### **APPENDIX FEIR-C – SUPPLEMENTAL INFORMATION**

Appendices B, B1, B2, and B3 of the DEIR, Repaginated (104 pages) Appendix B4 of the DEIR: UFD's Street Tree Selection Guide (2 pages) Appendix FEIR-C-1: Revised Project Description, in Redline (55 pages)

- Appendix B1 Street Tree Count
- Appendix B2 Sensitive Plant Species with Potential to Occur within the Project Site
- Appendix B3 Sensitive Wildlife Species with Potential to Occur within the Project Site



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### City of Los Angeles Sidewalk Repair Program: Tree Canopy Loss and Replacement Model

#### Purpose

The City of Los Angeles Sidewalk Repair Program is anticipated to remove approximately 12,859 trees over a 30 year period. The tree removal rate is anticipated to escalate in association with the increasing extent of sidewalk repairs that similarly escalates through the program period. Concurrent with the sidewalk repair and associated street tree removals anticipated to occur, there is a programmatic tree replacement required at a minimum rate of 2:1 (replacement trees to removed trees). Replacement trees are to be planted within one year of tree removals. In association with the street tree removal, there is a reduction of tree canopy that can be characterized as both a reduction in the overall tree canopy within the City and a reduction in the canopy of street trees. Understanding how the program would affect the overall Citywide tree canopy is important in evaluating the program influence on multiple aspects of the environment. Understanding changes in the extent of street tree canopy is more connected to the built environment and community character and heat island considerations.

To address the anticipated effect of the project on City tree canopy, a numeric model was developed that would allow for examination of the effects of tree removals and replacements under changing Program variables, including tree sizes removed, timing of tree removals, and the number and timing of replacement tree planting.

#### Tree Canopy Area Model Overview

The tree canopy area model has been developed as an annual time stepped assessment of tree canopy losses and gains under the Sidewalk Repair Program. The model analyzes the 30 year period of proposed operation of the Sidewalk Repair Program plus a period beyond the Program years during which time maturation of the planted street trees would continue. The model is based on inputs derived from City provided data associated with prior sidewalk repair and tree replacement activities that have been conducted over prior periods as well as other data sources. Because the model uses time steps for assessment of tree canopy area gains and losses, the changes in canopy area can be tracked through time by examining the individual components of gains, losses, or the sum of gains and losses. Further, the change can be benchmarked against baseline canopy areas for the Citywide tree canopy or the City street tree canopy to evaluate the percentage of change in City tree canopy as a function of time in association with the implementation of the Program.

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#### Tree Loss and Replacement Model Variables

#### Model Inputs and Assumptions

In order to evaluate the change in tree canopy over the course of the Program requires consideration of a number of factors including the following:

- Number, timing, and tree canopy size of trees removed under the Program;
- Number, timing, tree canopy size, and maturation rate for replacement trees, and;
- Percent mortality of trees planted under the program.

#### Tree Canopy Removal

#### • Numbers and Timing of Tree Removal

The number of trees anticipated to be removed under the Sidewalk Repair Program is based on the many factors that cannot be evaluated a priori for the entirety of the program period. As a result it is necessary to estimate tree removals based on available data. To develop a tree removal estimate, the LABOE reviewed the tree removal data from FY 2016-2017 and tabulated the trees removed, by species, in conjunction with the extent of sidewalk repairs performed, by square footage (Table 1).

#### • Canopy Area of Trees Removed

By accessing the City provided Sidewalk Repair Program Tree Report database (December 20, 2017, 14:45:00 date stamp) the number and species of trees removed during completion of FY 2016-2017 activities were determined. The tree species data from the tree tracking database was coded with the mean mature canopy size for the tree species as derived using data from Urban Forest Ecosystems Institute Selectree database maintained at CalPoly (https://selectree.calpoly.edu/) and Common Trees of Los Angeles (https://www.treepeople.org/sites/default/files/pdf/). Where only the minimum and maximum canopy at maturity was reported, the average of these values was used to determine to serve as an estimator of the mean canopy diameter. Using the species, count, and mean canopy diameter data, the overall average tree canopy diameter and area was determined for removal trees. This was achieved by determining the mean mature canopy of each tree species from which an average canopy area was calculated. The areas of trees were summed across the 352 trees removed during the sampled period and the total canopy area was then divided by the number of trees to develop a canopy area for the average removal tree. This was then used to determine the average canopy diameter for trees removed under the Program. The average tree removed under the Sidewalk Repair Program has been estimated to have a canopy diameter of 38.53 feet and an average canopy area of 1,166 square feet (0.027 acre). For purposes of this model, assumptions have been made that at the time trees are removed, they have reached mature size and canopy spread and that the mean canopy diameter of trees removed in all years will be similar to the average based on FY2016-2017 removals.

