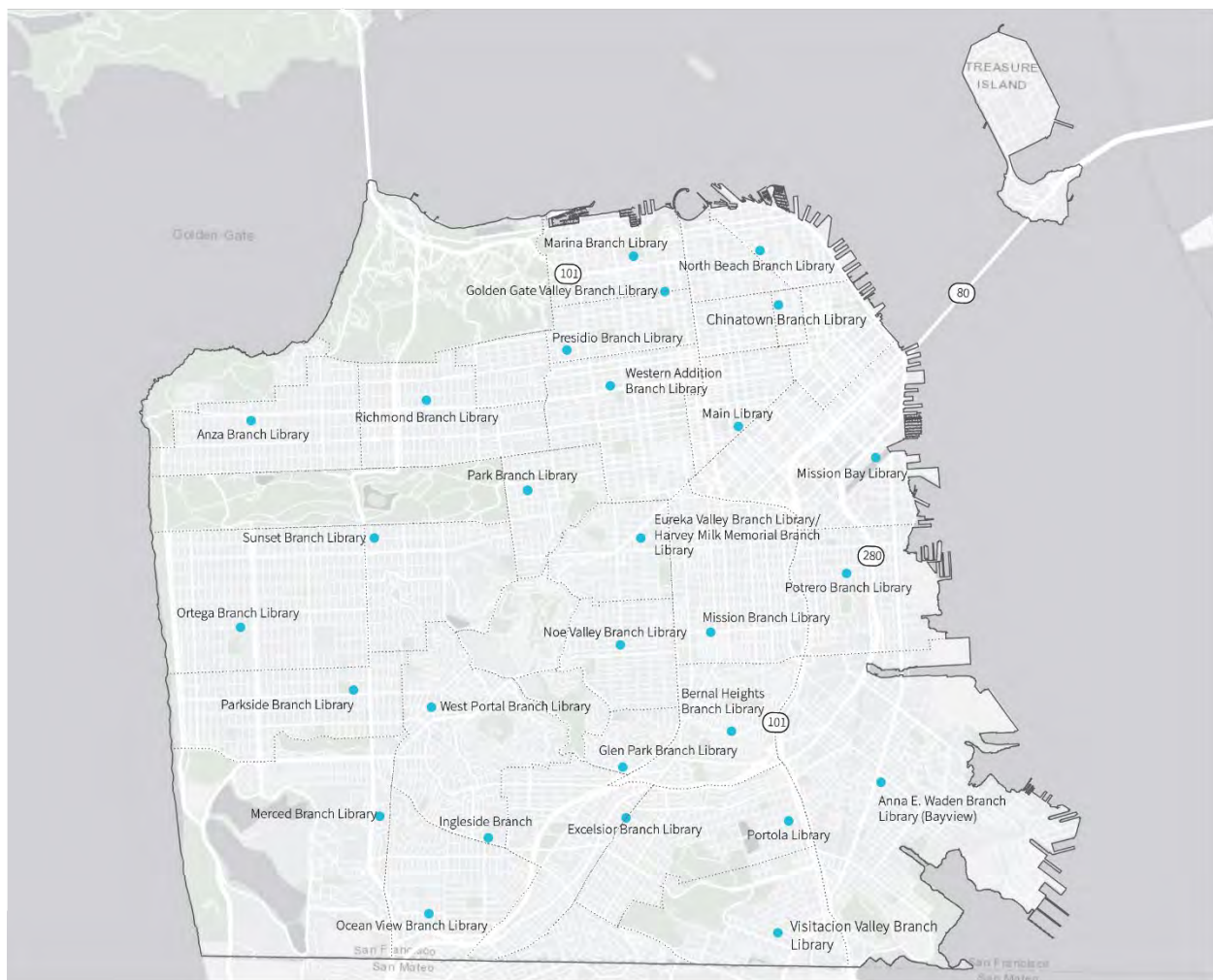
Sources: U.S. Department of Transportation, Federal Transit Administration, National Transit Database, 2017 Data Reports (<https://www.transit.dot.gov/ntd/ntd-data>); San Francisco Planning Department; Urban Economics.

## 8 Library Facilities

Libraries provide many City services, as well as an important space for community gathering. This section outlines the library facilities operated by the City and County of San Francisco, compares the provision of library facilities among case study cities, and proposes a metric for measuring San Francisco's provision of library facilities. Maps illustrate San Francisco's current library Level of Service. Figure 19 shows the distribution of library branches, including the main branch, around San Francisco. Table 19 lists the City's guiding policy document consulted in the formulation of this section.

TABLE 19: LIBRARY PROVISION GUIDING POLICY DOCUMENT

Policy Document	Year	Key Contributions
<b>Emerging Southeast Initiative: Southeast Framework: Community Facilities</b>	2018	<ul style="list-style-type: none"><li>• Information on current library facilities in San Francisco, and San Francisco Public Library's internal standards for Level of Service</li><li>• Plans for library expansion in the City's southeast neighborhoods</li></ul>



Total Number of Libraries

28

Source: San Francisco Public Library



#### LEGEND

County Boundary ———  
Highways ———  
Neighborhoods ······

#### Community Facilities

● Library

## 8.1 Background

Library facilities provide a wide array of services to San Francisco residents. Traditionally, libraries supply the public with books and other materials that they can borrow for free, reference librarians to help with research and material recommendations, a quiet location for studying, and community meeting space. As libraries expand to meet 21<sup>st</sup> century needs, they have also become a place where people can access other government services such as registering to vote and filing their taxes, as well as accessing computers with wi-fi access. In addition, San Francisco libraries offer information on immigration, citizenship, and adjusting to American culture, after school programs for children and teenagers including help with homework, job-searching and

career resources, programming for older adults, and art exhibitions, among other services.<sup>101</sup> 80% of Americans still consider borrowing books to be a “very important” library service, and 77% feel the same about free access to computers and the internet.<sup>102</sup>

Most of the programs listed above rely heavily on staffing, and therefore operations funding, to take place. However, the public facilities that libraries provide are essential for locating these programs. Furthermore, computers qualify as a capital investment along with buildings, and are necessary tools to apply for many jobs and government programs, both of which are heavily utilized library services.<sup>103</sup> This section will primarily focus on the physical building space associated with libraries to establish the capital facilities level of service, but capital funds may also be used to increase capital capacity at existing libraries by increasing the stock of capital infrastructure such as computers and books.

Unlike other infrastructure categories examined in this report, library facilities are measured per resident, rather than per service population unit. Although any resident of California can obtain a San Francisco Public Library (SFPL) card, non-resident employees in San Francisco are not more likely to use the City’s public libraries than other Bay Area residents living outside of San Francisco.<sup>104</sup> 89% of Americans say closing their local public library would have a negative impact on their community,<sup>105</sup> which suggests that most Americans primarily rely on their local library for library services.

To geospatially measure library facility LOS within San Francisco, this section analyses the LOS within 27 library service areas, one for each branch library in the City. Library service areas are defined as the collection of Traffic Analysis Zones (TAZs)<sup>106</sup> that are closest to each library. The main library service area has been excluded from the neighborhood-level analysis because the main library is considered a citywide resource. It is only counted toward the citywide LOS.

Internally, the San Francisco Public Library (SFPL) uses different service areas to evaluate its library branch needs and levels of service. Physical barriers like freeway overpasses may make certain walks unpleasant and prompt library users to go to a different library, and certain libraries have culturally-specific collections that draw patrons to that library from across the City.<sup>107</sup> This does not affect the citywide LOS but may affect branch-level considerations. From an infrastructure provision perspective, making sure residents have sufficient access to a local library suffices, regardless of which library they choose to go to.

## 8.2 Case Study Comparisons

Traditionally, the recommended amount of library space for a city of San Francisco’s size is 0.3 square feet per capita.<sup>108</sup> San Francisco’s Level of Service exceeds this standard, at 0.67 square feet of library space per

<sup>101</sup> San Francisco Public Library website, <https://sfpl.org/index.php?pg=0000000401>. Accessed August 8, 2019.

<sup>102</sup> Pew Research Center, Library Services in the Digital Age (2013)

<sup>103</sup> American Library Association, State of America’s Libraries Report 2019

<sup>104</sup> Confirmed in a meeting with SFPL staff on June 26, 2019.

<sup>105</sup> Pew Research Center, Libraries at the Crossroads (2015)

<sup>106</sup> Traffic Analysis Zones (TAZs) are a way of dividing land area into discrete measurable units for planning purposes. The US Census Bureau designates these zones based on physical land constraints, population and employment density, and certain municipal boundaries.

<sup>107</sup> Meeting with SFPL, June 18, 2019.

<sup>108</sup> American Planning Association, Piero Faraci, Information Report No. 241, Planning the Public Library.

resident. As square footage is not a readily available figure for many library systems among the case study cities, Table 20 compares the number of library branches per resident and square mile of city among the case study cities. As seen in Table 21, most case study cities do not have a standard for determining library facility LOS.

TABLE 20: LOS PROVISION COMPARISON – LIBRARIES

City	Libraries (Total)	Libraries per 100,000 Residents <sup>109</sup>	Libraries per Square Mile
San Francisco, CA <sup>110</sup>	28	3.24	0.60
Minneapolis, MN <sup>111</sup>	15	3.65	0.28
San Jose, CA <sup>112</sup>	24	2.35	0.07
San Diego, CA <sup>113</sup>	35	2.52	0.11
Los Angeles, CA <sup>114</sup>	75	1.90	0.16
Vancouver, BC <sup>115</sup>	21	3.33	0.48
Portland, OR <sup>116</sup>	19	3.01	0.14
Seattle, WA <sup>117</sup>	27	3.92	0.32
New York, NY <sup>118</sup>	210	2.45	0.69
Davis, CA <sup>119</sup>	2	2.96	0.20
Boston, MA <sup>120</sup>	26	3.89	0.54
Santa Monica, CA <sup>121</sup>	6	6.49	0.71
Sacramento, CA <sup>122</sup>	30	6.13	0.31

<sup>109</sup> Population and city area data come from the US Census Bureau

<sup>110</sup> San Francisco Public Library: Libraries (2019)

<sup>111</sup> Hennepin County Library: Library Locations (2019)

<sup>112</sup> San Jose Public Library: Locations & Hours (2019)

<sup>113</sup> The City of San Diego: Library Locations (2019)

<sup>114</sup> Los Angeles Public Library: Locations & Hours (2019)

<sup>115</sup> Vancouver Public Library: Hours & Locations (2019)

<sup>116</sup> Multnomah County Library: Locations (2019)

<sup>117</sup> The Seattle Public Library: Hours & Locations (2019)

<sup>118</sup> New York Public Library: Locations (2019); Brooklyn Public Library: Hours & Locations (2019); Queens Public Library: Hours & Locations (2019)

<sup>119</sup> Yolo County Library: Locations (2019)

<sup>120</sup> Boston Public Library: Branches (2019)

<sup>121</sup> Santa Monica Public Library: Locations & Hours (2019)

<sup>122</sup> Sacramento Public Library: Locations (2019)

TABLE 21: LOS METRICS AND SERVICE GOALS – LIBRARIES

City	Metric	Service Goal	Level of Service
San Francisco, CA	<b>Proposed:</b> <ul style="list-style-type: none"> <li>Square feet of library per resident</li> </ul>	<b>Proposed:</b> <ul style="list-style-type: none"> <li>Near term: Maintain 0.6 square feet of library per new resident (0.66 square feet per resident for the total population)</li> </ul>	0.67 square feet per resident <sup>123</sup>
Portland, OR <sup>124</sup>	Square feet per resident	0.6 – 0.8 square feet per resident	0.3 square feet per resident
Davis, CA <sup>125</sup>	Square feet per resident	0.75 – 1.0 square feet per resident	0.47 square feet per resident
Sacramento, CA <sup>126</sup>	n/a	n/a	0.2 square feet per resident

### 8.3 Level of Service Metrics

As shown in Table 21, both of the case study cities that have internal metrics to track the provision of library facilities relative to population do so via square feet per resident. Thus, the library metric is:

- Square feet of library per resident

<sup>123</sup> Although San Francisco's level of service is higher than peer cities, this is driven by its high density of population.

<sup>124</sup> Multnomah County Library Framework for Future Library Spaces (2017)

<sup>125</sup> City of Davis State of the City Report (2017)

<sup>126</sup> Sacramento Public Library Strategic Plan Appendix: Facilities Study (2011)

### 8.3.1 Square Feet of Library per Resident

TABLE 22: SQUARE FEET OF LIBRARY PER CAPITA – LOS PROVISION, GOAL, AND TARGET

LOS Measure	Value	Source
<b>Current Citywide Provision</b>	0.67 square feet of library per resident <sup>127</sup>	Library data provided by SFPL. Population data from SF Planning.
<b>Short-Term Target</b>	Maintain 0.6 square feet of library per new resident (0.66 square feet per resident for the total population)	Meeting with SF Planning and SFPL staff on April 16, 2020.
<b>Long-Term Aspirational Goal</b>	Provide San Francisco residents with improved community space and amenities, meeting changing library needs.	Meeting with SF Planning staff on October 23, 2019.

As discussed above, San Francisco’s current library LOS is above the case study cities which measure their library provision in comparable terms, as well as above the standard recommended level of service. For this reason, the short-term goal is to reach a 10% reduction of the current LOS for new residents. This does not mean new residents will have a lower LOS than current residents (all facilities are open to any resident), but rather that expansion will not fully keep pace with the City’s rate of growth, relative to the current level of service.

In the long term, San Francisco Public Libraries will adapt to meet the changing needs of San Francisco communities. Public libraries are becoming an important community gathering site, providing free meeting space for community gatherings and access to digital resources for people who need it. Due to San Francisco’s high density of existing library branches, SFPL has begun discussing building a new regional library facility (larger than any existing branch library) rather than building more small branch libraries. The most important long-term goal is meeting City residents’ changing library needs.

The geospatial analysis of library facility provision shows lower Levels of Service than the citywide average, on account of the main library’s exclusion.<sup>128</sup> The median local branch has an LOS of 0.26 square feet of library per resident. As shown in Figure 20, most libraries in the City have a local LOS close to this figure. Castro/Upper Market has the lowest Level of Service, at 0.13 square feet per resident.

#### 8.3.1.1 Forecasted Demand

By 2025, San Francisco’s residential population is expected to grow to 982,000, an increase of 74,000 from the current population. In order to maintain the current LOS, the City will need to add 44,000 square feet of library space by 2025, bringing the total library square feet to 650,000 by 2025. This expansion will not necessarily be built as new branch library square feet, but may take the form of a new regional library facility or further investment in existing library space.

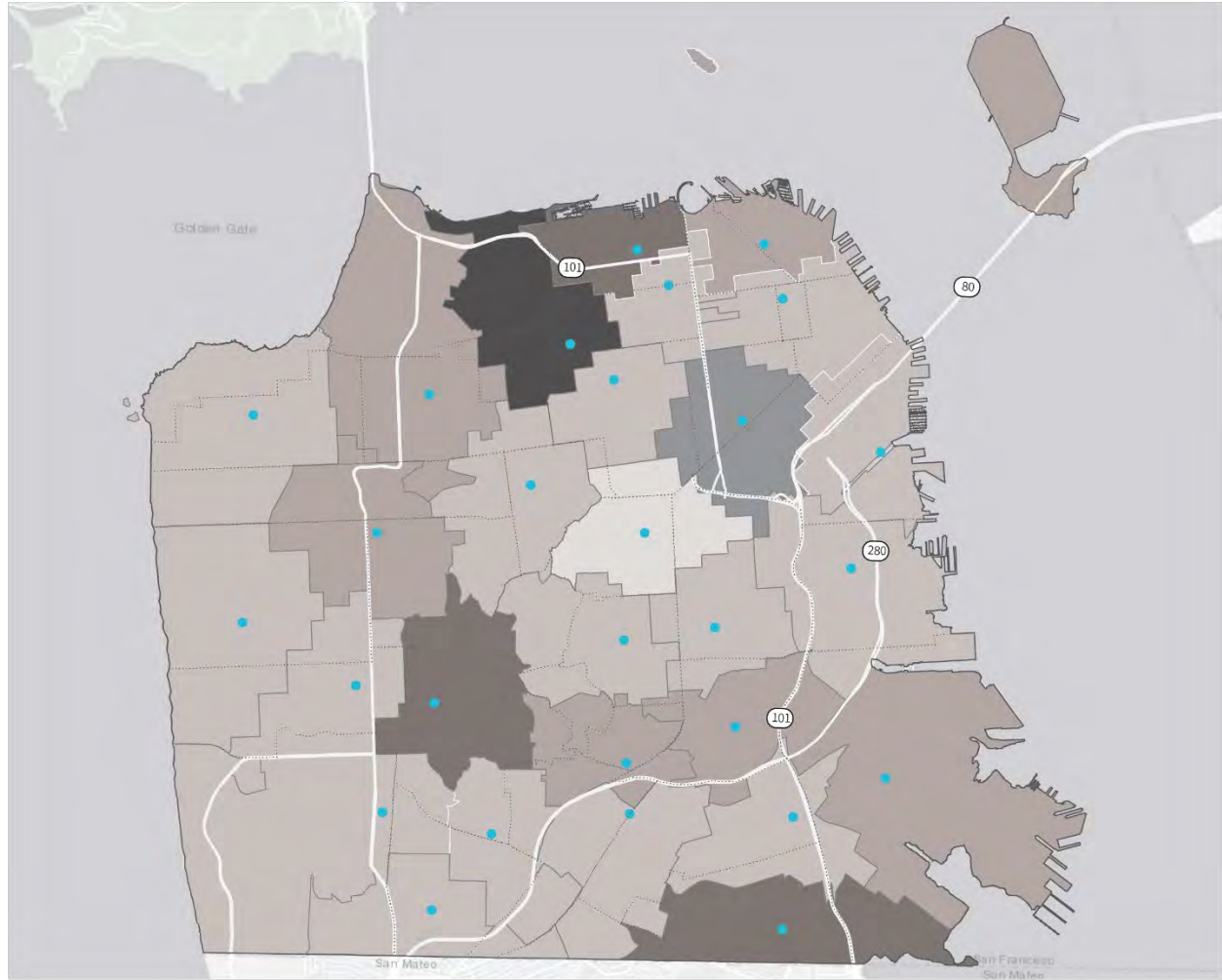
<sup>127</sup> Note that this includes the main library branch, which is excluded from the neighborhood-level analysis shown in Figure 21.

<sup>128</sup> The main library accounts for 62% of citywide library square feet, according to data from SFPL.



Geospatially, projected growth is concentrated in the South of Market, Bayview, and Lakeshore neighborhoods. The closest branch library to South of Market is the Mission Bay Library, with a below-median LOS of 0.22 square feet per resident. However, the South of Market neighborhood is also adjacent to the Main Library service area. The Anna E. Waden Branch Library, which serves most of the Bayview, has a relatively high LOS currently, at 0.36 square feet per resident. The Merced Branch Library, which serves most of Lakeshore, currently has an LOS of 0.29 square feet per resident, slightly above the median.

FIGURE 20: SQUARE FEET OF LIBRARY PER RESIDENT



Square Feet of Library Space per Resident



By Closest Library Citywide Average: 0.67 sqft per resident

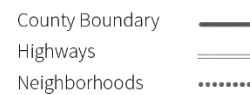
The San Francisco Planning Department estimates the total residents per Traffic Analysis Zones (TAZ) for 2019. Resident population is assigned to their closest library and divided by the total square footage of that library to arrive at a square feet per resident ratio.

Note: San Francisco Main Public Library was excluded from this analysis as an outlier.