Using the assumed average tree canopy size, it is then possible to multiply each tree removed by the global average removal tree size to develop an estimate of the area of trees removed per year and total under the Program. In summary, the removal of an estimated 12,859 street trees is expected to result in a loss of 344 acres of street tree canopy.

Table 1.	Tree removal quantity es	timate based on a	annual sidewalk	repair area	estimates (dat	ta
source: Ci	ty of Los Angeles BOE, Mar	ch 2018)				

Year	Fiscal Year	Estimated Sidewalk Repair (sq. ft)	Estimated # of street tree removals*
Year 0	Prior to July 2016		
NOP Year 1	FY 2017-2018	968,750	292
2	FY 2018-2019	968,750	292
3	FY 2019-2020	968,750	292
4	FY 2020-2021	968,750	292
5	FY 2021-2022	968,750	292
6	FY 2022-2023	1,116,969	336
7	FY 2023-2024	1,116,969	336
8	FY 2024-2025	1,116,969	336
9	FY 2025-2026	1,116,969	336
10	FY 2018-2027	1,116,969	336
11	FY 2027-2028	1,287,500	388
12	FY 2028-2029	1,287,500	388
13	FY 2029-2030	1,287,500	388
14	FY 2030-2031	1,287,500	388
15	FY 2031-2032	1,287,500	388
16	FY 2032-2033	1,484,375	447
17	FY 2033-2034	1,484,375	447
18	FY 2034-2035	1,484,375	447
19	FY 2035-2036	1,484,375	447
20	FY 2036-2037	1,484,375	447
21	FY 2037-2038	1,712,188	515
22	FY 2038-2039	1,712,188	515
23	FY 2039-2040	1,712,188	515
24	FY 2040-2041	1,712,188	515
25	FY 2041-2042	1,712,188	515
26	FY 2042-2043	1,974,063	594
27	FY 2043-2044	1,974,063	594
28	FY 2044-2045	1,974,063	594
29	FY 2045-2046	1,974,063	594
30	FY 2046-2047	1,974,063	594
Program Total		42,719,219	12,859

\*Tree Removal Rate is based on FY '16-'17 Tree Removal Rates Tracked by City

#### Tree Canopy Replacement

#### • Canopy Area of Replacement Trees

The City Sidewalk Repair Program Tree Report database (December 20, 2017, 14:45:00 date stamp) also documented the trees by species and number replanted during the FY 2016-2017 activities. From these data it was possible to develop a ratio of tree species replanted and using the same methodologies as outlined for the removal trees, it was possible to determine the mean mature canopy diameter for trees being planted under the Program. In the case of replacement trees the mean mature canopy diameter was calculated to be 30.48 feet and an average canopy area of 730 square feet (0.017 acre). As can be seen, the mean mature canopy area of replacement trees is 62.6 percent of the area of removal trees. As a result, a 1:1 replacement of trees would result in a net reduction in total tree area and more replacement trees would be required than trees removed to result in a net balance of canopy area.