Source: San Francisco Public Library, San Francisco population estimates 2019



**LEGEND**



**Community Facilities**

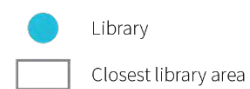
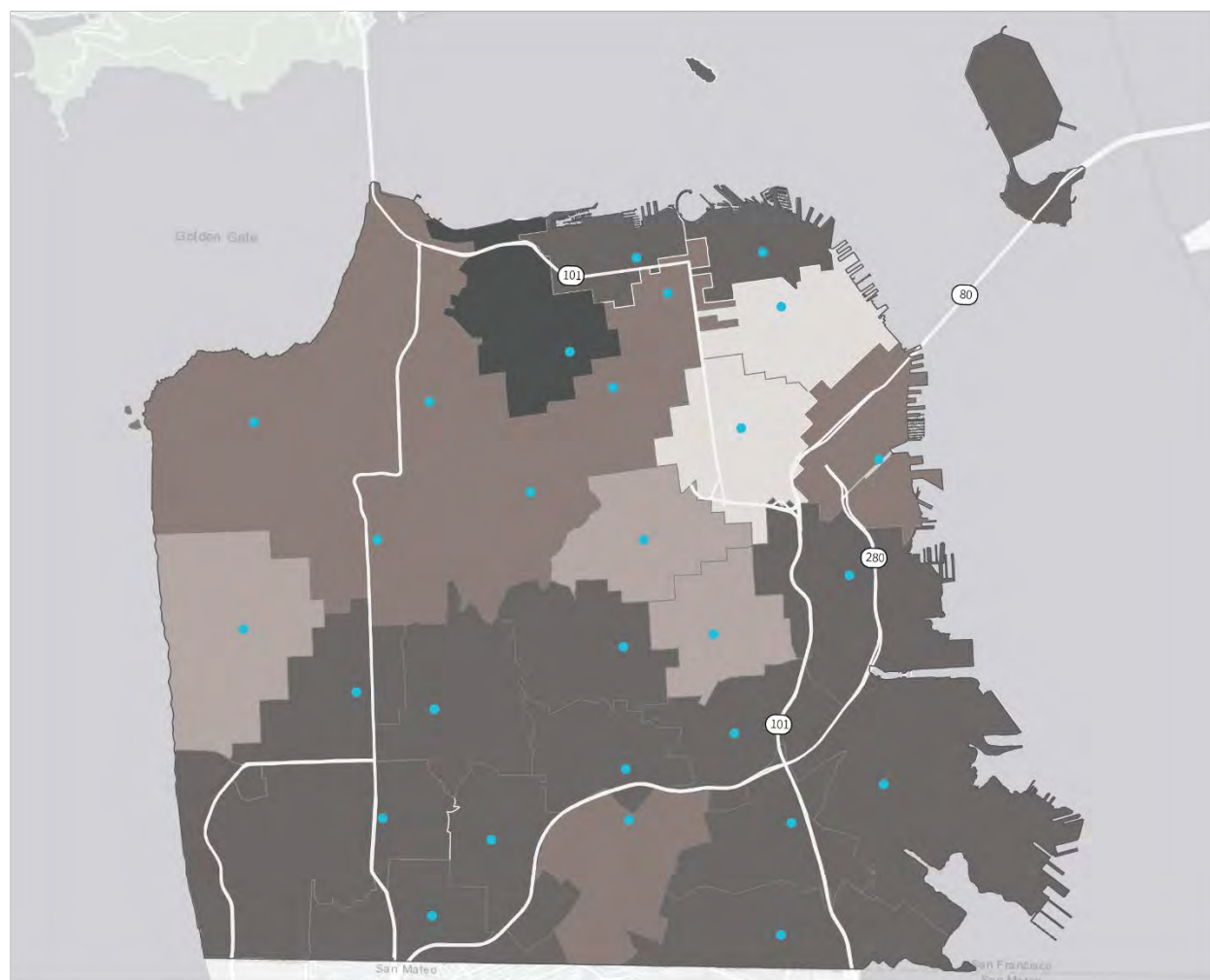
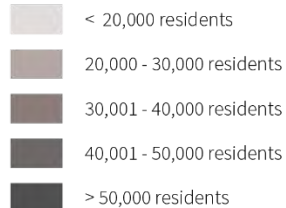


FIGURE 21: RESIDENT POPULATION TO THE CLOSEST LIBRARY



Residents per closest San Francisco Public Library



Citywide Average: 32,188 residents overall per library

The San Francisco Planning Department estimates the total residents per Traffic Analysis Zones (TAZ) for 2019. Resident population is assigned to their closest library to estimate the average number of residents per closest library.

San Francisco Public Library, San Francisco population estimates 2019



#### LEGEND

County Boundary   
 Highways   
 Neighborhoods

#### Community Facilities

Library  
 Closest library area

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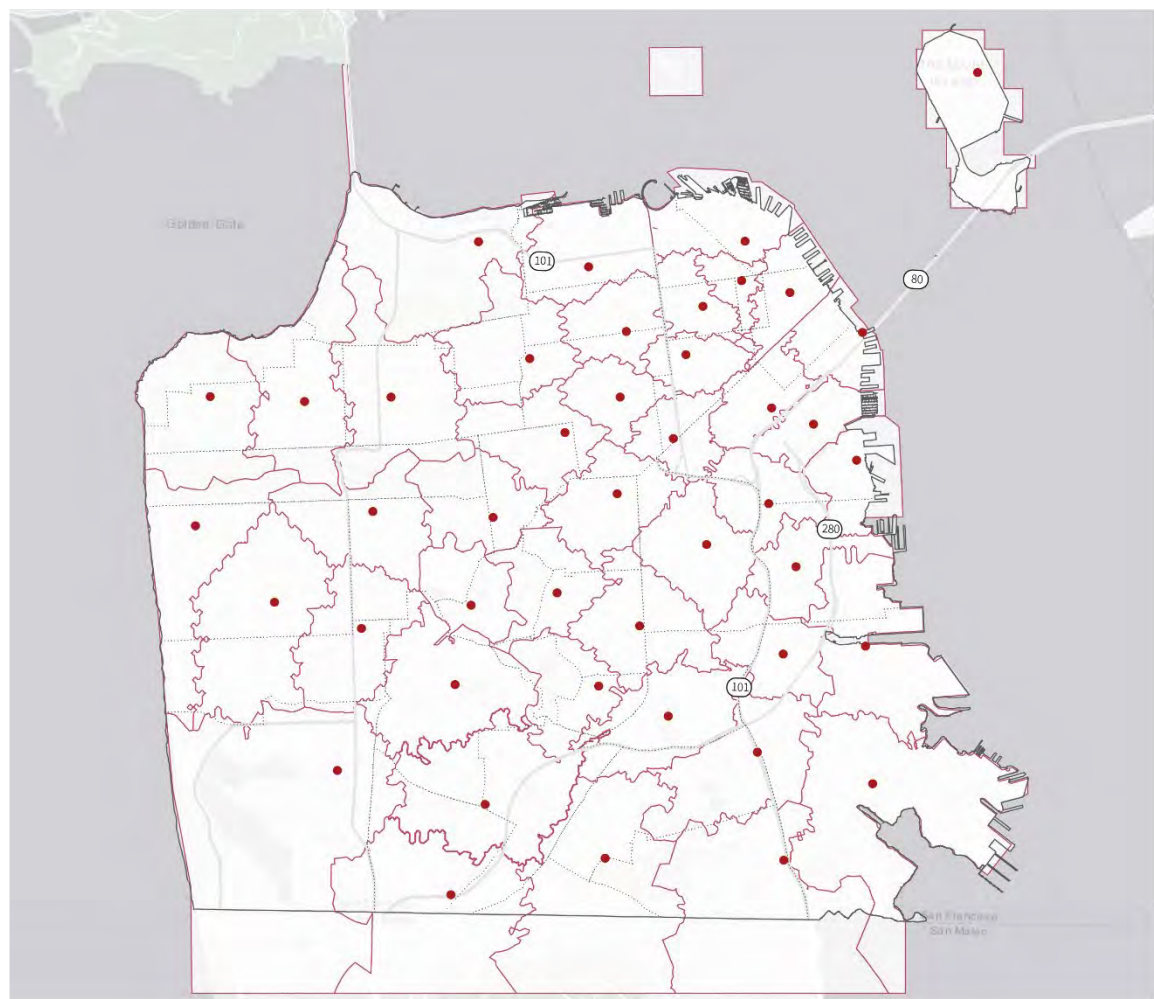
## 9 Fire Department Facilities

Fire department facilities provide the backbone of two critical emergency services provided by the City of San Francisco: fire suppression and emergency medical services (EMS). This section outlines the metrics used by case study cities to measure their fire suppression and EMS Level of Service (LOS), compares the LOS provided among case study cities, and evaluates San Francisco’s provision of fire department services along recommended metrics, projecting the need for additional facilities into the near and long-term future. Table 23 outlines the City documents consulted in the production of this section. Figure 22 shows the locations of fire department facilities in San Francisco.

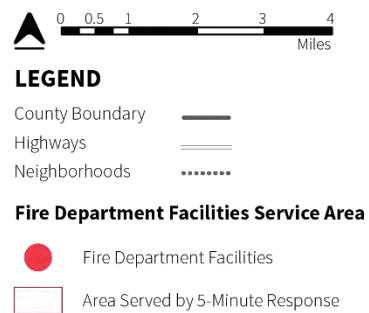
TABLE 23: FIREFIGHTING PROVISION GUIDING POLICY DOCUMENTS

Policy Document	Year	Key Contributions
Emerging Southeast Initiative: Southeast Framework: Community Facilities	2018	<ul style="list-style-type: none"><li>• Information on current firefighting facilities in San Francisco, and San Francisco Fire Department’s internal standards for Level of Service</li><li>• Plans for SFFD expansion in the City’s southeast neighborhoods</li></ul>
San Francisco Infrastructure Level of Service Analysis Draft	2014	<ul style="list-style-type: none"><li>• Background information on firefighting standards</li><li>• Previous proposed LOS metrics</li></ul>

FIGURE 22: LOCATION OF FIRE DEPARTMENT FACILITIES



Source: San Francisco Fire Department



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## 9.1 Background

The San Francisco Fire Department (SFFD) oversees both fire suppression and emergency medical services (EMS). City residents and employees access these services by dialing 911, where the operator categorizes each call under a response code class, which defines the nature of the emergency and the response mode. Code 1 calls are non-emergency calls, and emergency vehicles proceed with the normal flow of traffic, without lights or sirens. A Code 2 call is a non-emergency, but important, call; emergency vehicles generally proceed according to traffic laws but may use lights or sirens to circumvent slow or stopped traffic. A Code 3 call is a life-threatening emergency; emergency vehicles proceed with lights and sirens and may disregard traffic laws if safe to do so. As they are the most critical calls, this analysis focuses on Code 3 calls.

For Code 3 calls, the SFFD is governed by strict national and local service standards. At the national level, the National Fire Protection Agency (NFPA) issues guidelines on response times, fire and emergency services staffing, and deployment recommendations. At the local level, the San Francisco Emergency Medical Services Agency (SFEMSA), under the Department of Public Health (DPH), issues LOS requirements regarding EMS provision. Both the NFPA and the SFEMSA provide standards for response time and staffing for emergency medical events; however, because staffing is not a capital provision, the staffing standards and metrics are not included in this analysis. The analysis will focus specifically on response time.

SFFD's response time to a Code 3 call is subdivided into several steps, including:

- Time from 911 call to time of dispatch
- Time from dispatch to time of arrival of the first unit on scene
- Time from dispatch to time of arrival of the advanced life support (ALS) unit
- Time from dispatch to time of arrival of the transportation unit

Each of these time intervals has an associated response time standard set either by NFPA, or by the SFEMSA based on NFPA standards. Of the cities surveyed, the NFPA standards were consistently mentioned as the adopted city targets. Every case study city that has adopted response time goals has crafted those firefighting service targets around the NFPA response time standards (see Table 25), adjusting them as necessary to account for city-specific geographical or planning constraints. For example, San Diego's fire department aims to respond to 90% of emergency calls in less than 5 minutes. San Jose, by contrast, aims for less than 8 minutes 80% of its incidents.<sup>129</sup> The proposed metric for San Francisco's fire department services is based on these well-established response time standards.

In recent years, the fastest growing demand within SFFD has been for EMS services. From 2007 to 2018, the number of EMS calls grew 56%, from 76,673 in 2007 to 119,732 in 2018. 2019 is on track to exceed 2018, with 83,756 EMS calls logged as of September 9, 2019.<sup>130</sup> EMS services are distributed throughout San Francisco by having ambulances staffed with paramedics parked at "posting locations", with ambulances distributed more heavily in certain areas based on anticipated need (for example, large events such as major concerts typically result in more EMS calls in the event's vicinity, and would require heavier staffing at nearby posting locations).

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<sup>129</sup> See Table 25

<sup>130</sup> Email from Jesus Mora, SFFD, September 9, 2019

Figure 24 shows the potential posting locations across the City. In addition, SFFD currently has a devoted ambulance deployment center, located in the Bayview district.<sup>131</sup>

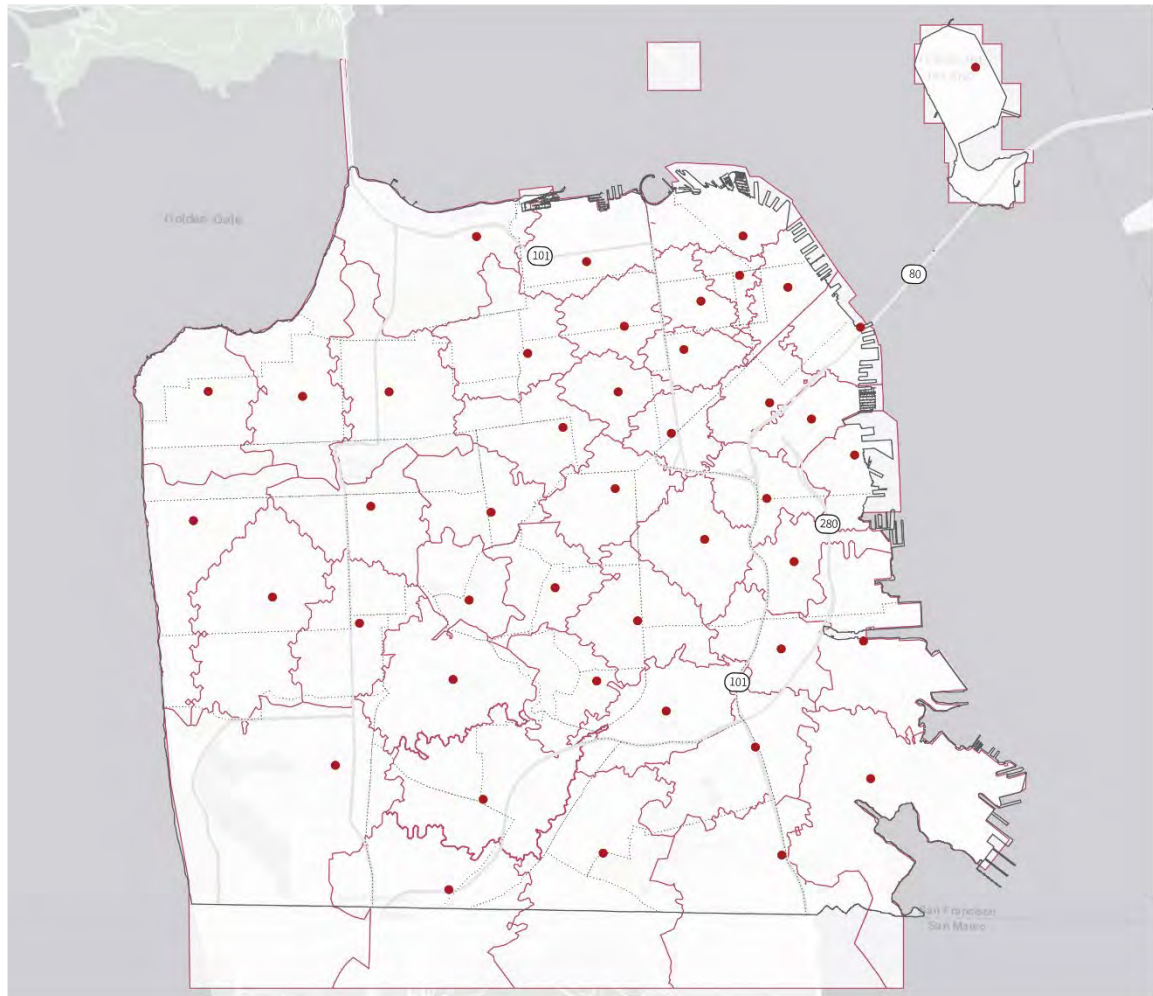
Each of San Francisco's 44 fire department facilities has its own service area within the City. Figure 23 shows the service area of each fire station. This analysis focuses on the fire station level, as well as the citywide picture.

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<sup>131</sup> Meeting with SFFD staff, September 6, 2019



FIGURE 23: DISTRIBUTION OF FIRE DEPARTMENT FACILITIES



Source: San Francisco Fire Department

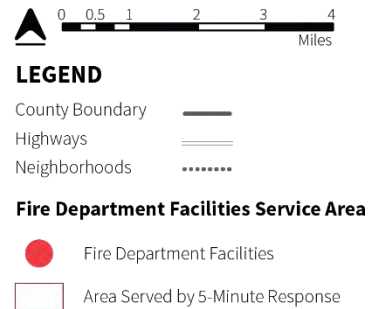




FIGURE 24: AMBULANCE POSTING LOCATIONS



Total Number of Ambulance Posting Locations 16

Source: SFFD



#### LEGEND

- County Boundary ———
- Highways ———
- Neighborhoods .....

#### Ambulance Locations

- Ambulance Posting Location

## 9.2 Case Study Comparisons

Table 24 compares the gross provision of firefighting infrastructure across case study cities. Firefighting services can be measured per capita, as with most municipal infrastructure, but also per unit of city area (square mile, in this case), as the level of geographic coverage is important as well. Response time standards vary slightly between cities, and response time Levels of Service are typically reported as percent compliance with those varying standards. They are compared in Table 25, along with the comparison of metrics.

TABLE 24: LOS PROVISION COMPARISON – FIREFIGHTING

City	Fire Department Facilities (total)	Facilities/100,000 Residents <sup>132</sup>	Facilities/Square Mile
San Francisco, CA <sup>133</sup>	44	5.1	0.9
Minneapolis, MN <sup>134</sup>	19	4.6	0.4
San Jose, CA <sup>135</sup>	33	3.2	0.1
San Diego, CA <sup>136</sup>	52	3.7	0.2
Los Angeles, CA <sup>137</sup>	102	2.6	0.2
Vancouver, BC <sup>138</sup>	20	3.2	0.5
Portland, OR <sup>139</sup>	30	4.8	0.2
Seattle, WA <sup>140</sup>	33	4.8	0.4
New York, NY <sup>141</sup>	255	3.0	0.8
Davis, CA <sup>142</sup>	3	4.4	0.3

<sup>132</sup> City population and square mileage data from the US Census Bureau.

<sup>133</sup> Data from SFFD

<sup>134</sup> Minneapolis Fire Department 2016 Annual Report (2016)

<sup>135</sup> City of San Jose Annual Report on City Services 2017-18 (2018)

<sup>136</sup> San Diego Fire-Rescue Department Standards of Response Cover Review (2017)

<sup>137</sup> Los Angeles Fire Department Stations Map (2019)

<sup>138</sup> City of Vancouver: Vancouver Fire Halls (2019); Geographic Information System Emergency Services Response Capabilities Analysis Final Report: Vancouver Fire and Rescue Services (2017)

<sup>139</sup> Portland Fire & Rescue Annual Performance Report (2016)

<sup>140</sup> Seattle Fire Department 2017 Annual Report (2017)

<sup>141</sup> Fire Department, City of New York: Statistics (2017)

<sup>142</sup> City of Davis & UC Davis Shared Fire Management Monthly Performance Report (2014)

City	Fire Department Facilities (total)	Facilities/100,000 Residents <sup>132</sup>	Facilities/Square Mile
Boston, MA <sup>143</sup>	33	4.9	0.7
Santa Monica, CA <sup>144</sup>	4	4.3	0.5
Sacramento, CA <sup>145</sup>	24	4.9	0.2

TABLE 25: LOS METRICS AND SERVICE GOALS – FIREFIGHTING

City <sup>146</sup>	Metric (Response Time Goal)	Level of Service (% Compliance)
San Francisco, CA <sup>147</sup>	Response time of <b>4:30</b> or less to <b>80%</b> of calls	87.6%
Minneapolis, MN	Response time of <b>5</b> minutes or less to <b>90%</b> of calls	83.8%
San Jose, CA	Response time of <b>8</b> minutes or less to <b>80%</b> of calls	71.0%
San Diego, CA	Response time of <b>5</b> minutes or less to <b>90%</b> of calls	77.1%
Los Angeles, CA	None stated	6:30 (average EMS response time)
Vancouver, BC	Response time of <b>4</b> minutes to <b>90%</b> of calls	75.7%
Portland, OR	Response time of <b>5:20</b> or less to <b>90%</b> of calls	60.5%
Seattle, WA	Response time of <b>4</b> minutes or less to <b>90%</b> of calls	77.0%
New York City	None stated	6:44 (average response time for life threatening medical emergencies)

<sup>143</sup> Mayor of Boston's Quarterly Performance Report (2011); Boston CityScore (2019)<sup>144</sup> Santa Monica Fire Department Dispatch Evaluation Project (2009); City of Santa Monica, Sustainable Santa Monica (2014)<sup>145</sup> City of Sacramento Fire Department, Fire Department Standards of Response Cover Review (2016); Sacramento Metropolitan Fire District - Metro Fire Revenue-to-Service Review (March 2014)<sup>146</sup> Sources the same as prior table<sup>147</sup> Email from Jesus Mora, SFFD, September 12, 2019

City <sup>146</sup>	Metric (Response Time Goal)	Level of Service (% Compliance)
Davis, CA	None stated	90.5% in under 5 minutes on the UC campus 72.1% in under 5 minutes in the City of Davis
Boston, MA	Response time of 4 minutes or less to 90% of calls	71.0%
Santa Monica, CA	Response time of 4 minutes or less to 90% of calls	70.0%
Sacramento, CA	Response time of 4 minutes or less to 90% of calls	55.0%

### 9.3 Level of Service Metrics

As previously discussed, the standard metric for measuring fire suppression and EMS services is response time. However, response time represents a combination of capital facilities and operations provision. In order to measure just the provision of infrastructure, the metric for fire department services is:

- Fire Department Facilities per 1,000 Service Population Units (SPU)

#### 9.3.1 Fire Stations per 1,000 SPU

TABLE 26: FIRE STATIONS PER CAPITA – LOS PROVISION, GOAL, AND TARGET

LOS Measure	Value	Source
<b>Current Citywide Provision</b>	0.034 fire department facilities per 1,000 SPU	Data on Fire Department Facilities and their service areas provided by SFFD. Population and Employment data from SF Planning.
<b>Short-Term Target</b>	Maintain 0.034 fire stations per 1,000 SPU	Meeting with SFFD staff on September 6, 2019.
<b>Long-Term Aspirational Goal</b>	Maintain 0.034 fire stations per 1,000 SPU	Meeting with SFFD staff on September 6, 2019.

This metric measures the provision of fire department facilities in San Francisco, relative to the size of the population those facilities need to serve. As Table 24 shows, San Francisco has a high level of service by this measure relative to case study cities. For this reason, both the short-term target and long-term aspirational goal are to maintain the current Level of Service.

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#### 9.3.1.1 Forecasted Demand

San Francisco's current population and employment projections predict that the City will add roughly 100,000 SPU by 2025, and an additional 200,000 SPU by 2040 (313,000 total SPU growth by 2040). In order to maintain the current LOS for fire department facilities per 1,000 SPU, San Francisco would need to add 3 new facilities by 2025, and a further 7 new facilities by 2040, for a total of 10 new fire department facilities by 2040 to maintain current conditions.

San Francisco's Emerging Southeast Initiative: Southeast Framework calls for adding a new fire department facility at the Hunters Point Shipyard in the Bayview neighborhood. Increasing fire department capital facilities could take the form of new stations, increasing capacity at existing stations, or increasing the stock of citywide infrastructure such as new fire engines and ambulances.

FIGURE 25: FIRE DEPARTMENT FACILITIES PER CAPITA

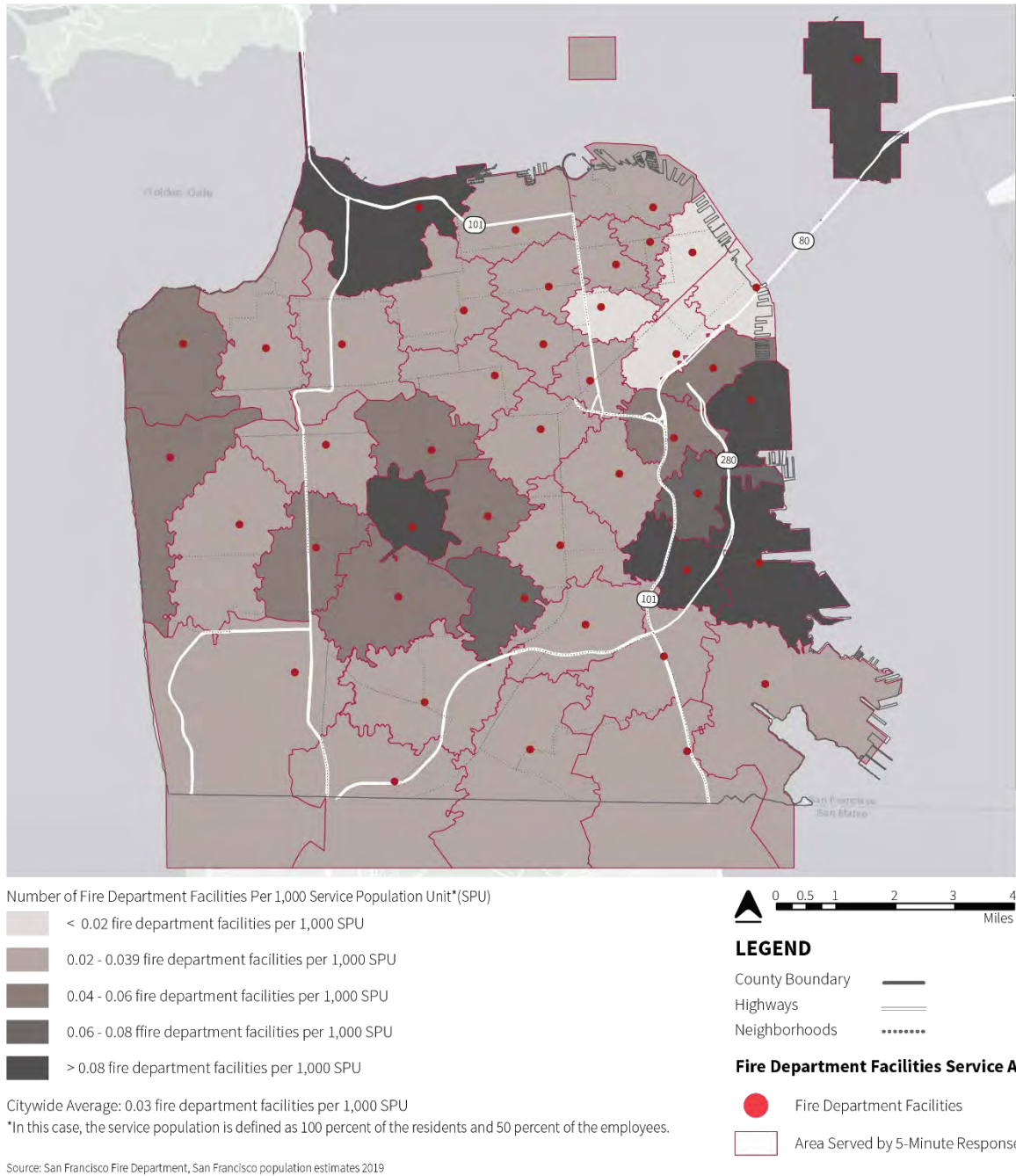




FIGURE 26: FIRE DEPARTMENT SERVICE AREAS AVERAGE EMERGENCY RESPONSE TIME

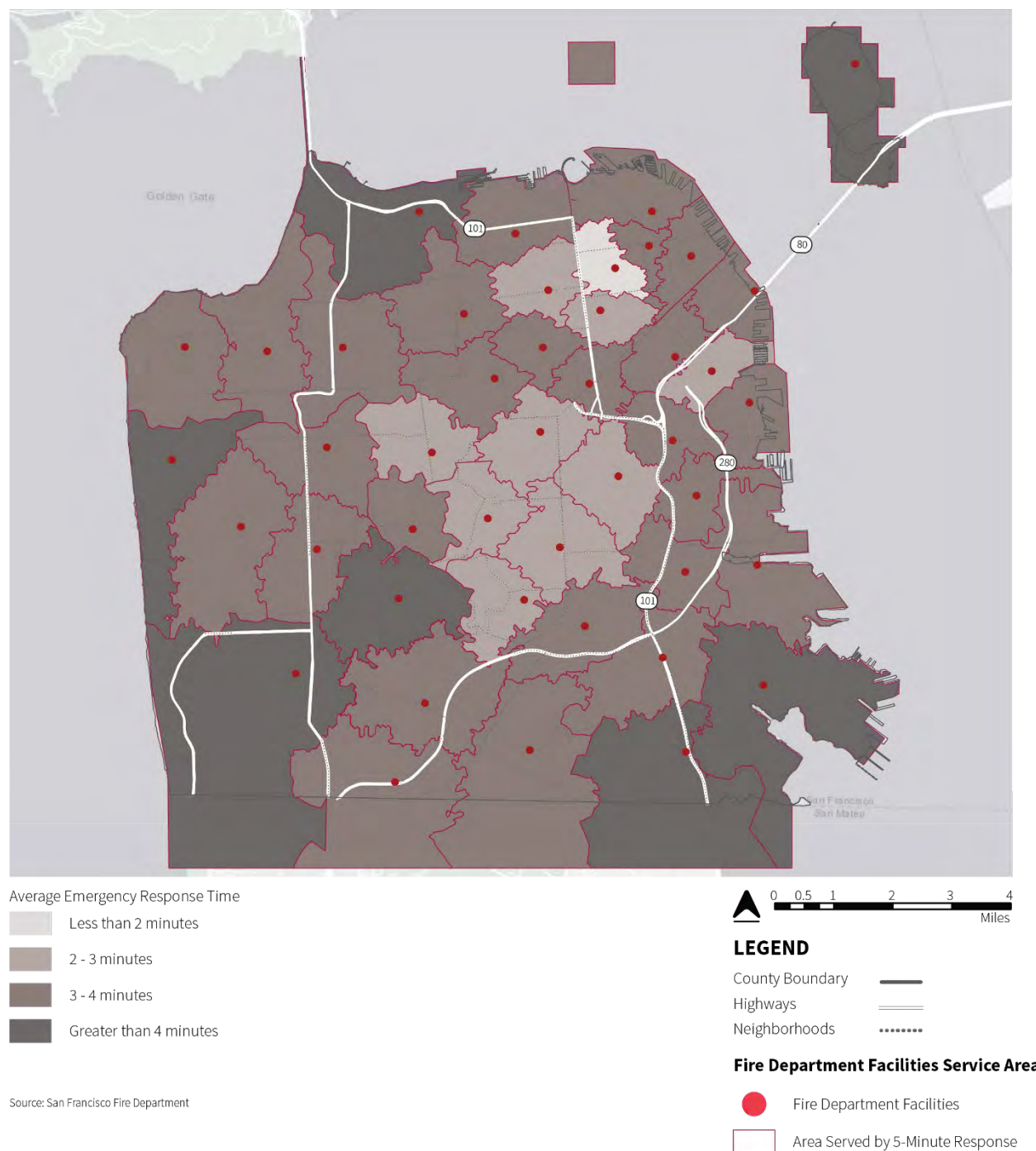
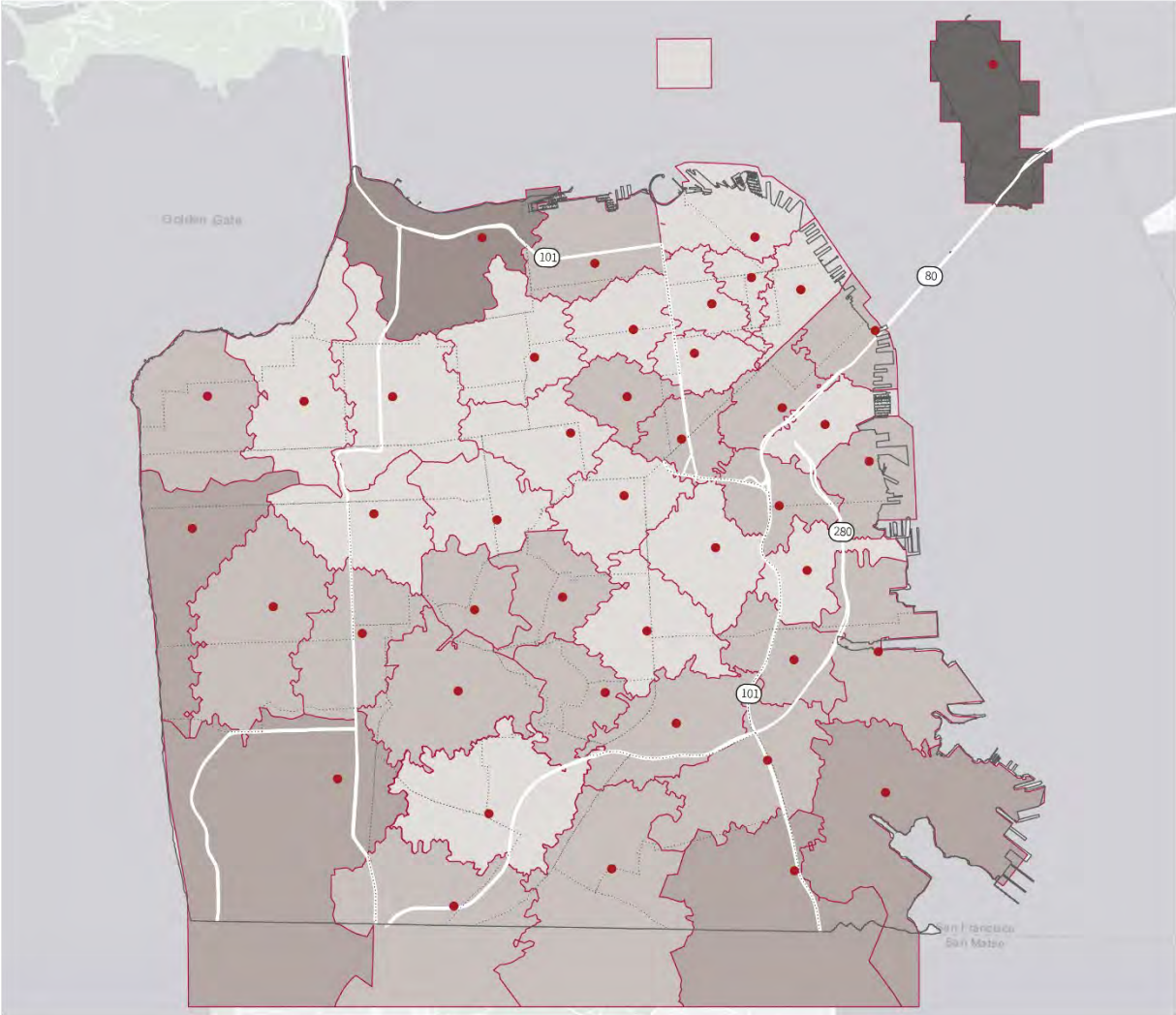


FIGURE 27: FIRE DEPARTMENT SERVICE AREAS 90<sup>TH</sup> PERCENTILE EMERGENCY RESPONSE TIME



90th Percentile Emergency Response Time

- Less than 5 minutes
- 5 - 6 minutes
- 6 - 7 minutes
- 7 - 8 minutes
- 8 - 9 minutes
- Greater than 9 minutes

Source: San Francisco Fire Department



**LEGEND**

- County Boundary
- Highways
- Neighborhoods

**Fire Department Facilities Service Area**

- Fire Department Facilities
- Area Served by 5-Minute Response



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## 10 Socio-Economic Analysis

### 10.1 San Francisco Recreation and Park Department Equity Zones

San Francisco Recreation and Park Department (SFRPD) has a set of equity metrics that are used to establish a baseline of existing recreational and open space infrastructure and resources in equity priority communities<sup>148</sup>, compared to services and resources available to the City as a whole, to guide more equitable distribution. Equity priority communities are defined based on census tracts that are scored using population characteristics such as income and pollution burden.<sup>149</sup> For this analysis, equity priority communities were defined using SFRPD-defined equity zones from the Strategic Plan 2016-2020..

Figure 28 examines city-owned open space per 1,000 service population units where equity priority communities reside. Each equity zone is highlighted, showing the LOS of the neighborhood in which it resides. The analysis shows that equity priority communities near John McLaren Park (on the south side of the City) and on Treasure Island generally have access to a fair amount of open space, but equity priority communities near the financial district tend to have access to less open space.