#### • Maturation Rate of Replacement Trees

Tree maturity is considered to be the point at which a tree canopy expansion rate approaches zero. At this point, the annual canopy may grow or decline based on prevailing factors, although the tree trunk, root system, and woody structural members may continue to develop thickness. There are few well documented studies on tree maturation rates due to the number of uncontrolled variables that may influence the rate of development, the number of species in culture, and the duration over which data would need to be collected to be robust. Slow growing trees may take 20-30 years to achieve full size, while fast growing trees may achieve full size within 10-15 years. Very slow growing trees may take 30-40 years to mature, while some rapid growing species may achieve full size within 5 years. For cultural landscape tree species, rapid growth rates have generally been favored and pursued in hybridization and nursery stock and landscape promotion. Conversely, very rapid growth is often seen with tree species having high water demand and weak canopy structure. Such trees are not favored in landscape uses. As a result, trees in use in urban greening, residential, and municipal landscaping programs tend to reach maturity more rapidly than native hardwood trees, but slower than soft-wood and riparian trees. The intermediate maturation period between 10 years and 20 years has generally been used in selection for landscape trees. An average maturation rate of 15 years has been selected for use in modeling tree canopy replacement. While the City does not maintain data on street tree maturation rates, the estimate of 15 years to maturity was checked for reasonableness by conferring with field staff from the City's Urban Forestry Division, Chief Forester, Tim Tyson with Urban Forestry Division, and other arborists within the International Society of Arborists (ISA). Obviously species by species and region by region variance occurs, however inadequate data exists for analyses at such scales.

Tree canopy expansion rates between tree planting and maturity are not constant, but rather they vary based on a number of intrinsic physiological and extrinsic environmental factors. Generally tree maturation under benign environmental conditions follows a sigmoidal growth curve with an early exponential element followed by a linear phase and an ultimate transition to an asymptotic curvature with slowed growth as the tree reaches maturity. Variability in the shape of the growth curves that result from differences between tree species and environmental conditions blur the shape of the curves having the greatest influence on the shallowest slopes in the curve (the exponential and asymptotic ends). As a result, the more variability within intrinsic and extrinsic controls on growth, while retaining a determinant point of maturity, the more linear the average

growth becomes. For this reason a simple linear growth model was applied in the analysis. This growth model assumes equal expansion in canopy area occurs for each year during maturation of a tree and no expansion following 15 years post-planting.

#### • Mortality Rate of Replacement Trees

Under the Sidewalk Repair Program, street trees planted for the Program are maintained for a period of three years during which they are watered and cared for in order to achieve self-sufficient establishment. Should they die during this period, they are replaced. However, after a three year establishment period, trees are considered to be established and are no longer tended to or tracked. During this period mortality of a tree planted under this Program would not be addressed by replacement. After trees achieve full maturity they are considered part of the baseline tree canopy within the City, are not considered to be uniquely vulnerable to mortality, and are not separately considered within the environmental effects of this Program. As a result, during the period of maturation for each tree, there is a window of time during which trees are not tracked and if trees die, their loss would be considered to be within the purview of the Program.

For purposes of analysis, causation behind tree mortality is not considered to be relevant. Whether a tree dies due to factors of inadequate water, root binding, disease, or whether it dies due to vandalism, fire, or traffic accident is not important in the analysis. The estimate of tree losses from such mortality events vary from approximately 2 percent to as much as 8 percent. Low estimates of mortality are derived from consideration of the rate of mortality in trees that are nearing the end of the establishment or which have just been planted. Higher levels of mortality assume sweeping losses regionally due to disease. The difficulty in rectifying what rate of mortality should be assumed is that low rates of loss do not reflect adequate temporal influence of random events and thus likely underestimate mortality, while high mortality reflect known disease effects in tree species that are now avoided in replacement tree planting to minimize disease losses. For this reason, the higher mortality rate is also likely high. In the case of mortality rate, the higher estimate of 8 percent has been selected for use for two reasons. First, post-establishment and prematuration mortality is very poorly tracked and thus it is conservative to include a higher estimator. Second, while tree species selections are generally made to avoid known diseases and pest problems, there have been increasing frequencies of new disease outbreaks, drought periods, and beetle infestations over the past two decades and the long-duration of the proposed Program (30 years) plus the post-Program tree maturation period makes it more likely than not that additional periods of widespread tree losses in the City may occur and again it is prudent to be conservative with this metric.

#### **Baseline Tree Canopy Area**

#### Baseline Tree Canopy

In order to evaluate the scale of tree canopy impact and recovery relative to the existing environment it is necessary to determine the tree canopy baseline against which changes in canopy area are to be evaluated. Specifically this included the following:

- Determining the overall tree canopy area and distribution for the City of Los Angeles, and;
- Determining the street tree canopy area for the City of Los Angeles.

#### Citywide Tree Canopy Area

Estimates of tree canopy within the City vary and defining the extent of tree canopy is not an exact science over an area the size of Los Angeles. In 2008 the tree canopy for the City was estimated to total 52,493 acres within the City of Los Angeles (McPherson et al 2008). In an eloquent geospatial analysis methodology, a separate estimate of the Los Angeles tree canopy area was completed by analyzing 2006 data collected by the Los Angeles Region Imagery Acquisition Consortium (LAR-IAC) Program. This countywide analysis was conducted by the County of Los Angeles Chief Information Office using Digital Elevation Model (DEM), Digital Surface Model (DSM), and Color Infrared (CIR) imagery (Greninger 2011). In October 2011 the GIS analysis was further refined to remove additional artifacts (Greninger 2011). From the County tree canopy dataset, the tree canopy cover within the City of Los Angeles was extracted and estimated to be 45,061 acres. The results of the Greninger 2011 mapping have been used in the present assessment as they are both most refined and most conservative. However, the relatively high variance between canopy area estimates from the reasonably synoptic data used in the USDA (2002-2005 Quick-Bird satellite imagery) and Greninger (2006 LAR-IAC) should be considered when evaluating the degree of uncertainty in canopy coverage over the scale of the City of Los Angeles. The tree canopy within the City has been plotted over a map of the City in order to identify the distribution of tree canopy by region, council district, and urban and native lands (Figure 1). The distribution of tree canopy within the City is clustered and variable with the majority of the tree canopy being distributed through the foothills of the Santa Monica Mountains concentrated in Council Districts 4, 5, and 11 (Table 2). Sparser tree canopy is more typical of the heavily urbanized portions of the City located on the floor of the San Fernando Valley and the central portions of the City and harbor regions.

Council District	Total Area (acres)	Tree Canopy (acres)	Percent Canopy Cover
District 1	10,115	1,304	12.9%
District 2	16,013	2,326	14.5%
District 3	23,453	3,856	16.4%
District 4	26,255	5,821	22.2%
District 5	24,025	5,739	23.9%
District 6	17,400	1,319	7.6%
District 7	34,640	3,998	11.5%
District 8	10,265	813	7.9%
District 9	8,341	563	6.7%
District 10	9,266	801	8.6%
District 11	40,840	9,693	23.7%
District 12	37,593	4,669	12.4%
District 13	8,713	1,010	11.6%
District 14	15,472	1,585	10.2%
District 15	20,539	1,564	7.6%
Total	302,928	45,061	14.9%

#### Table 2. Citywide Tree Canopy Area by Council District



Figure 1. Tree canopy areal extent across the City of Los Angeles within native and urban landscapes.

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#### Street Tree Canopy Area

A street tree inventory was conducted in 2014 by the City of Los Angeles (City of Los Angeles, Urban Forestry Division, 2014). This inventory identified 711,248 individual trees comprised of 585 species (including a few synonymous taxa). The frequency of tree species within the City is not evenly distributed with a limited number of species making up the majority of the trees (Figure 2). To estimate the tree canopy area as well the composition of street trees by life history type, the most abundant 56 species, comprising 80 percent of all street trees, were characterized by average mature canopy diameter and whether the tree species were conifer, broadleaf evergreen, or deciduous. Mature canopy diameter was again determined by species using data from Urban Forest Ecosystems Institute Selectree database maintained at CalPoly of (https://selectree.calpoly.edu/) and Common Trees Los Angeles (https://www.treepeople.org/sites/default/files/pdf/).



Figure 2. Percent of the total number of street trees within the City of Los Angeles by species

The average canopy diameter and distribution of life history type (deciduous, broadleaf evergreen, and conifer) for the 80 percent of the trees evaluated by species were assumed to reflect the average characteristics of the street trees across the total species list. Using the top 80 percent of all trees as a surrogate for the whole of the whole of the street trees present in the City, the make-up of the City street tree canopy was calculated (Table 3).

Estimated Street Tree	Deciduous	Broadleaf Evergreen	Conifer	Total
Total Canopy Area (acres)	5,884	10,891	896	17,670
Total Tree Count	262,375	387,842	61,031	711,248
Percent of Trees by Count	37%	55%	9%	100%
Percent of Canopy Area	33%	62%	5%	100%
Total Species Count	209	313	63	585
Average Tree Canopy Dia. (ft)	35.2	39.4	28.5	37.1

Table 3.	City of Los	s Angeles Stree	t Tree Canopy	Area and Composition
	,			

The street tree analysis suggests that the largest and most abundant street trees are broadleaf evergreen trees with slightly smaller deciduous trees making up about half of the canopy area of evergreens comprised of both broadleaf evergreens and conifers. The smallest and least abundant street trees are conifers. Street trees within the City of Los Angeles are believed to comprise approximately 39.2 percent of the tree canopy within the City, making up a remarkably high proportion of the total tree canopy with the City.