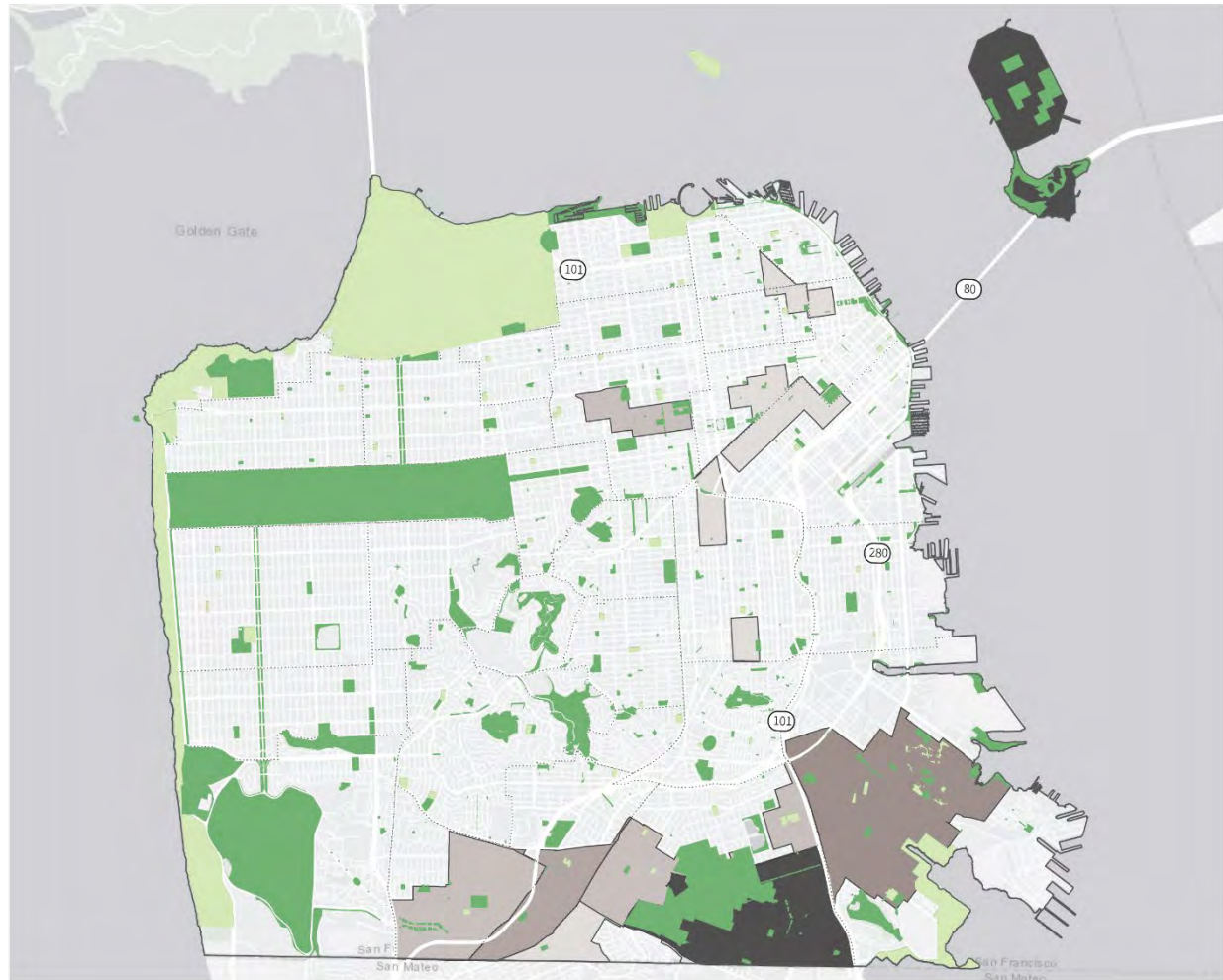
Figure 29 shows walking access to open space for equity priority communities. As discussed earlier in this report, the entire City is within a 10-minute walk of open space, so this map only examines whether communities are within a 5-minute walk. Overall, equity priority communities in the south parts of San Francisco are more likely to be greater than a 5-minute walk away from open space than those residing in other parts of the City.

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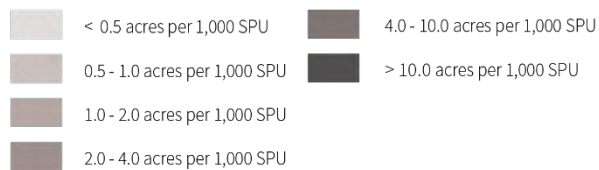
<sup>148</sup> Equity priority communities is a preferred term to be used to describe the various populations that require targeted or focused strategies to advance the City's racial and social equity work.

<sup>149</sup> CalEnviroScreen (CES) offers the standard.

FIGURE 28: CITY-OWNED OPEN SPACE PER 1,000 SPU, BY NEIGHBORHOOD (2018) RELATIVE TO VULNERABLE POPULATION



City-Owned\* Open Space Per 1,000 Service Population Unit\* (SPU)



City-owned open space: 3,844 acres

Citywide Average: 3.0 acres per 1,000 SPU

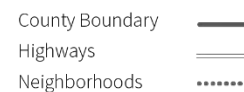
\*City-owned open space includes open space controlled by SFRPD, SFDPW, the Port, SFMTA, SFPL, SFPUC, OCII, TIDA, and TJPA.

\*\*The service population unit is calculated based on a 1:0.5 ratio between residents and employees

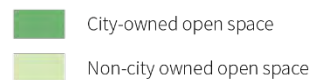
Vulnerable populations were defined using the San Francisco Recreation and Parks Department-defined Equity Zones. These are defined in the Strategic Plan 2016-2020 as low income neighborhoods and disadvantaged communities, compared to services and resources available in the City as a whole.



#### LEGEND

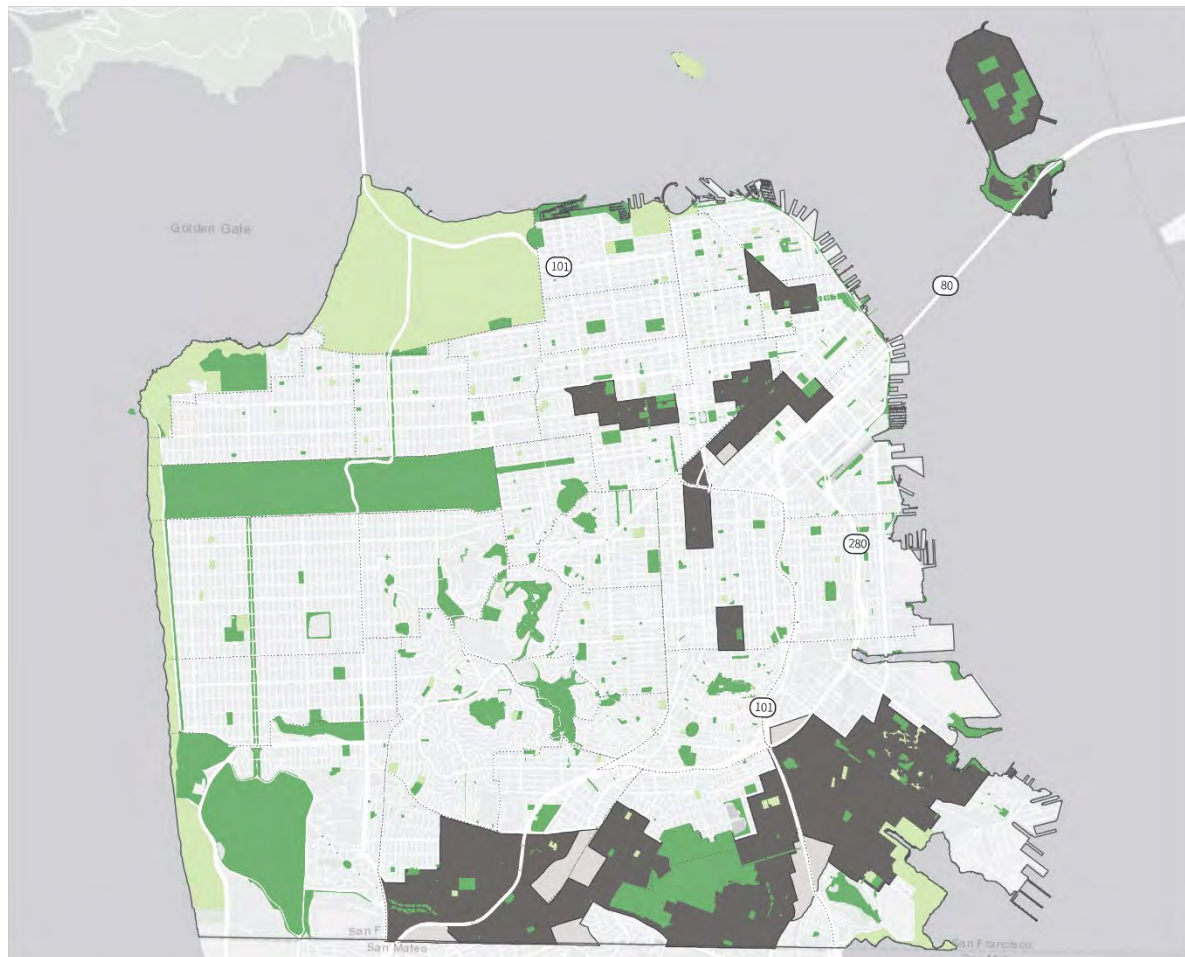


#### Open Space by Ownership



Source: San Francisco Recreation and Park Department, City Parks 2018, San Francisco Recreation and Park Department Equity Zones 2018

FIGURE 29: PROXIMITY OF RESIDENTS TO OPEN SPACE RELATIVE TO VULNERABLE POPULATION



Proximity of Service Population to Recreation and Open Space

- Within 5 minutes walk
- 5 to 10 minutes walk

The walking network for the City of San Francisco was obtained from Open Street Map as a series of nodes and a database of distances and connections between nodes. "Node" refers to any intersection of two or more paths. Any node located inside of or next to (within 50 feet of) a park was set as a Point of Interest (POI), and then the network distance from each node to the nearest POI was calculated based on the database of distances and connections between nodes (as opposed to "as the crow flies"). Finally, each analysis zone was assigned the average walking distance of the nodes within its boundaries.

Vulnerable populations were defined using the San Francisco Recreation and Parks Department-defined Equity Zones. These are defined in the Strategic Plan 2016-2020 as low income neighborhoods and disadvantaged communities, compared to services and resources available in the City as a whole.

Source: San Francisco Recreation and Park Department, San Francisco Open Street Map, City Parks 2018, San Francisco population estimates 2019, San Francisco Recreation and Park Department Equity Zones 2018



#### LEGEND

- County Boundary
- Highways
- Neighborhoods

#### Open Space by Ownership

- City-owned open space
- Non-city owned open space

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## 10.2 Equity Priority Communities

The Metropolitan Transportation Commission (MTC) designates Equity Priority Communities (formerly communities of concern<sup>150</sup>) for the entire Bay Area, including San Francisco. The determination considers eight disadvantage factors: minority residents, low-income residents, residents who do not speak English well or at all, households with no car, senior residents (at or over age 75), persons with disabilities, single-parent households, and cost-burdened renters. These areas include a diverse cross-section of populations and communities that could be considered disadvantaged or vulnerable, both in the present and the future. Equity priority communities include all census tracts that have a concentration of both minority and low-income households at 70% and 30% of all households, respectively, or that have a concentration of three or more of the six other factors.<sup>151</sup> Note that equity priority communities boundaries change over time, and the most current boundaries can be found on the San Francisco County Transportation Authority website.<sup>152</sup>

Figure 30 examines the percent of demand for infant and toddler (0-2) child care that can be met by existing slots in neighborhoods where equity priority communities reside. Approximately 16% of infant and toddler care need, on average, can be served through available licensed slots in equity priority communities. The citywide number is 19%. Figure 31 examines the same thing for preschool-aged (3-4) child care. Approximately 77% of preschool care demand, on average, can be served through available licensed slots in Equity Priority Communities. The citywide number is 88%.

Figure 32 shows the miles of premium (class I, class II, and IV) bike lane per capita in neighborhoods where equity priority communities reside. There are less than 0.25 miles of premium bike lane available per 1,000 service population units (SPU) in equity priority communities, lower than the citywide average of 0.58 miles per 1,000 SPU.

Figure 33 illustrates resident population per closest branch library in equity priority communities. There are approximately 40,000 residents per closest branch library in Equity Priority Communities, higher than the citywide average of 32,188 residents. Note that this metric treats the main library as a citywide asset and does not count it as a branch library.

Figure 34 examines the fire department service areas' average emergency response time in equity priority communities. The analysis shows that the average response time is slower in equity priority communities than citywide; average response time for equity priority communities is 4.07 minutes, while the citywide number is 3.44 minutes.

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<sup>150</sup> The term 'communities of concern' has changed since the analysis presented in this Report was completed. The report uses the term 'equity priority communities' where appropriate but as the analysis in this Report was completed prior to the term being changed, some references to 'communities of concern' are still included throughout the Report where necessary, including in some maps, figures, and footnotes.

<sup>151</sup> Bay Area Metro, Spatial Analysis Mapping Projects, MTC Communities of Concern. <https://github.com/BayAreaMetro/Spatial-Analysis-Mapping-Projects/tree/master/Project-Documentation/Communities-of-Concern>.

<sup>152</sup> The website can be found here: <https://www.sfcta.org/policies/equity-priority-communities>.



FIGURE 30: SHARE OF INFANT AND TODDLER (0-2) CHILD CARE DEMAND SERVED BY AVAILABLE LICENSED SLOTS RELATIVE TO EQUITY PRIORITY COMMUNITIES

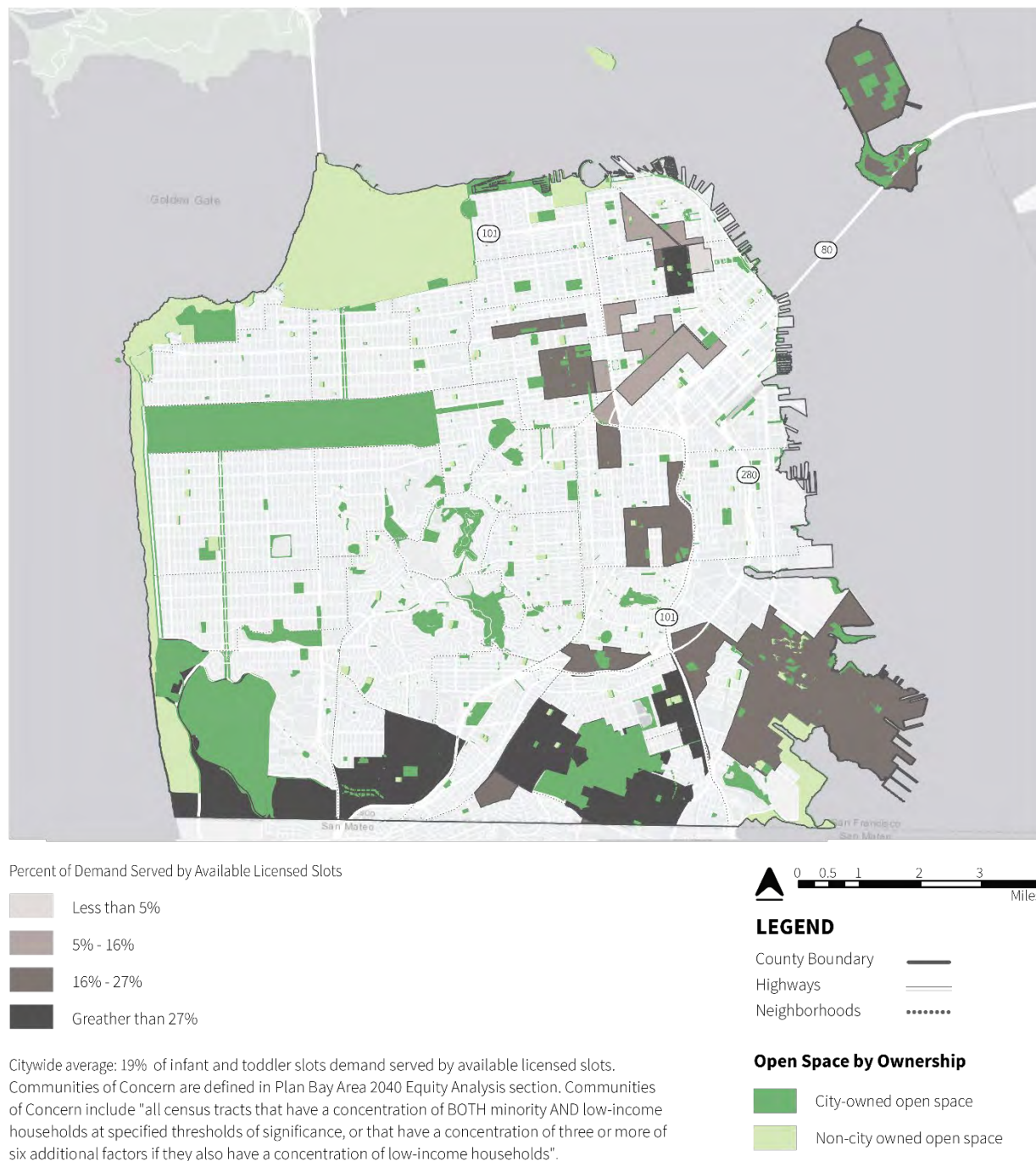
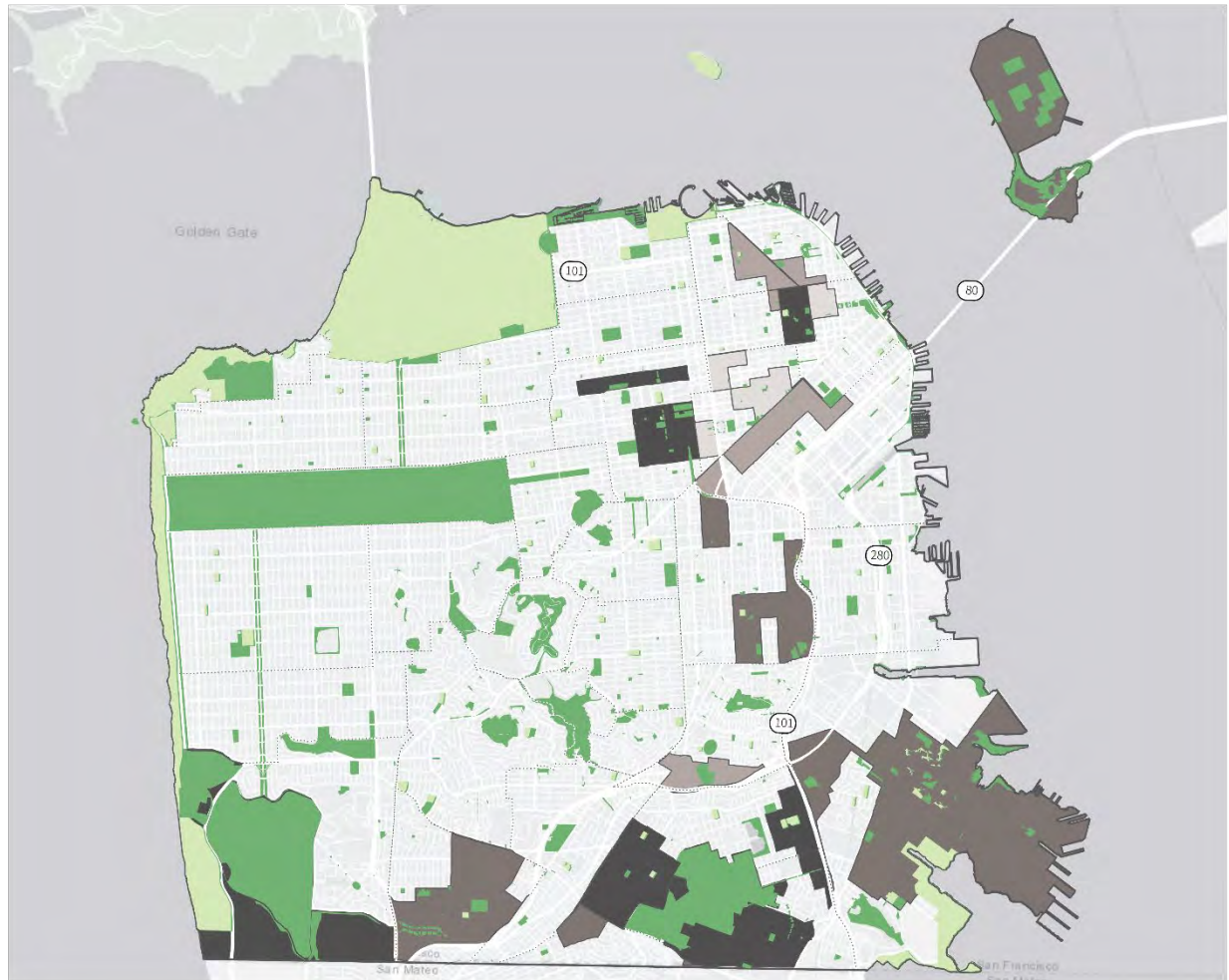
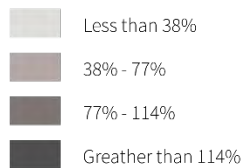