Notably the mature canopy area of trees removed under the Sidewalk Repair Program in FY2016-2017 were estimated to have a canopy diameter of 38.53 feet which is slightly above (3.9%) the mean mature canopy size estimated for street trees within the City and slightly below (2.2%) the mean canopy diameter for broadleaf evergreen. This slight size bias above the average tree size would be expected since larger trees tend to be more frequently related to sidewalk damage than smaller trees.

#### Modeled Tree Canopy Area Impact

To model the tree canopy changes through time a baseline of total street tree canopy area from 2014 was adopted as 17,670 acres. Canopy tree area reduction was determined as a stepwise reduction in street tree canopy area based on accumulating losses of area as a result of estimates of trees removed each year (Table 1) times the mean canopy area (0.027 acre). Slight differences may occur in manually calculated values due to rounding. The losses of tree canopy area under the program would be expected to result in an accelerating rate of canopy loss in five year steps as the program activities increase until Year 30. At that point no additional losses would be expected to occur (Figure 3). If there were no offsetting tree replanting activities, the removals of trees under the program would the street tree canopy would be depressed to an estimated total area of 17,326 acres, a reduction in canopy of 1.95 percent. The Street Tree Program would be expected to result in 0.66 percent reduction in Citywide tree canopy if no replanting were to occur.

With restoration planting occurring within one year of removal, the extent of replanting and subsequent maturation expansion over time dictates the expansion of canopy from replacement trees. With each consecutive program year, additional replacement trees are added and canopy area expands as a result of both new trees and previously planted trees that grow for a period of 15 years and then sustain at the mean mature canopy area. Because mortality of trees is unpredictable in time and location, the mortality rate has been incorporated into the analysis by

discounting the individual tree area for all replacement trees by 8 percent such that the resulting total replacement tree canopy area is 8 percent below the canopy area that would be achieved by multiplying the replacement tree mean canopy area by the number of replacement trees planted. The net change in tree canopy is derived by summing the negative deflections (tree removals) and the positive deflections (tree replacement planting and subsequent maturation).

Figure 3 illustrates an example of one model run illustrating the results of tree replacement planting at a rate of 2:1 for trees removed during Program Years 1-10, followed by an increase in planting rate to 3:1 for Program Years 11-21 and a subsequent reduction in tree replacement ratio back to 2:1 for Program Years 22-30. As can be seen in this scenario, while losses of tree canopy area terminate with the end of the 30 year Program (red line), expansion continues due to maturation of the trees planted within 15 years of the end of the program (green line). As a result, the net effect of removals and plantings results in a complex curve driven by both removal and planting through the Program period, but only the replanted trees following the program termination (blue line). The expansion in canopy ultimately ends when all trees reach maturity.



Figure 3. Street tree canopy area loss and gain example model output

In this scenario, the blue line reflects net deviation in street tree canopy as a result of the Program implementation. The reduction in tree canopy area is substantially mitigated by gains in tree planting. While the loss curve would result in an approximate reduction in tree canopy area of 1.95 percent the net result of planting along with removals reduces the negative deflection from baseline to 0.30 percent as a maximum in year 13 in Program Years 13 and 14 and an ultimate slight net gain in tree canopy of 0.72 percent after the end of the Program.

#### Application of the Model

The model was run for 26 total scenarios of tree replanting as scaled against tree removals. These scenarios explored the effects of altering parameters such as average replacement tree size, tree replacement ratios, front-end loading of tree replacement, sensitivity testing of changing mortality rates, and application of variable replacement ratios. In general, these scenarios were not benchmarked against the baseline tree canopy but rather were examined based only on points of intersection of loss and gain curves from a zero origin and positive values for both gains and losses. The results of these investigations are provided separately as charts in EIR Appendix G-4 and are not further discussed here.