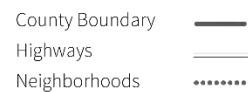
FIGURE 31: SHARE OF PRESCHOOL-AGE (3-4) CHILD CARE DEMAND SERVED BY AVAILABLE LICENSED SLOTS RELATIVE TO EQUITY PRIORITY COMMUNITIES



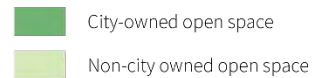
Percent of Demand Served by Available Licensed Slots



#### LEGEND



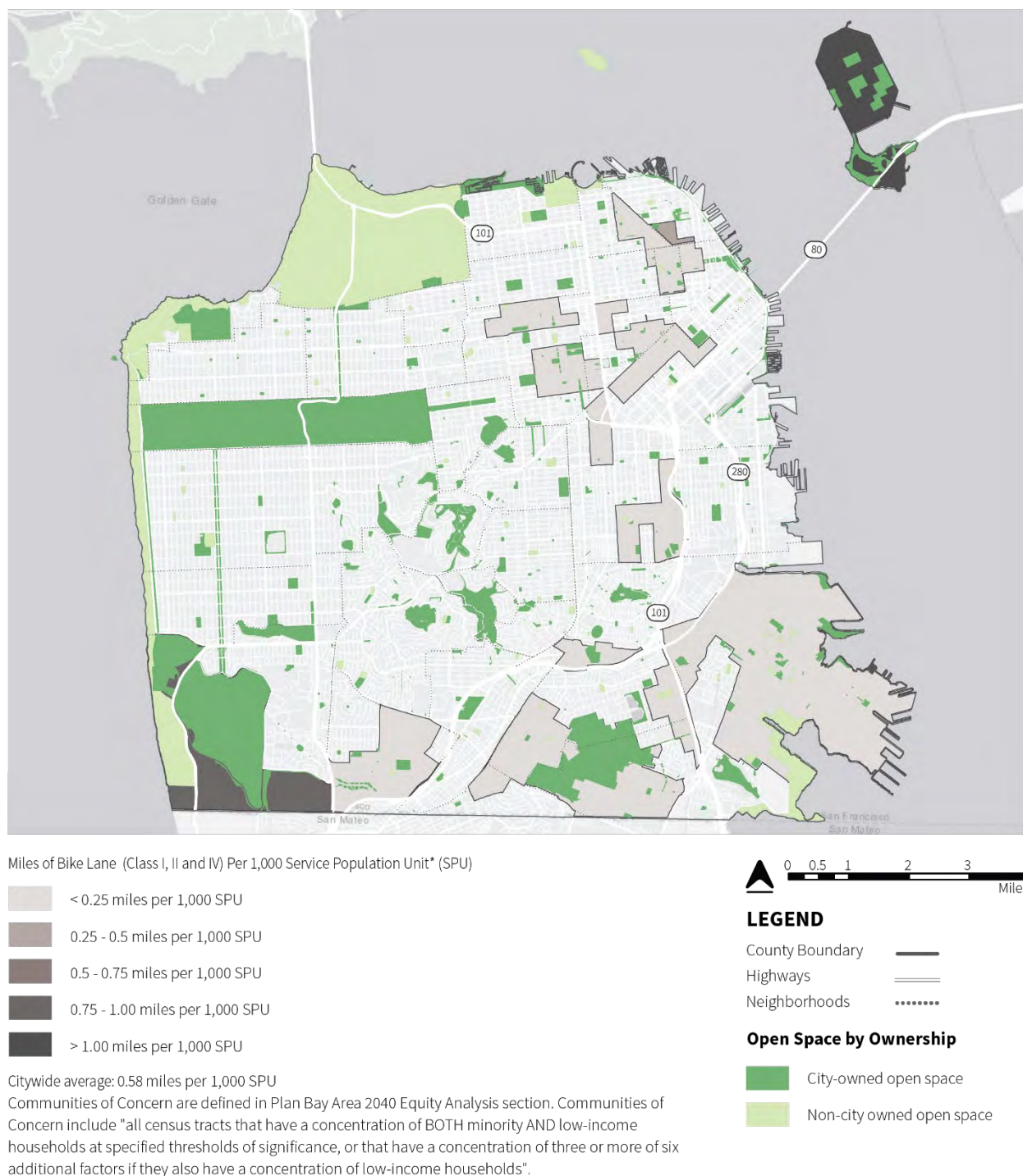
#### Open Space by Ownership



Citywide average: 88% of preschool age children demand served by available licensed slots. Communities of Concern are defined in Plan Bay Area 2040 Equity Analysis section. Communities of Concern include "all census tracts that have a concentration of BOTH minority AND low-income households at specified thresholds of significance, or that have a concentration of three or more of six additional factors if they also have a concentration of low-income households".

Source: San Francisco Human Services Agency, San Francisco Early Care and Education Needs Assessment (2017), San Francisco Infrastructure Level of Service Analysis (2014), SFCTA Communities of Concern

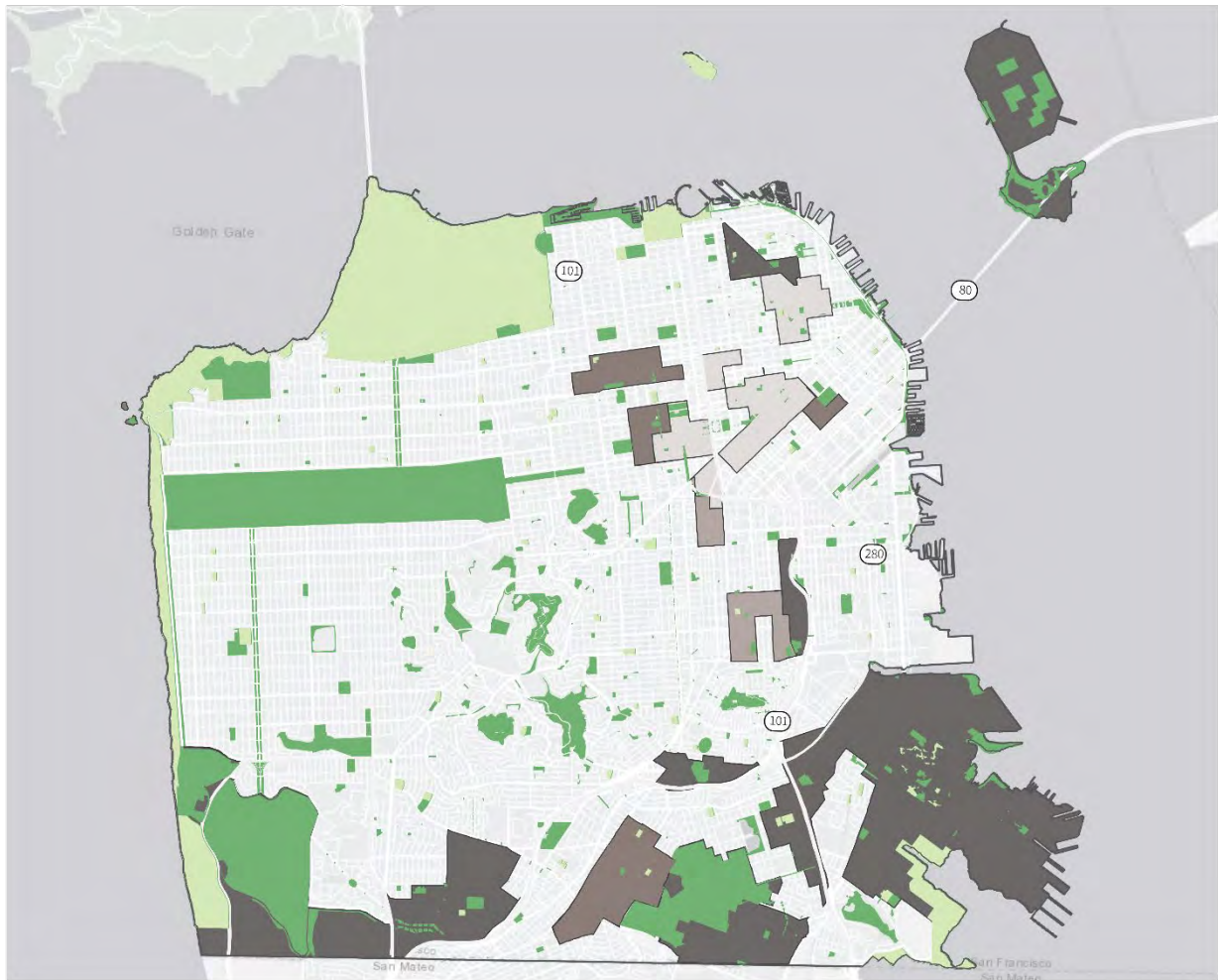
FIGURE 32: MILES OF PREMIUM CLASS (I, II AND IV) BIKE LANES PER CAPITA RELATIVE TO EQUITY PRIORITY COMMUNITIES



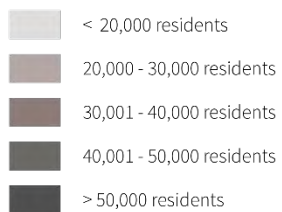
Source: SFMTA Bikeway Network, SF Planning 2019 population estimates, SFCTA Communities of Concern



FIGURE 33: RESIDENT POPULATION TO THE NEAREST LIBRARY RELATIVE TO EQUITY PRIORITY COMMUNITIES



Residents per closest San Francisco Public Library



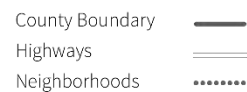
Citywide Average: 32,188 residents overall per library

Communities of Concern are defined in Plan Bay Area 2040 Equity Analysis section. Communities of Concern include "all census tracts that have a concentration of BOTH minority AND low-income households at specified thresholds of significance, or that have a concentration of three or more of six additional factors if they also have a concentration of low-income households".

San Francisco Public Library, San Francisco population estimates 2019, SFCTA Communities of Concern



#### LEGEND



#### Open Space by Ownership

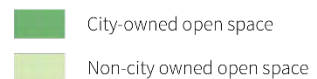
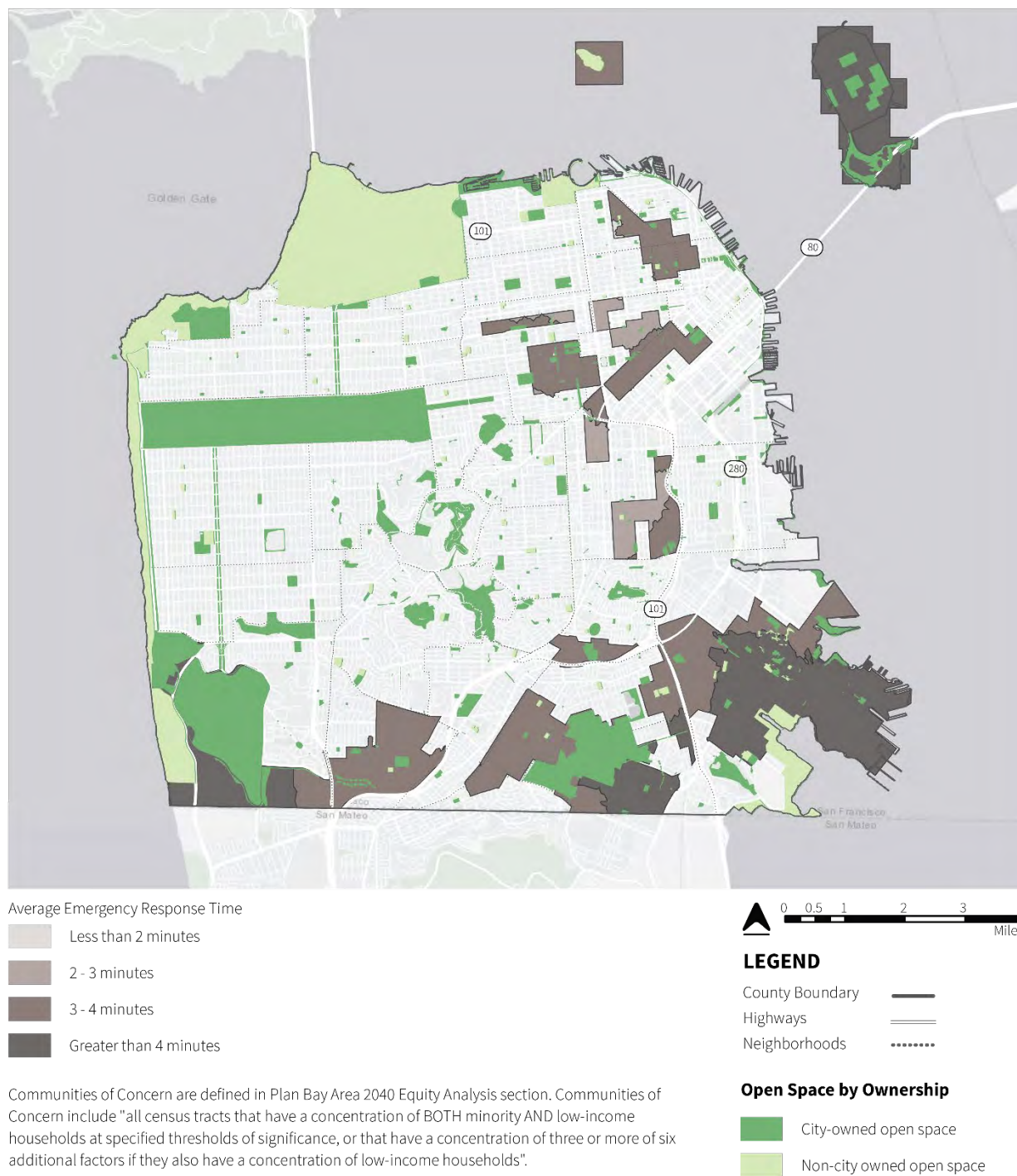




FIGURE 34: FIRE STATIONS AVERAGE EMERGENCY RESPONSE TIME RELATIVE TO EQUITY PRIORITY COMMUNITIES



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## 11 Appendices

### 11.1 Service Population Definitions

In order to estimate the usage of City infrastructure categories, infrastructure provision is measured on a per service population basis. Service population includes City residents and a share of employees. Employees are discounted because they spend less time in the City (as an employee) than residents (or as a resident, in the case of individuals who both live and work in San Francisco). Generally, employees are discounted by 50%, because they spend about half the day at work.

Some infrastructure categories do not use this standard assumption. For child care and transit, demand is calculated directly, and no service population is used. And for libraries, only residents are counted (no employees). Table 27 illustrates how service population is defined for each infrastructure category.

TABLE 27: SERVICE POPULATION DEFINITIONS BY INFRASTRUCTURE CATEGORY

Infrastructure Category	Service Population
Recreational and Open Space	100% of residents plus 50% of employees
Child Care Facilities	Not Applicable
Complete Streets	100% of residents plus 50% of employees
Transit Infrastructure	Not Applicable
Library Facilities	100% of residents
Fire Department Facilities	100% of residents plus 50% of employees

### 11.2 Citywide and Neighborhood Policy Documents

#### 11.2.1 Task Description

This report provides a review of the City and County of San Francisco's (City) existing plans and studies pertinent to San Francisco's infrastructure level of service and development fee program. Hatch reviewed the existing adopted studies, their methodology and assumptions, and identifies preliminary recommendations for modifications to the standards for the update of the infrastructure level of service and nexus studies. Target fees are considerably higher than actual fees charged to the developer.

#### 11.2.2 Documents Reviewed

Table 1 below lists the planning documents and studies reviewed for this report and indicates the specific level of service standard described in the document and evaluated herein.

TABLE 28 : REFERENCE DOCUMENTS REVIEWED

Reference Document	Year Published	Infrastructure Type
San Francisco Citywide Nexus Analysis and Infrastructure Level of Service Analysis (Citywide Nexus Analysis)	2014	Bicycle Childcare Parks and open space Pedestrian and Streetscape Infrastructure Transit
Transportation Sustainability Fee (TSF)	2015 (Updated 2017)	Transit
Transit Center District Plan (TCDP)	2009	All categories for the downtown area
Recreation and Open Space Element (ROSE)	2012	Parks and open space
San Francisco Recreation and Park Department Acquisition Policy	2011	Parks and open space
Better Streets Plan	2011	Street, pedestrian, bicycle, and transit
ConnectSF	2018	Street, pedestrian, bicycle, and transit
San Francisco Transportation Plan	2013	Street, pedestrian, bicycle, and transit
San Francisco Transportation 2045 Task Force Report	2018	Street, pedestrian, bicycle, and transit
SFMTA Strategic Plan	2018	Street, pedestrian, bicycle, and transit
Transportation Climate Action Strategy	2017	Street, pedestrian, bicycle, and transit

Source: Hatch, 2019.

### 11.2.2.1 San Francisco Citywide Nexus Analysis

Facility Type	Metrics	2014 Level of Service	2014 Short-Term Target
Recreation and Open Space	Acres of City-Owned Open Space per 1,000 Service Population Units	4.0	4.0
Childcare	% of Childcare Demand Served by Available Licensed Slots	37% (infant & toddler), 99.6% (preschool)	37% (infant & toddler), 99.6% (preschool)
Streetscape and Pedestrian Infrastructure	Square feet of sidewalk/improved sidewalk space per service population unit	103	88 of improved sidewalk <sup>153</sup>
Bicycle Infrastructure	(1) Number of Premium Network Miles, (2) Number of Upgraded Intersections, (3) Number of Bicycle Parking Spaces, and (4) Bicycle Share Program	(1) 51 miles, (2) 3 intersections, (3) 8,800 spaces, and (4) 0 stations & 0 bicycles	(1) 61 miles, (2) 13 intersections, (3) 12,800 spaces, and (4) 50 stations & 500 bicycles
Transit Infrastructure	(1) Transit Crowding (% of boardings relative to capacity), and (2) Transit Travel Time (Average Minutes per Trip)	(1) N/A, and (2) 33.72 minutes	(1) 85%, and (2) 33.6 minutes

The Citywide Nexus Analysis completed in 2014 evaluated five facility types – recreation and open space, childcare, streetscape and pedestrian infrastructure, bicycle infrastructure, and transit infrastructure. The nexus study applied citywide level of service goals established in the level of service analysis and estimated infrastructure demand based on the short-term level of service goal.

#### 11.2.2.1.1 Fee structure by land use and service population density calculators

The nexus study distributed those costs between residential and non-residential applying a single average household size and employment density. In other words, there's no distinction by unit size or unit type regarding the average number of persons per housing unit and there's no variation among non-residential structures on the average employment density. This means that PDR and office have the same assumed employment densities.

For most citywide infrastructure categories, the nexus applied service population ratio where one resident represents one service population unit and one employee represents 0.5 service population unit. The

<sup>153</sup> See Section 11.2.2.1.3.3 for a broader definition of the term “improved sidewalk”.

exception is in park and open space where the study referenced a Phoenix park usage study which estimated 0.19 factor for employees, accounting for their lower propensity of park usage.

#### 11.2.2.1.2 Parks and Open Space

Parks and open space calculators were based on the short-term expansion of park capacity, maintain the level of service. This may need to be reconsidered as it will be difficult to acquire a lot of new land for open space, especially in the Downtown. The parks and open space cost calculators did not include land acquisition costs.

#### 11.2.2.1.3 Streetscape and Pedestrian Infrastructure

##### 11.2.2.1.3.1 Description of Facilities

Streetscape and pedestrian infrastructure includes sidewalk 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.

##### 11.2.2.1.3.2 Level of Service Standard

The previous LOS standard was expressed as improved sidewalk space per capita and estimated at 88 square feet (sq. ft.) per capita. The assumptions used to calculate the LOS are presented below in Table 29.

TABLE 29: PEDESTRIAN AND STREETScape INFRASTRUCTURE LOS STANDARD

	Improved Sidewalk (sq. ft.)		Service Population		LOS Standard (sq. ft. per capita)
<b>Metric</b>	115 million	÷	1,301,049	=	88
<b>Description</b>	Existing (2013) improved sidewalk space citywide		Future (2030) citywide service population. Employment numbers are discounted by ½ to account for decreased demand compared to residential demand		Future LOS assuming no increase in sidewalk space above 2013

Source: San Francisco Citywide Nexus Analysis, 2014.

As shown in Table 29, the LOS standard calculation used existing (2013) improved sidewalk space but future (2030) service population. This methodology accounts for the limited opportunities to expand sidewalks, which results in a decrease in the LOS standard as service population grows. Although sidewalk widening could occur in some areas, capital improvement strategies are likely to prioritize improvements of existing sidewalks through the addition of streetscape and pedestrian amenities.

The Transbay Center District Plan (TCDP) calls for removal of roadway lanes in response to increased transit and pedestrian activity in the area. The Plan does not specify if the downtown fee fully accounts for the additional construction costs and associated complexity of converting existing roadway to pedestrian and bicycle right-of-way.

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#### 11.2.2.1.3.3 Design Standard & Cost Assumptions

A design standard was established to calculate the cost of maintaining the LOS standard and to determine the maximum justified impact fee. The design standard was based on the average cost across five “typical” street improvement scenarios developed in response to the Better Streets Plan (BSP). The approach identified the streetscape and pedestrian infrastructure costs by removing the roadway elements of the scenarios, yielding an average cost to construct a square foot of ‘improved sidewalk.’<sup>154</sup> Modifications were made to the scenarios to be conservative and avoid potential double counting between the nexus fee and the urban design requirements of Section 138.1 of the San Francisco Planning Code.

#### 11.2.2.1.4 Recommendations

Based on the evaluation of the existing LOS for pedestrian and streetscape infrastructure and the design standard and cost assumptions, the following recommendations are provided for improving this LOS standard.

- Expand the pedestrian and streetscape LOS standard to include bicycle infrastructure. The existing bicycle LOS is relatively low. Combining the pedestrian/streetscape and bicycle infrastructure types into a single category would provide more flexibility on adopted fee levels and the use of fee revenue.
- Update the design standard to include bicycle infrastructure. Include right-of-way pavement costs and associated improvements for all existing Class I, II, III, and IV bicycle routes in the city.
- Update the design standard and cost assumptions for existing pedestrian and streetscape infrastructure based on capital asset inventory estimates of existing components such as pedestrian signals, street trees, bulb-outs, lighting, and landscaping, while addressing any double-counting based on other requirements of the City’s Planning Code. Rather than using a design standard based on improvement scenarios, this approach would improve defensibility of the fee by basing it on the existing infrastructure standard.
- Define the downtown area where the City plans to convert automobile right-of-way to the use of bicycle, pedestrian, and/or transit infrastructure.
- Work with the City’s legal counsel to resolve any duplication between the fee and related development standards.
- Per the scope of work, Hatch will perform a survey of park usage in San Francisco. This will provide the City with a more direct and current estimate of how employees use parks in the city.
- Create three land use categories based on analysis on subcategories: Residential, Commercial, and PDR.

#### 11.2.2.2 Transportation Sustainability Fee

The Transit Sustainability Fee (TSF) included three components, each with their own LOS standard – transit capital maintenance, transit capital facilities, and complete streets. In addition, the TSF Nexus Study included an overarching LOS analysis to demonstrate the impact of development and the need for additional transit facilities and services. The LOS analysis showed that without the transit services and facilities to be fully or partially funded by the TSF, transit service in San Francisco would become increasingly overcrowded, diminishing the performance of the City’s transportation system and San Francisco Municipal Transportation

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<sup>154</sup> The cost estimates were provided by the San Francisco Department of Public Works.

Agency staff conducted an analysis of overcrowding using SF-CHAMP model output for existing (2012) and 2040 conditions.

The 2040 projection considered a “no build” analysis that only included transit capital projects anticipated to be completed without funding from the TSF (such as the Central Subway), thereby demonstrating the impact of development and need for TSF funding. As shown in Figure 35, the number of passengers on overcrowded routes would increase from 2010 to 2040 by approximately 6,500 passengers during the morning and afternoon peak periods. When transit reaches capacity, commuters that would have taken transit are unable to and thus they chose to drive, exacerbating congestion.

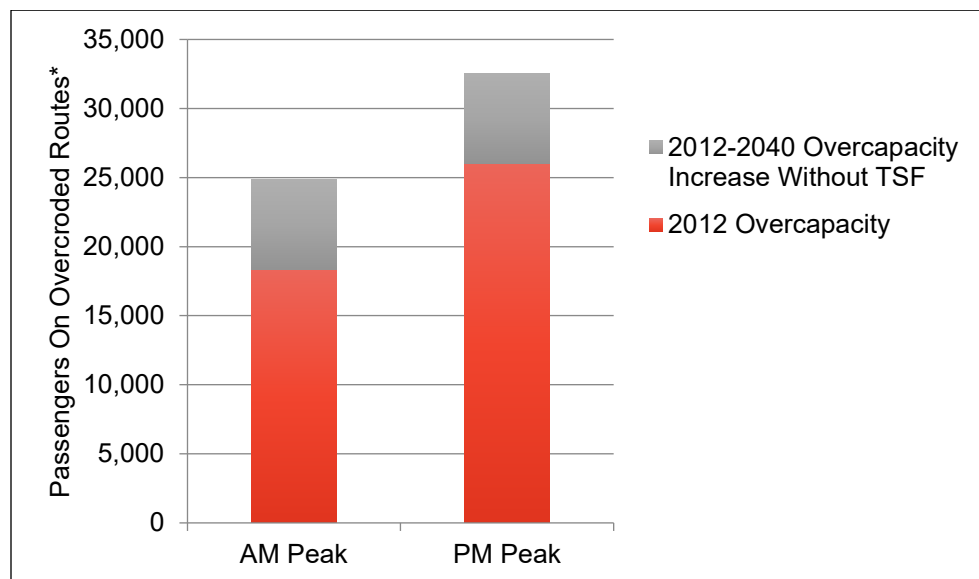


FIGURE 35: FUTURE SCENARIO WITHOUT THE USE OF TSF, SHOWING TRANSIT PASSENGERS ON OVERCAPACITY ROUTES

Note: "Overcapacity" is greater than 85% occupancy with passengers measured at maximum load point on each route.

Source: San Francisco Municipal Transportation Agency, personal communication summarizing analysis of SF-CHAMP model output, MLP Loads & % Contribution.xls, August 29, 2015.

#### 11.2.2.2.1 Transit Capital Maintenance Component

##### 11.2.2.2.1.1 Description of Facilities

The transit capital maintenance component of the TSF may be used for any operating cost that directly supports increased transit service. The 2015 TSF nexus study noted that the SFMTA anticipates using fee revenues solely for direct preventative capital maintenance costs that increase transit service. Fee revenues may not fund capital facilities costs to avoid double counting with the transit capital facilities component of the TSF, nor costs in the two categories excluded the design standard cost assumptions: non-vehicle maintenance costs and general administration.

##### 11.2.2.2.1.2 Level of Service Standard

The existing LOS standard was based on the ratio of the supply of transit services to the level of transportation demand. The assumptions used to calculate the LOS are presented below in Table 30.

TABLE 30: TSF CAPITAL MAINTENANCE COMPONENT LOS STANDARD

Transit Supply (average daily revenue service hours)		Transportation Demand (average daily person trips)		LOS Standard (revenue service hours per 1,000 ADT)
9,474	÷	7,235,000	=	1.31
Existing (2013) transit service		Existing (2013) transportation demand		Existing LOS

#### 11.2.2.2.1.3 Design Standard & Cost Assumptions

A design standard was established to calculate the cost of maintaining the LOS standard and determine the maximum justified impact fee. The design standard was based on (1) the SFMTA annual operating cost (net of non-vehicle maintenance costs, general administration costs, and farebox revenue) per revenue service hour, and (2) the impact fee needed to fund that cost for each new trip from development over a 45-year planning horizon. The cost per revenue service hour excludes non-vehicle maintenance, general administrative, and capital costs because these costs are not directly related to operating costs for expanded transit service. Fare box revenue is deducted because transit system users from new development will pay fares to offset costs.

#### 11.2.2.2.1.4 Recommendations

The methods and approach outlined in previous studies remains adequate, however the following recommendation is noted.

- Update the TSF transit capital maintenance component LOS standard and related design standard and cost assumptions based on the most current data available.

#### 11.2.2.2.2 Transit Capital Facilities Component

##### 11.2.2.2.2.1 Description of Facilities

The transit capital facilities component of the TSF may be used for new or expanded transit capital facilities that support increased transit services, including improved transit vehicle availability.

The TSF Nexus Study identified a range of programs and projects based on various CIP documents, primarily from the SFMTA and San Francisco County Transportation Authority (SFCTA). All programs and projects included in the nexus analysis would provide increased transit service, such as SFMTA transit fleet and facilities expansion, new or upgraded service to increase SFMTA transit speed and reliability, the Transbay Transit Center, and improvements to transit services serving San Francisco by regional transit operators such as BART and Caltrain.

The TSF capital facilities component included bicycle improvements because bicycle infrastructure shift demand away from automobiles and transit thereby relieving auto congestion, improving transit travel times, and reducing transit overcrowding. However, the TSF nexus study stated that funding of bicycle infrastructure would occur solely from the TSF complete streets component (see below) to be consistent with the bicycle, pedestrian, and streetscape infrastructure components of the area plan fees.



#### 11.2.2.2.2.2 Level of Service Standard

Various LOS standards for planning transit capital improvements were used by the SFMTA, SFCTA, BART, and Caltrain to develop the \$6.5 billion CIP used in the nexus analysis. For purposes of the nexus analysis, the LOS standard was reduced to a single cost standard based on the maximum justified level of TSF funding for the Capital Improvement Program (CIP) expressed per trip from new development. The assumptions used to calculate the LOS are presented below in Table 31 and the methodology used to develop the maximum justified amount of TSF funding is described below.

TABLE 31: TSF CAPITAL FACILITIES COMPONENT LOS STANDARD

Maximum Justified TSF Funding		Transportation Demand ( <i>average daily person trips</i> )		LOS Standard ( <i>cost per trip</i> )
\$1,756,100,000	÷	1,713,000	=	\$1,025
See Section 11.2.2.2.1.3 below		Transportation demand from new development subject to TSF (2010-2040)		Planned LOS to accommodate growth

#### 11.2.2.2.2.3 Design Standard & Cost Assumptions

As described above, the maximum justified TSF funding used to calculate the LOS standard was based on the \$6.5 billion CIP of planned capital programs and projects. The maximum allowable TSF cost share for each program or project was based on using one of two methods:

- Method 1: If the project or program included replacement of existing transit facilities and expanded transit capacity, then the TSF cost share was based on person trips from new development subject to the TSF as a share of total trips (existing plus new development, including development projects not subject to the TSF such as the Candlestick Point – Hunters Point Shipyard, Parkmerced, and Treasure Island – Yerba Buena Island development projects).
- Method 2: If the project or program only provided expanded transit capacity then the TSF cost share was based on person trips from new development subject to the TSF as a share of total trips from new development.

The maximum justified TSF funding of approximately \$1.8 billion equaled the sum of the TSF cost share for each program and project included in the \$6.5 billion CIP, adjusted for any programmed funding that could be allocated to the TSF cost share and only included funding over and above funding needed for the non-TSF cost share.

#### 11.2.2.2.2.4 Recommendations

The methods and approach outlined in previous studies remains adequate, however the following recommendation is noted.

- Update the TSF transit capital facilities LOS standard and related design standard and cost assumptions based on the most recent data available.

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### 11.2.2.2.3 Complete Streets Component

#### 11.2.2.2.3.1 Description of Facilities

The complete streets component of the TSF funds the enhancement and expansion of pedestrian and streetscape infrastructure to accommodate growth. The TSF Nexus Study specifically identified two programs from the SFMTA CIP current at the time of the study that would be eligible for funding with the TSF complete streets component: (1) the pedestrian strategy corridor program, and (2) the striping and signage program. As explained above regarding the TSF capital facilities component, the TSF complete streets component also may fund bicycle infrastructure.

#### 11.2.2.2.3.2 Level of Service Standard

The LOS standard was based on the Citywide Nexus Analysis (see Section 11.2.2.1.3.2).

#### 11.2.2.2.3.3 Design Standard / Cost Assumptions

The design standard was based on the Citywide Nexus Analysis (see above), with the cost per square foot of improved sidewalk adjusted for inflation.

#### 11.2.2.2.3.4 Recommendations

- Update the fee and expand it to include bicycle infrastructure based on the recommendations associated with the citywide nexus study update, discussed above in section 11.2.2.1.4.

### 11.2.2.3 Transit Center District Plan Implementation Document (2012)

The Transit Center District Plan (TCDP) included two nexus studies and related development impact fees: (1) a park, recreation, and open space fee and (2) a transportation system improvements fee.

#### 11.2.2.3.1 Park, Recreation, and Open Space Development Impact Fee

##### 11.2.2.3.1.1 Description of Facilities

The park, recreation, and open space impact fee funds the acquisition of land, development of park and recreation facilities, and improvement of existing park facilities in lieu of additional land acquisition. Based on the LOS standards described in the following subsection, the TCDP anticipated acquisition and improvement of 3.57 acres of new park land and improvement of 140.16 acres of existing park land. This capital planning is based on a fee zone for the downtown area that extends beyond the Transit Center District Plan area and is roughly bounded by the Embarcadero to the east, Clay, Kearny, and Bush streets to the north, Van Ness Avenue to the west, and Highway 101 and King Street to the south.

##### 11.2.2.3.1.2 Level of Service Standard

The TCDP nexus study was completed in April 2012 and was based on LOS standards developed in a prior citywide nexus analysis last updated in January 2008, shown in Table 32, below. The land acquisition standard was based on opportunities for expanding the City's park system given the limited amount of open space lands. The park improvement standard was based on existing city-owned parks.

TABLE 32: TCDP PARK, RECREATION, AND OPEN SPACE LOS STANDARD

LOS Component	LOS Standard ( <i>acres per 1,000 residents</i> )	Notes
Park Land Acquisition & Improvement	0.11	Based on acquisition of 5.9 acres citywide
Park Land Improvement	4.32	Existing (2008) LOS standard for city-owned parks

Allocation of this standard by land use category used a service population approach to reflect relative demand from residential and five non-residential land uses.

#### 11.2.2.3.1.3 Design Standard / Cost Assumptions

The design standard was based on the Citywide Nexus Analysis (see above), with the cost per square foot of improved sidewalk adjusted for inflation.

#### 11.2.2.3.1.4 Recommendations

- Update the fee based on updating the citywide park and recreation LOS standard in the prior nexus study and associated design standards and cost assumptions consistent with the citywide nexus study update.
- Consider using a park land acquisition standard equal to the park improvement standard to increase the maximum justified fee and provide more flexibility on adopted fee levels. This approach is justified by the use of funds that may have been used for park land acquisition but instead are used to accommodate new development by intensifying development of existing parks.
- Update the service population approach for allocation of costs to residential and non-residential land uses based on the citywide nexus study update.

#### 11.2.2.3.2 Transportation System Improvements Development Impact Fee

##### 11.2.2.3.2.1 Description of Facilities

The TCDP Nexus Study identified a range of improvements drawn from the TCDP that were related to streetscape and pedestrian facilities. These facilities are needed to accommodate the increased number and concentration of pedestrians, transit users, cyclists, and carpool commuters anticipated in the TCDP area. Improvements include district-wide circulation, streetscape, and pedestrian improvements, mid-block crossings, Natoma Street and Shaw Plaza improvements, signalization changes, casual carpool waiting areas, and underground pedestrian connector to BART/Muni.

##### 11.2.2.3.2.2 Level of Service Standard

The TCDP identified the improvements included in the nexus study to meet the Plan's objectives. These improvements had an estimated cost of \$278 million. For purposes of the nexus analysis, the LOS standard was reduced to a single cost standard based on the maximum justified level of TSF funding for the identified improvements expressed per trip from new development. The assumptions used to calculate the LOS are presented below in Table 33 and the methodology used to develop the maximum justified amount of TSF funding is described below.

TABLE 33: TCDP TRANSPORTATION SYSTEM IMPROVEMENTS LOS STANDARD

Maximum Justified TSF Funding		Transportation Demand (average daily person trips)		LOS Standard (cost per trip)
\$115,130,000	÷	211,159	=	\$545
See Section 11.2.2.3.2.3, below		Transportation demand from new development within the TCDP (2005-2030)		Planned LOS to accommodate growth

#### 11.2.2.3.2.3 Design Standard & Cost Assumptions

The maximum justified TSF funding used to calculate the LOS standard was based on the list of improvements identified in the TCDP (cost of approximately \$278 million). The maximum allowable TSF cost share for each improvement was based on using one of three methods:

- Method 1: Approximately 100% of the cost of improvement designed specifically to address new development within the TCDP area was allocated to the fee program.
- Method 2: Approximately 48% of the cost of improvements designed to address growth within the greater downtown area was allocated to the fee program based on person trips from new development within the TCDP area as a share of total trips from new development within the greater downtown area.
- Method 3: Approximately 11% of the cost of improvements designed to address both existing and new development within the greater downtown area was allocated to the fee program based on person trips from new development within the TCDP area as a share of total trips from existing and new development within the greater downtown area.

The maximum justified TSF funding of \$115.1 million shown above in Table 33 equaled the sum of the cost share for each improvement included in the improvement list (total \$278 million).

#### 11.2.2.4 Recreation and Open Space Element (ROSE)

The ROSE describes the provision of parks and open space in San Francisco and calls for the enhancement of existing parks as well as a modest expansion of the park system through minor acquisitions and through investments in the right-of-way. The ROSE also includes a clear classification of park components and prioritizes investments in high-need areas based on existing population density, projected growth in population, children, seniors, and concentrations of low-income populations. Many of the projected investments are identified for the eastern shoreline and are anticipated to include both resiliency and open space investments, such as the Blue Greenway.

The ROSE also calls for expansion and strengthening of privately owned public open spaces (POPOS) and greater enforcement of public access to POPOS. Currently, POPOS are not factored into the level of service standard for parks and open space.

Alleyway and green connections are identified as potential investments, both in building green connections to parks and establishing living alleyways.

#### 11.2.2.4.1 Recommendations

- Consider using a park land acquisition standard equal to the park improvement standard to increase the maximum justified fee and provide more flexibility with adopted fee levels. This approach is justified by the use of funds that may have been used for park land acquisition but instead are used to accommodate new development by intensifying development of existing parks.
- Establish a separate downtown park impact fee that uses a higher per unit cost due to increased costs in this area (land and construction costs).

#### 11.2.2.5 Better Streets Plan (2011)

The Better Streets Plan sets right-of-way guidelines for investments in San Francisco streets. It includes stormwater management, pedestrian, bicycle, safety, and lighting goals. The plan was used in the Citywide Nexus Analysis to estimate the average cost per square foot of right-of-way improvement. Hatch can inflate these costs to represent current year estimates or can use new cost estimates provided by the Department of Public Works.