Scenarios investigated were not all considered viable on cost, resource capacity, or technical bases, however, the scenarios were useful in exploring the sensitivity of the model to various changes and the scenarios provided assistance to the City Program team in both communicating effects of differing tree replacement scenarios and in settling on viable scenarios for evaluation through the environmental review process.

If you have any questions with respect to the modeling approach, please contact us. As indicated, the scenario model outputs are provided in a separate data document.

Sincerely,

Test. montel

Keith Merkel Principal Ecologist

#### References

- City of Los Angeles, Urban Forestry Division. 2014. 2014 Street Tree Inventory City of Los Angeles. October 31.
- Cal Poly State University. Selectree: A Tree Selection Guide. Online database maintained by Urban Forest Ecosystems Institute at Cal Poly State University, San Luis Obispo (<u>http://selectree.calpoly.edu</u>), accessed June 12, 2018.
- Greninger, Mark. 2011. Tree Canopy Raster (2006 Data). Los Angeles Region Imagery Acquisition Consortium (LAR-IAC) 2006 data. County of Los Angeles Chief Information Office. <u>http://egis3.lacounty.gov/dataportal/2010/12/23/tree-canopy-raster-2006-data/</u>
- McPherson, E. G., J.R. Simpson, Q. Xiao, and C. Wu. Los Angeles 1-Million Tree Canopy Cover Assessment. USDA Forest Service Pacific Southwest Research Station, Gen. Tech. Rept. PSW-GTR-207. January 2008.

(Appendix G-4 of Appendix B)

# Los Angeles Sidewalk Repair Program Tree Removal and Replacement Scenarios Investigated July 6, 2018 Merkel & Associates

In total 26 different tree replacement model runs (including sub-model runs) were evaluated using the canopy replacement model prepared for the Sidewalk Repair Program. A total of 25 different tree replacement scenarios were evaluated. Among these there were some scenarios postulated for review that could not be modeled due to inadequate definition of the input variables. Those scenarios that were examined are summarized by output charts on the following pages. The model driving this analysis is described in *City of Los Angeles Sidewalk Repair Program: Tree Canopy Loss and Replacement Model* (Merkel & Associates 2018).

#### **Description of Evaluated Scenarios**

SCENARIO 1 - Loss Groups 1-4=25% each, Replant Groups 1-3=33.3% each (15 year maturation, 2:1 replacement, no net mortality)

SCENARIO 2 - Loss Group 3=50%, Loss Group 4=50%; Replant Group 1=50%, Replant Group 2=50% (15 year maturation, 2:1 Replacement, no net mortality)

SCENARIO 3 - Loss Group 3=50%, Loss Group 4=50%; Replant Group 1=50%, Replant Group 2=50% (15 year maturation, 3:1 Replacement, no net mortality)

SCENARIO 4 - Loss Group 3=25%, Loss Group 4=75% Replant Groups 1-3=33.3% each (15 year maturation, 2:1 replacement, no net mortality)

SCENARIO 5 - Loss Group 3=25%, Loss Group 4=75% Replant Groups 1-3=33.3% each (15 year maturation, 3:1 replacement, no net mortality)

SCENARIO 6 - Loss Group 2=10%, Loss Group 3=80%, Loss Group 4=10%; Replant Group 1=40%, Replant Group 2=40%, Replant Group 3=20% (15 year maturation, 2:1 replacement, no net mortality)

SCENARIO 7 - Front end load planting of Scenario 6 (1000 more trees/yr (2019-2023) reduce 1000 trees/yr (2041-2046) (Loss Group 4=10%, Group 3=80%, Group 2=10%; Replant Group 1-2=40% each, Group 3=20% (15 year mat., 2:1 Replacement, no net mortality)

SCENARIO 9 - Front end load planting of Scenario 6 (1000 more trees/yr (2019-2023) reduce 1000 trees/yr (2041-2046) - Planting follows current species replacements (15 year mat., 2:1 Replacement+

Front Load, 2%-8% mortality)

SCENARIO 10 - Actual Tree Removal History with average replacement trees at 95% of removal tree radius (2:1 Replacement 2%-8% Long-term Mortality)

SCENARIO 11 – Current practices of 2:1 replacement ; no specific replacement time; 5% mortality; Canopy size of replacement tree is the largest tree possible in existing tree wells **(not modeled due to lack of necessary variable specificity)** 

SCENARIO 12 - Equal Canopy Tree Replacement (mature canopy of replacement trees equal the same size as lost trees) (2:1 Replacement 2%-8% Long-term Mortality)

SCENARIO 13 - Canopy Size Scenario -PDF/MM (2:1 Replacement 2%-8% Long-term Mortality)

SCENARIO 14 - Canopy Size Scenario -PDF/MM (2:1 Replacement 8% Long-term Mortality)

SCENARIO 15- Different Replacement Ratio6-PDF/MM; Undefined replacement ratio; Replacement w/in one year of removal; Replacement trees equal the size of canopy lost (not modeled due to lack of necessary variable specificity)

SCENARIO 16- Mix of front loading and a different replacement ratio and Canopy Size--PDF/MM (not modeled due to lack of necessary variable specificity)

SCENARIO 17- Mix of front loading and a different replacement ratio and Canopy Size--PDF/MM (not modeled due to lack of necessary variable specificity)

SCENARIO 18- Mix of front loading and a different replacement ratio and Canopy Size--PDF/MM (not modeled due to lack of necessary variable specificity)

SCENARIO 19 - Effect of Tree Replacement Multiplier (Current Tree Sizing (Average Canopy Diameter = 30.48') Replacement 8% Long-term Mortality)

- SCENARIO 19a 2:1
- SCENARIO 19b 5:2
- SCENARIO 19c 3:1
- SCENARIO 19d 4:1

SCENARIO 20 - Effects of front loading replacements by adding 600 trees/year early in program (Current Tree Sizing (X=30.48' D), Base 2:1 Replacement, 8% Long-term Mortality)

SCENARIO 21 - Influence of increasing mean replacement tree canopy diameter on canopy replacement area (2:1 Replacement at variable radii, 8% Long-term Mortality)

SCENARIO 22 - Effects of front loading replacements by adding 200trees/year for multiple years with

reduction to 1:1 replacement at end of program ( Current Tree Sizing (X=30.48' D), Base 2:1 Replacement, 8% Long-term Mortality)

- SCENARIO 22a Effects of front loading replacements by adding 200trees/year for 5 years with reduction to 1:1 replacement at end of program (Current Tree Sizing (X=30.48' D), Base 2:1 Replacement, 8% Long-term Mortality)
- SCENARIO 22b Effects of front loading replacements by adding 200trees/year for 10 years with reduction to 1:1 replacement at end of program (Current Tree Sizing (X=30.48' D), Base 2:1 Replacement, 8% Long-term Mortality)

SCENARIO 23 - Effects of front loading replacements by adding 200trees/year for 30 years with no reduction at end of program (Current Tree Sizing (X=30.48' D), Base 2:1 Replacement, 8% Long-term Mortality)

SCENARIO 24 - Effects of front loading replacements by adding 300trees/year for 20 years with reduction to 1:1 replacement at end of program ( Current Tree Sizing (X=30.48' D), Base 2:1 Replacement, 8% Long-term Mortality)

SCENARIO 25 - 2:1 Replacement for first 10 years - Ratio based ramp up commencing in Year 11 to meet full canopy replacement in Year 30 ( Current Tree Sizing (X=30.48' D), Base 2:1 Replacement, 8% Long-term Mortality)

- SCENARIO 25a 2:1 Tree replacement for 10 years (2017-2027) replacement with current tree sizing practices (30.48' D), Expand ratio to 3:1 beginning Year 11 (meets YR 27)- 35,437 Trees
- SCENARIO 25b 2:1 Tree replacement for 10 years (2017-2027) replacement with current tree sizing practices (30.48' D), Expand ratio to 3:1 beginning Year 11, drop to 2:1 at Year 22 (meets YR 30)-30,404 Trees

### SCENARIO 1 - (Actual Tree Removal Replacement History, 2%-8% Long-term Mortality)



















### SCENARIO 8 - Actual Tree Removal Replacement History (3:1 Replacement 2%-8% Long-term Mortality)



SCENARIO 9 - Front end load planting of Scenario 6 (1000 more trees/yr (2019-2023) reduce 1000 trees/yr (2041-2046) - Planting follows current species replacements (15 year mat., 2:1 Replacement+ Front Load, 2%-8% mortality)