#### 11.2.2.6 ConnectSF

ConnectSF is a broad vision for the City's transportation system for 2050, recognizing future advances in autonomous vehicles, shared mobility, and the establishment of the Transbay Transit Center. It calls for reduce personal automobile use and more equitable provision of transportation infrastructure. As part of next steps, ConnectSF calls for repurposing right-of-ways for more sustainable forms of transports. No costs are developed in this document. It provides general guidance on the future of San Francisco's transportation infrastructure.

#### 11.2.2.7 San Francisco Transportation Plan (2013)

The San Francisco Transportation Plan has a long-term expenditure plan for right-of-way and transit investments to 2040. There is approximately \$75 billion in project transportation revenue to 2040 from 2014, of which \$70 billion is already allocated to specific projects. More than \$66 billion is allocated to road maintenance and repaving needs. Another \$1.2 billion is allocated to the City's pedestrian and bicycle safety programs. Note that some of the goals in this plan have since been updated in later plans.

##### 11.2.2.7.1 Plan Goals

The City has set sustainability and livability goals pertaining to its transportation system, including 50% of trips are taken by walking, bicycling, and transit and 50% reduction in fatal pedestrian injuries. It also calls for a 20% biking mode share. As a result, the plan calls for \$600 million towards fully building out SFMTA's bicycle plan and another \$630 million in pedestrian improvements.

In addition, the plan calls for a 10% decrease in greenhouse gas emissions by transitioning commuters out of personal vehicles into transit and other non-motorized forms of transportation. The plan also calls for 15 miles of protected transit lanes.

##### 11.2.2.7.2 Growth Projections

The Transportation Plan projects population to grow to 1.1 million and have more than 750 thousand jobs by 2040.

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#### 11.2.2.7.3 *Plan versus Vision*

The plan budget is \$75 billion in estimated revenue but the plan also calls for alternative financing “Vision” that would add \$7.5 billion towards additional discretionary spending. The implication to the Hatch team is under what expenditure plan should the team use in allocating future transportation infrastructure costs to new development. This should be a discussion point with the City and the Hatch team.

#### 11.2.2.8 *San Francisco Transportation 2045 Task Force Report (2018)*

The San Francisco Transportation 2045 Task Force Report is primarily focused on assessing numerous potential methods for San Francisco to raise revenue for meeting future (and current) transportation capital needs. According to the report, San Francisco anticipates \$32 billion in transportation capital needs by 2045, of which \$22 billion was unfunded at the time of the report (the report was published prior to the passage of Regional Measure 3). The report assumes that the local share of that \$22 billion gap will be 25% - 30%, or \$5.5 - \$6.6 billion.

##### 11.2.2.8.1 *Revenue Sources*

The Task Force considered 29 potential revenue sources, evaluating them for equitability, the significance of revenue potential, ability to support policy objectives, reliability, the degree to which the funds would be dedicated, the flexibility of the funding source, growth potential, ease of administration, and ease of establishing. Broadly speaking, the sources fit into five categories: vehicle-related sources, property-related sources, sources paid by individuals and businesses, entertainment/leisure-related sources, and sources that would require a more complex approval process than could be achieved within 2018.

##### 11.2.2.8.2 *Recommendations*

Ultimately, the report recommends four local revenue sources that could be approved quickly: a sales tax, a commercial property rent tax, a vehicle license fee, and a platform/gig economy tax. It also recommends two local revenue sources which would require state approval: congestion pricing and a fee for transportation network companies.

Beyond recommendations for new local revenue sources, the report reaffirms Proposition J’s expenditure priorities, recommends continuing to lobby the state and federal governments for transportation funding (in addition to the authorization of the above-mentioned local funding mechanisms), and reaffirms support for the 2040 Task Force Report (published in 2013) recommendation of a general obligation bond in 2024.

#### 11.2.2.9 *SFMTA Strategic Plan*

The San Francisco Municipal Transportation Agency (SFMTA) Strategic Plan lays out a series of performance targets for San Francisco’s transportation system, to be achieved by Fiscal Year (FY) 2019 and FY 2020. The plan also provides some steps the SFMTA can take to help achieve those goals.

##### 11.2.2.9.1 *Safety*

Goal 1 is to create a safer transportation experience for everyone. There are three objectives within this goal: achieve vision zero, improve the safety of the transit system, and improve security for transportation system users. By FY 2019 and FY 2020, there should be no traffic fatalities, a decrease in Muni collisions and crimes per mile driven, and an increase in Muni customer ratings.

#### 11.2.2.9.2 *Travel Choices*

Goal 2 is to make transit and other sustainable modes of transportation the most attractive and preferred means of travel. There are three objectives within this goal: improve transit service, enhance and expand use of the city's sustainable modes of transportation, and manage congestion and parking demand to support the Transit First policy. By FY 2019 and FY 2020, Muni should be more on-time (with fewer service gaps and breakdowns), Muni ridership should be up (along with bicycle trips, as part of a 58% citywide sustainable mode share goal), and Muni travel times should be faster.

#### 11.2.2.9.3 *Livability*

Goal 3 is to improve the quality of life and environment in San Francisco and the region. There are five objectives within this goal: advance equity, support sustainable transportation and land use principles, guide emerging mobility, improve air quality, and achieve financial stability for the SFMTA. By FY 2019 and FY 2020, Muni should expand its Free Muni program (and close the service gap differential in Equity Priority Communities), new developments should have fewer parking spaces per unit, emerging mobility services should be better monitored, San Francisco's transportation system should be producing fewer carbon emissions, and the SFMTA should be fiscally sound.

#### 11.2.2.9.4 *Service*

Goal 4 is to create a workplace that delivers outstanding service. There are five objectives within this goal: strengthen employee morale, improve employee safety, enhance customer service, diversify the workforce, and increase the efficiency of project delivery. By FY 2019 and FY 2020, employee satisfaction should be up (and the unscheduled absence rate should be down), workplace injuries and security incidents should be down, customer complaints should be down (and ratings up), employee ratings should be up, and more projects should be completed on time.

### 11.2.2.10 *Transportation Climate Action Strategy*

The San Francisco Transportation Sector Climate Action Strategy lays out San Francisco's plan and goals for reducing the city's impact on climate change, including an assessment of the status quo. By 2017, San Francisco had reduced its greenhouse gas emissions by 28% from 1990 levels, despite a population increase of 19.5% and a GDP increase of 78% in that same time period. The City had also met its goal of 52% sustainable mode share by 2017. By 2030, San Francisco should have 80% of its trips take place in environmentally sustainable modes (transit, biking, and walking), and emissions overall should be 80% below 1990 levels. The following sections outline specific tasks for achieving these goals.

#### 11.2.2.10.1 *Transit*

Continue implementing Muni Forward service improvements, along with prioritizing transit service in the public right of way, implementing recommendations from the Core Capacity Transit Study, and supporting these endeavors with Cap and Trade funding.

#### 11.2.2.10.2 *Land Use & Transportation*

Implement innovative and robust land use and transportation plans, including Connect SF.

#### 11.2.2.10.3 *Pricing & Congestion*

Update pricing, expand SFpark, and complete further pricing studies.



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#### *11.2.2.10.4 Transportation Demand Management*

Support efforts regional fare integration to support transit ridership, reach out to employers (especially outside of the downtown core), and create a TDM program for K-12 schools.

#### *11.2.2.10.5 Complete Streets*

Update San Francisco's Bike Plan, construct the network's high priority components, and construct complete streets projects that increase bicycle and pedestrian safety, integrating green infrastructure as much as possible.

#### *11.2.2.10.6 Zero Emission Vehicles & Infrastructure*

Develop a zero emission vehicle strategy that works with San Francisco's Transit First policy, implement high priority recommendations from that strategy, and develop a plan to transition taxis, paratransit vehicles, and school buses to zero emission vehicles.

#### *11.2.2.10.7 Emerging Mobility*

Develop an emerging mobility strategy, implement a pilot program related to emerging mobility, quantify greenhouse gases associated with emerging mobility, and collect and analyze data from emerging mobility providers.

#### *11.2.2.10.8 Education Capacity & Communication*

Educate the public and city staff about the causes and impacts of climate change and sea level rise, and engage communities and stakeholders on solutions.

#### *11.2.2.10.9 Capital Planning*

Examine the resiliency of current transportation infrastructure to sea level rise, and prepare a set of financial tools to fund the development of a climate resilient transportation system.

#### *11.2.2.10.10 Vulnerability Assessment*

Identify system wide vulnerabilities, the impacts the disadvantaged communities, and identify data and information gaps.

#### *11.2.2.10.11 Adaptation Strategies, Plans & Policies*

Lead collaborative planning efforts on climate adaptation and resilience planning, and monitor and document climate related impacts to the current transportation system.

#### *11.2.2.10.12 Partnerships & Collaboration*

Build and maintain strong working partnerships across city departments and other regional, state, national, and international agencies and individuals to support the development of a resilient transportation system.

### **11.2.3 Overall Recommendations**

#### **11.2.3.1 Downtown Boundary**

The Downtown boundary remains unclear after reviewing the Transbay Center District Plan and recognizing that the Transbay Center District is mostly built out. The area should be large enough to account for the broader growth projected south of market and the further intensification of Market Street. One method would

be to isolate for streetscape and open space fees specifically considering both infrastructure assets will have higher unit costs in the downtown core than elsewhere in the city.

### 11.2.3.2 Commercial versus Industrial

The Citywide nexus analysis used a residential and non-residential fee in ascribing infrastructure need. This meant that office and PDR uses were defined as having the same employment densities, which are typically dramatically different. Hatch recommends the use of three fee components – residential, commercial, and industrial to more-accurately reflect actual employment densities.

### 11.2.3.3 Pedestrian & Bicycle Facilities

While the City has established overall plans and costs for the improvement on bicycle routes that are more focused than improvements to the pedestrian right-of-way, both bicycle and pedestrian investments overlap in the public right-of-way. Combining the pedestrian/streetscape and bicycle infrastructure types into a single category would provide more flexibility on adopted fee levels and the use of fee revenue. This Right of Way Nexus should include both Complete Streets and the Transportation Sustainability Fee.

The fee program needs to delineate its uses of recreation and open space funds from the pedestrian and bicycle funds. Meaning, recreation and open space funds can go towards capital investments providing additional recreation and open space opportunities for San Francisco residents and workers. These facilities are to be managed by the San Francisco Department of Recreation and Park. Whereas right of way investments, which could include plazas and additional open space elements, would be managed and operated by the San Francisco Department of Public Works.

## 11.3 City Agency Stakeholders

TABLE 34: SAN FRANCISCO CITY AGENCIES AND CONTACTS

San Francisco City Agency	Name	Email
Planning	Seung Yen Hong	seungyen.hong@sfgov.org
	Mathew Snyder	mathew.snyder@sfgov.org
	Adam Varat	adam.varat@sfgov.org
	Heather Green	heather.green@sfgov.org
	Kate Faust	Kate.faust@sfgov.org
	Scott Edmondson	scott.edmondson@sfgov.org
Recreation and Park	Stacy Bradley	stacy.bradley@sfgov.org
	Taylor Emerson	taylor.emerson@sfgov.org
	Maggie Laush	maggie.laush@sfgov.org
	Yael Golan	yael.golan@sfgov.org
Office of Early Care and Education	Graham Dobson	Graham.Dobson@sfgov.org
Department of Public Works	Elizabeth Ramos	elizabeth.ramos@sfdpw.org
	Oscar Quintanilla	oscar.quintanilla@sfdpw.org
Municipal Transportation Agency	Monica Munowitch	Monica.Munowitch@sfmta.com
	Matt Lasky	Matt.Lasky@sfmta.com
Public Library	Randle McClure	rande.mcclure@sfpl.org

Fire Department	Olivia Scanlon	olivia.scanlon@sfgov.org
	Jesus Mora	jesus.mora@sfgov.org

## 11.4 Data Sources

Data	Data File Name	Source	Data Year
Analysis Zone Locations	LUA_2019.shp	Planning (Scott Edmondson)	2019
Housing, population, and employment estimates	Updated LUAs.csv	Planning (Scott Edmondson)	2019
Housing, population, and employment projections	zone_indicators_2025.csv zone_indicators_2040.csv	Planning (Scott Edmondson)	2015
Neighborhood names and locations	Neighborhoods.shp	Planning (Seung Yen Hong)	Current
Parks Equity Zone Locations	EquityZones2017v2.shp	San Francisco Recreation and Park Department (Janice Lau Perez)	Current
Equity Priority Communities Locations	CoC.gdb	Planning (Seung Yen Hong)	Current
Park acreage, location, ownership, and characteristics	SanFrancisco_City_parks_clip2018.shp	Rec and Park (Coordinated by Seung Yen Hong)	2018
Location and length of San Francisco walking paths	owm_walk_2way_subset.h5	Open Street Map	2019
Licensed child care information	2019.4.11 Center FCC Provider data (2.0).xlsx	Office of Early Care and Education (Graham Dobson)	2019
Proportion of child care per age group	San Francisco Early Care and Education Needs Assessment 2017	Published document	2017
Location, length, and width of sidewalks	geo_export_6f22a8a1-1212-4203-a9a7-71768d6f22ea.shp	DPW (Coordinated by Seung Yen Hong)	
Location of street trees	Street_Tree_Map.csv	DataSF	Current

Location of curb ramps	map_of_curb_ramps.shp	DPW (Coordinated by Seung Yen Hong)	
Location and class of bike lanes	geo_export_b1c1cc8e-e461-482a-b49e-9b9ec7c11122.shp	DPW (Coordinated by Seung Yen Hong)	
Location of street lights	Streetlight.shp	SF Water (Rodolfo Clavel)	
List of bulb outs	CRonBulbOut.xlsx	Department of Public Works (Elizabeth Ramos)	Current
Location and size of libraries	Libraries.shp	SFPL (Coordinated by Seung Yen Hong)	Current
Location of fire department facilities	Fire_Stations.shp	SFFD (Coordinated by Seung Yen Hong)	Current
	SFFD data V3.csv	SFFD (Coordinated by Seung Yen Hong)	Current
Service areas and response times of fire department facilities	SFFD_Response_Times.xlsx	SFFD (Coordinated by Seung Yen Hong)	Current
	First_Due_Engine_Station_Area.shp	SFFD (Coordinated by Seung Yen Hong)	Current
List of ambulance posting locations	Ambulance_Posting_Locations.xlsx	Fire Department (Jesus Mora)	Current

## 11.5 Parks Survey Results Memo

### 11.5.1 Purpose

The purpose of this survey was to determine the ratio of San Francisco workers' frequency of visiting city parks to San Francisco residents' frequency. This ratio is necessary to determine the service population that San Francisco parks serve: workers are only counted as a fraction of their total and then added to residents, so that each unit of service population visits San Francisco parks with the same frequency. This number can then be used to estimate demand for city parks, potentially based on the number of residents or workers a new development would house.

### 11.5.2 Findings

The survey results determined that workers in San Francisco visit city parks with a ratio of 0.72 (or 72%) compared to city residents. Table 35 shows the calculation that was used to determine this number. First, the workers were broken down into two groups: workers who do not live in San Francisco ("worker only") and workers who also live in San Francisco ("SF live and work, from work"). Then, a ratio for each group of workers was calculated, relative to the frequency with which San Francisco residents visit city parks (from home, in the case of people who both live and work in the city). Finally, these ratios were weighted based on the percent of total workers in San Francisco who live in the city versus those who commute in (Work Force Distribution). This last piece of data comes from Longitudinal Employer-Household Dynamics (2015), which is run by the US Census Bureau.

Note that this report uses a lower ratio of workers to residents (0.5:1) than the findings of this survey would allow (0.72:1) in order to be consistent with other infrastructure categories.

TABLE 35: WORKER TO RESIDENT USAGE RATIO CALCULATION

	Average Park Visits a Month by Origin of Visit	Usage Ratio to Resident	Work Force Distribution <sup>155</sup>	Calculated Share
Worker Only	4.40	0.59	60%	0.35
All residents (from home)	7.49	1.00		
SF Live and Work, from Work	7.08	0.92	40%	0.37
SF Live and Work, from Home	7.74	1.00		
Average Worker Usage Ratio to Resident:				0.72

### 11.5.3 Methodology

The information in this survey was collected by asking park users how frequently they visit city parks coming from home or work. The goal was to collect at least 100 surveys each from San Francisco workers and San Francisco residents, in order to produce statistically significant results for each group. As shown in Table 36, that was surpassed.

TABLE 36: SURVEYS BY RESPONDENT'S RELATIONSHIP TO SAN FRANCISCO

	Number of Surveys
I live and work in San Francisco	281
I live in San Francisco	83
I work in San Francisco	59
I do not live or work in San Francisco	76
<b>TOTAL</b>	<b>499</b>

#### 11.5.3.1 General Survey Results

The survey allowed people to enter in any number they wanted for the number of times they visit San Francisco parks, either per week or per month. Several of the numbers entered were unrealistically high (i.e. in the hundreds or thousands), and those outliers were removed from later results. However, to begin understanding the data, Table 37 shows the averages including those outliers.

TABLE 37: RAW SURVEY RESULTS

	When starting from your home, how often do you visit any park in San Francisco?		When starting from your work, how often do you visit any park in San Francisco?	
	times per week	times per month	times per week	times per month

<sup>155</sup> LEHD 2015

I live and work in San Francisco	4.72	15.38	3.72	11.48
I live in San Francisco	5.08	10.00	n/a	n/a
I work in San Francisco	n/a	n/a	3.51	3.00

After removing the outliers and changing the per week results to their per month equivalents, Table 38 shows the survey averages.

TABLE 38: NORMALIZED SURVEY RESULTS

	When starting from your home, how often do you visit any park in San Francisco?	When starting from your work, how often do you visit any park in San Francisco?
	times per month	times per month
I live and work in San Francisco	7.74	7.08
I live in San Francisco	6.51	n/a
I work in San Francisco	n/a	4.40

Table 39 shows the weighted averages, based on the number of survey respondents who live and work in San Francisco, the number who just live in the city, and the number who just work in the city.

TABLE 39: WEIGHTED AVERAGES

	Usage starting from home	Usage starting from work
Park usage per month	7.5	6.7

### 11.5.3.2 Respondent Demographics

Basic demographic information was collected from most survey respondents in addition to park usage information. This was collected as a statistical safeguard in case there were not enough surveys to reach statistical significance collected under allotted survey days, so that insufficient results could be weighted. However, since enough surveys from both workers and residents were collected, this information was not used in calculating the results.

The tables in this section go through and compare the demographics of survey respondents to the demographics of all San Francisco residents. The demographic section of the survey was optional, so these tables do not represent the full spectrum of people who took the survey. Furthermore, the survey includes respondents who do not live in San Francisco, a group whose demographics are not represented in the comparison data. Information about San Francisco residents comes from the American Community Survey 5-year estimates (2013-2017), usually represented as “ACS 2017.”

TABLE 40: SURVEYS BY AGE GROUP

Age Group	Number of Responses	%	ACS 2017
Under 18	3.00	1%	13%

18-24	26.00	6%	8%
25-34	151.00	36%	23%
35-44	111.00	26%	16%
45-54	49.00	12%	14%
55-64	45.00	11%	12%
65+	36.00	9%	15%

TABLE 41: SURVEYS BY RACIAL AND ETHNIC GROUP

Race/Ethnicity	Number of Responses	%	ACS 2017
White	230	54.0%	40.8%
Black/African American	28	6.6%	5.1%
Asian/Pacific Islander	111	26.1%	34.2%
Hispanic/Latino	48	11.3%	15.3%
Other	9	2.1%	4.6%

TABLE 42: SURVEYS BY HOUSEHOLD MAKEUP

Household Category	Number of Responses	%
Single/roommate household with no children under 18 (i.e. non-family household with no children)	159	39.0%
Family household with no children under 18 (i.e. related household with no children)	132	32.4%
Family household with children under 18 (i.e. related household with children)	104	25.5%
Single/roommate household with children under 18 (i.e. non-family household with children)	13	3.2%

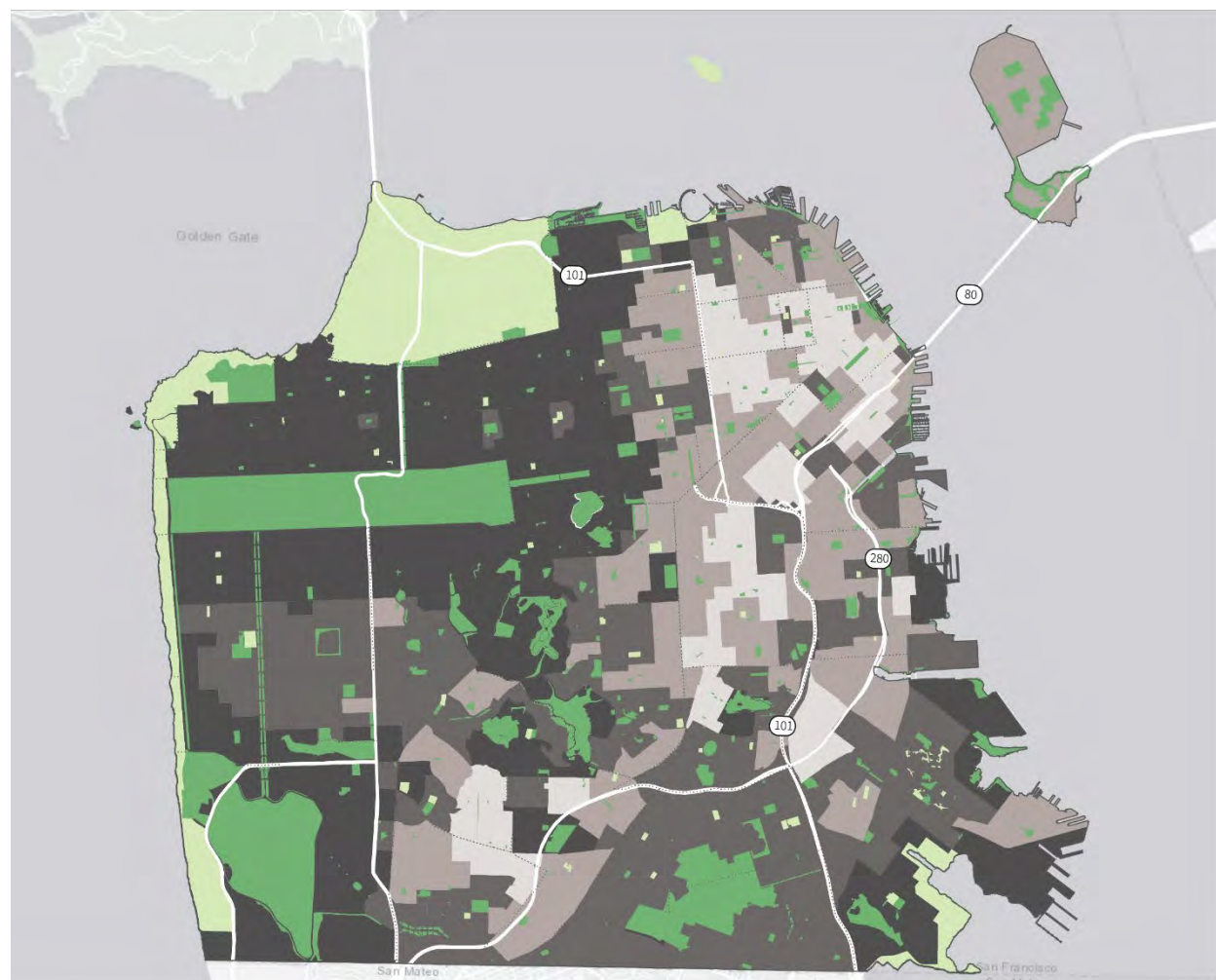
Table 42 does not have an ACS 2017 column because these exact categories are not replicated in the American Community Survey. However, in broader terms:

- 29% of survey respondents live in households with children, whereas only 19% of households living in San Francisco contain children (ACS 2017).
- 58% of survey respondents live in family households, whereas only 47% of households living in San Francisco are families (ACS 2017).



## 11.6 Acres of Open Space per 1,000 Adjacent SPU

FIGURE 36: DISTRIBUTION OF OPEN SPACE PER CAPITA



### Citywide Parks Distribution

- Lower quartile (< %25, less than 0.12 acres of open space per 1,000 SPU)
- Median quartile (%25 - %50, 0.12 - 0.48 acres of open space per 1,000 SPU)
- Median quartile (%50 - %75, 0.48 - 4.08 acres of open space per 1,000 SPU)
- Upper quartile (> %75, greater than 4.08 acres of open space per 1,000 SPU)

\*Each Traffic Analysis Zone (TAZ) was assigned to its nearest city-owned park of at least a quarter acre in size. Then, for each park, the total acreage was divided by the total population (in thousands) of the TAZs assigned to it. The quartiles were calculated based on the Service Population Units in each Traffic Analysis Zone (TAZ).



### LEGEND

- County Boundary
- Highways
- Neighborhoods

### Open Space by Ownership

- City-owned open space
- Non-city owned open space

## 11.7 Child Care Demand Calculations

TABLE 43: INFANT/TODDLER CARE DEMAND CALCULATION DETAILS

Variable Name	Data Point	Value	Source
<b>Total Resident-Children</b>			
A	% of SF children under 5 that are 0-2	64%	2017 ACS 5-Year Estimates, B09001
B	Resident children under 5	44,955	SF Planning
C	Resident children 0-2	28,717	A * B
D.1	Total SF Residents (ACS)	864,263	2017 ACS 5-Year Estimates, S0101
<b>Resident-Children (0-2) Needing Care Outside of San Francisco</b>			
D.2	Total Employed SF Residents	504,914	2017 ACS 5-Year Estimates, DP03
D	% of SF Residents who are employed	58%	D.2 / D.1
E	SF Residents	908,336	SF Planning
F	Employed SF Residents	530,662	D * E
G	% of Employed Residents working outside SF	24%	2017 ACS 5-Year Estimates, S0801
H	Employed SF Residents working outside SF	125,767	F * G
I	% of Workers who seek child care where they work rather than where they live	5%	2014 San Francisco Nexus Study <sup>156</sup>
J	Resident children needing child care outside SF (assumes one child per working adult)	6,288	H * I
<b>Resident-Children (0-2) Needing Care in San Francisco</b>			
K	Resident children 0-2 needing child care outside SF	4,017	J * A
L	Remaining resident children (0-2) potentially needing child care	24,700	C - K
M	Percent of young children in households with all working parents	71%	2017 ACS 5-Year Estimates, B23008
N	Resident children (0-2) with working parents	17,622	L * M
O	% of children (0-2) with working parents needing licensed care	37%	2014 San Francisco Nexus Study <sup>157</sup>
P	Resident children (0-2) needing licensed care in SF	6,520	N * O
<b>Non-Resident Children (0-2) Needing Care in San Francisco</b>			
Q.1	Total jobs in SF (LEHD)	642,375	LEHD 2015

<sup>156</sup> Based on the 2014 San Francisco Nexus Study, South San Francisco Child Care Facilities Impact Fee Nexus Study and surveys of corporate employees and other child care studies, reviewed by Brion & Associates, including Santa Monica's New Child Care Fee Nexus Study (as cited in Table 6 of Child Care Nexus Study for San Francisco by Brion & Associates); this study assumes one child needing care per employee).

<sup>157</sup> Based on the 2014 San Francisco Nexus Study, 37% of children (0-2) with working parents need licensed care (as cited in Table 7 of Child Care Nexus Study for San Francisco by Brion & Associates, which is based on a detailed review of 12 child care studies, including impact fee studies; demand factors developed in concert with Dept. of Human Services and DCYP). DCYP refers to the San Francisco Department of Children, Youth and Their Families (DCYF).

Q.2	Total Employees that live elsewhere but work in SF	387,117	LEHD 2015
Q	% of jobs filled by non-SF residents	60%	Q.2 / Q.1
R	SF Jobs	768,360	SF Planning
S	Employees that live elsewhere	463,040	Q * R
T	Children of employees from elsewhere needing licensed child care in SF	23,152	S * I
U	% of children needing care who are ages 0-2 in general	50%	Department of Finance (Report P-3); assumes that school age children have care near home or school and all resident-children needing care outside of San Francisco are either infants/ toddlers or preschoolers.
V	Non-resident employees' children (0-2) needing care in SF	11,576	T * U
<b>Total Children (0-2) Needing Care in San Francisco</b>			
W	Total children (0-2) needing care in SF	18,096	V + P
<b>Existing Supply</b>			
X	Current available spaces for children aged 0-2	3,515	SFHSA; Child Care Needs Assessment (2017)
<b>Existing LOS</b>			
Y	% of demand met by existing slots	19%	X / W

TABLE 44: PRESCHOOL CARE DEMAND CALCULATION DETAILS

Variable Name	Data Point	Value	Source
<b>Total Resident-Children</b>			
A	% of SF children under 5 that are 3-4	36%	2017 ACS 5-Year Estimates, B09001
B	Resident children under 5	44,955	SF Planning
C	Resident children 3-4	16,238	A * B
D.1	Total SF Residents (ACS)	864,263	2017 ACS 5-Year Estimates, S0101
<b>Resident-Children (3-4) Needing Care Outside of San Francisco</b>			
D.2	Total Employed SF Residents	504,914	2017 ACS 5-Year Estimates, DP03
D	% of SF Residents who are employed	58%	D.2 / D.1
E	SF Residents	908,336	SF Planning
F	Employed SF Residents	530,662	D * E
G	% of Employed Residents working outside SF	24%	2017 ACS 5-Year Estimates, S0801
H	Employed SF Residents working outside SF	125,767	F * G
I	% of Workers who seek child care where they work rather than where they live	5%	2014 San Francisco Nexus Study <sup>158</sup>
J	Resident children needing child care outside SF (assumes one child per working adult)	6,288	H * I
<b>Resident-Children (3-4) Needing Care in San Francisco</b>			
K	Resident children 3-4 needing child care outside SF	2,271	J * A
L	Remaining resident children (3-4) potentially needing child care	13,966	C - K
M	Percent of young children in households with all working parents	71%	2017 ACS 5-Year Estimates, B23008
N	Resident children (3-4) with working parents	9,964	L * M
O	% of children (3-4) with working parents needing licensed care	100%	2014 San Francisco Nexus Study <sup>159</sup>
P	Resident children (3-4) needing licensed care in SF	9,964	N * O
<b>Non-Resident Children (3-4) Needing Care in San Francisco</b>			

<sup>158</sup> Based on the 2014 San Francisco Nexus Study, South San Francisco Child Care Facilities Impact Fee Nexus Study and surveys of corporate employees and other child care studies, reviewed by Brion & Associates, including Santa Monica's New Child Care Fee Nexus Study (as cited in Table 6 of Child Care Nexus Study for San Francisco by Brion & Associates); this study assumes one child needing care per employee).

<sup>159</sup> Based on the 2014 San Francisco Nexus Study, 100% of children (3-5) with working parents need licensed care (as cited in Table 7 of Child Care Nexus Study for San Francisco by Brion & Associates, which is based on a detailed review of 12 child care studies, including impact fee studies; demand factors developed in concert with Dept. of Human Services and DCYP). DCYP refers to the San Francisco Department of Children, Youth and Their Families (DCYF).

Q.1	Total jobs in SF (LEHD)	642,375	LEHD 2015
Q.2	Total Employees that live elsewhere but work in SF	387,117	LEHD 2015
Q	% of jobs filled by non-SF residents	60%	Q.2 / Q.1
R	SF Jobs	768,360	SF Planning
S	Employees that live elsewhere	463,040	Q * R
T	Children of employees from elsewhere needing licensed child care in SF	23,152	S * I
U	% of children needing care who are ages 3-4 in general	50%	Department of Finance (Report P-3); assumes that school age children have care near home or school and all resident-children needing care outside of San Francisco are either infants/toddlers or preschoolers.
V	Non-resident employees' children (3-4) needing care in SF	11,576	T * U
<b>Total Children (3-4) Needing Care in San Francisco</b>			
W	Total children (3-4) needing care in SF	21,540	V + P
<b>Existing Supply</b>			
X	Current available spaces for children aged 3-4	18,971	SFHSA; Child care Needs Assessment (2017)
<b>Existing LOS</b>			
Y	% of demand met by existing slots	88%	X / W

TABLE 45: 2025 INFANT/TODDLER CARE DEMAND PROJECTION

Variable Name	Data Point	Value	Source
<b>Total Resident-Children</b>			
A	% of SF children under 5 that are 0-2	64%	2017 ACS 5-Year Estimates, B09001
B	Resident children under 5	48,597	Estimated on a per capita basis using population growth projections from SF Planning
C	Resident children 0-2	31,044	A * B
D.1	Total SF Residents (ACS)	864,263	2017 ACS 5-Year Estimates, S0101
<b>Resident-Children (0-2) Needing Care Outside of San Francisco</b>			
D.2	Total Employed SF Residents	504,914	2017 ACS 5-Year Estimates, DP03
D	% of SF Residents who are employed	58%	D.2 / D.1
E	SF Residents	981,920	SF Planning
F	Employed SF Residents	573,651	D * E
G	% of Employed Residents working outside SF	24%	2017 ACS 5-Year Estimates, S0801
H	Employed SF Residents working outside SF	135,955	F * G
I	% of Workers who seek child care where they work rather than where they live	5%	2014 San Francisco Nexus Study <sup>160</sup>
J	Resident children needing child care outside SF (assumes one child per working adult)	6,798	H * I
<b>Resident-Children (0-2) Needing Care in San Francisco</b>			
K	Resident children 0-2 needing child care outside SF	4,342	J * A
L	Remaining resident children (0-2) potentially needing child care	26,701	C - K
M	Percent of young children in households with all working parents	71%	2017 ACS 5-Year Estimates, B23008
N	Resident children (0-2) with working parents	19,050	L * M
O	% of children (0-2) with working parents needing licensed care	37%	2014 San Francisco Nexus Study <sup>161</sup>
P	Resident children (0-2) needing licensed care in SF	7,048	N * O

<sup>160</sup> Based on the 2014 San Francisco Nexus Study, South San Francisco Child Care Facilities Impact Fee Nexus Study and surveys of corporate employees and other child care studies, reviewed by Brion & Associates, including Santa Monica's New Child Care Fee Nexus Study (as cited in Table 6 of Child Care Nexus Study for San Francisco by Brion & Associates); this study assumes one child needing care per employee).

<sup>161</sup> Based on the 2014 San Francisco Nexus Study, 37% of children (0-2) with working parents need licensed care (as cited in Table 7 of Child Care Nexus Study for San Francisco by Brion & Associates, which is based on a detailed review of 12 child care studies, including impact fee studies; demand factors developed in concert with Dept. of Human Services and DCYP). DCYP refers to the San Francisco Department of Children, Youth and Their Families (DCYF).

Non-Resident Children (0-2) Needing Care in San Francisco			
Q.1	Total jobs in SF (LEHD)	642,375	LEHD 2015
Q.2	Total Employees that live elsewhere but work in SF	387,117	LEHD 2015
Q	% of jobs filled by non-SF residents	60%	Q.2 / Q.1
R	SF Jobs	823,505	SF Planning
S	Employees that live elsewhere	496,272	Q * R
T	Children of employees from elsewhere needing licensed child care in SF	24,814	S * I
U	% of children needing care who are ages 0-2 in general	50%	Department of Finance (Report P-3); assumes that school age children have care near home or school and all resident-children needing care outside of San Francisco are either infants/toddlers or preschoolers.
V	Non-resident employees' children (0-2) needing care in SF	12,407	T * U
Total Children (0-2) Needing Care in San Francisco			
W	Total children (0-2) needing care in SF	19,455	V + P



TABLE 46: 2025 PRESCHOOL CARE DEMAND PROJECTIONS

Variable Name	Data Point	Value	Source
<b>Total Resident-Children</b>			
A	% of SF children under 5 that are 3-4	36%	2017 ACS 5-Year Estimates, B09001
B	Resident children under 5	48,597	Estimated on a per capita basis using population growth projections from SF Planning
C	Resident children 3-4	17,553	A * B
D.1	Total SF Residents (ACS)	864,263	2017 ACS 5-Year Estimates, S0101
<b>Resident-Children (3-4) Needing Care Outside of San Francisco</b>			
D.2	Total Employed SF Residents	504,914	2017 ACS 5-Year Estimates, DP03
D	% of SF Residents who are employed	58%	D.2 / D.1
E	SF Residents	981,920	SF Planning
F	Employed SF Residents	573,651	D * E
G	% of Employed Residents working outside SF	24%	2017 ACS 5-Year Estimates, S0801
H	Employed SF Residents working outside SF	135,955	F * G
I	% of Workers who seek child care where they work rather than where they live	5%	2014 San Francisco Nexus Study <sup>162</sup>
J	Resident children needing child care outside SF (assumes one child per working adult)	6,798	H * I
<b>Resident-Children (3-4) Needing Care in San Francisco</b>			
K	Resident children 3-4 needing child care outside SF	2,455	J * A
L	Remaining resident children (3-4) potentially needing child care	15,098	C - K
M	Percent of young children in households with all working parents	71%	2017 ACS 5-Year Estimates, B23008
N	Resident children (3-4) with working parents	10,771	L * M
O	% of children (3-4) with working parents needing licensed care	100%	2014 San Francisco Nexus Study <sup>163</sup>
P	Resident children (3-4) needing licensed care in SF	10,771	N * O
<b>Non-Resident Children (3-4) Needing Care in San Francisco</b>			

<sup>162</sup> Based on the 2014 San Francisco Nexus Study, South San Francisco Child Care Facilities Impact Fee Nexus Study and surveys of corporate employees and other child care studies, reviewed by Brion & Associates, including Santa Monica's New Child Care Fee Nexus Study (as cited in Table 6 of Child Care Nexus Study for San Francisco by Brion & Associates); this study assumes one child needing care per employee).

<sup>163</sup> Based on the 2014 San Francisco Nexus Study, 100% of children (3-5) with working parents need licensed care (as cited in Table 7 of Child Care Nexus Study for San Francisco by Brion & Associates, which is based on a detailed review of 12 child care studies, including impact fee studies; demand factors developed in concert with Dept. of Human Services and DCYP). DCYP refers to the San Francisco Department of Children, Youth and Their Families (DCYF).

Q.1	Total jobs in SF (LEHD)	642,375	LEHD 2015
Q.2	Total Employees that live elsewhere but work in SF	387,117	LEHD 2015
Q	% of jobs filled by non-SF residents	60%	Q.2 / Q.1
R	SF Jobs	823,505	SF Planning
S	Employees that live elsewhere	496,272	Q * R
T	Children of employees from elsewhere needing licensed child care in SF	24,814	S * I
U	% of children needing care who are ages 3-4 in general	50%	Department of Finance (Report P-3); assumes that school age children have care near home or school and all resident-children needing care outside of San Francisco are either infants/toddlers or preschoolers.
V	Non-resident employees' children (3-4) needing care in SF	12,407	T * U
<b>Total Children (3-4) Needing Care in San Francisco</b>			
W	Total children (3-4) needing care in SF	23,178	V + P