### SCENARIO 10 - Actual Tree Removal History with average replacement trees at 95% of removal tree radius (2:1 Replacement 2%-8% Long-term Mortality)



SCENARIO 12 - Equal Canopy Tree Replacement (mature canopy of replacement trees equal the same size as lost trees) (2:1 Replacement 2%-8% Long-term Mortality)



### SCENARIO 13 - Canopy Size Scenario -PDF/MM (2:1 Replacement 2%-8% Long-term Mortality)



#### SCENARIO 14 - Canopy Size Scenario -PDF/MM (2:1 Replacement 8% Long-term Mortality)





Street Tree Canopy Acre Change

# **SCENARIO 19 - Effect of Tree Replacement Multiplier**








#### SCENARIO 22 - Effects of front loading replacements by adding 200trees/year for multipe years with reduction to 1:1 replacement at end of program ( Current Tree Sizing (X=30.48' D), Base 2:1 Replacement, 8% Long-term Mortality)



## SCENARIO 23 - Effects of front loading replacements by adding 200trees/year for 30 years with no reduction at end of program ( Current Tree Sizing (X=30.48' D), Base 2:1 Replacement, 8% Long-term Mortality)



#### SCENARIO 24 - Effects of front loading replacements by adding 300trees/year for 20 years with reduction to 1:1 replacement at end of program ( Current Tree Sizing (X=30.48' D), Base 2:1 Replacement, 8% Long-term Mortality)



## SCENARIO 25 - 2:1 Replacement for first 10 years - Ratio based ramp up commencing in Year 11 to meet full canopy replacement in Year 30 (Current Tree Sizing (X=30.48' D), Base 2:1 Replacement, 8% Long-term Mortality)



# Los Angeles City Street Tree Count and Groups-2014

SPECIES	COUNT
CRAPE MYRTLE (Lagerstroemia indica)	46,670
MEXICAN FAN PALM (Washingtonia robusta)	44,498
AMERICAN SWEETGUM (Liquidambar styraciflua)	42,540
SOUTHERN MAGNOLIA (Magnolia grandiflora)	36,535
INDIAN LAUREL FIG (Ficus microcarpa 'Nitida')	30,529
JACARANDA (Jacaranda acutifolia / mimosifolia)	21,956
LONDON PLANE (Platanus acerifolia)	19,363
CAMPHOR TREE (Cinnamomum camphora)	19,300
ITALIAN CYPRESS (Cupressus sempervirens)	15,988
CANARY ISLAND PINE (Pinus canariensis)	15,538
MODESTO ASH (Fraxinus velutina 'Modesto')	13,936
CARROTWOOD (Cupaniopsis anacardioides)	13,211
CAROB (Ceratonia siliqua)	12,020
QUEEN PALM (Arecastrum romanzoffianum)	11,521
EVERGREEN PEAR (Pyrus kawakamii)	11,190
CANARY ISLAND DATE PALM (Phoenix canariensis)	10,739
GLOSSY PRIVET (Ligustrum lucidum)	10,382
LIVE OAK (Quercus agrifolia)	8,878
VICTORIAN BOX (Pittosporum undulatum)	7,946
SHAMEL ASH (Fraxinus uhdei)	7,636
BRAZILIAN PEPPER (Schinus terebinthifolius)	7,635
CHINESE ELM (Ulmus parvifolia)	7,455
WEEPING FIG (Ficus benjamina)	7,372
CHINESE EVERGREEN ELM (Ulmus parvifolia semperviren)	7,079
WHITE MULBERRY (Morus alba)	6,976
SIBERIAN ELM (Ulmus pumila)	6,730
BOTTLE TREE (Brachychiton populneus)	5,863
SCARLET BOTTLEBRUSH (Callistemon lanceolatus)	5,793
CAROLINA LAUREL CHERRY (Prunus caroliniana)	5,706
BOTTLEBRUSH (Callistemon citrinus)	5,650
CALIFORNIA SYCAMORE (Platanus racemosa)	5,572
BRISBANE BOX (Tristania conferta)	4,994
SO. CALIFORNIA BLACK WALNUT (Juglans californica)	4,977
ORNAMENTAL PEAR (Pyrus calleryana)	4,975
GOLDENRAIN TREE (Koelreuteria paniculata)	4,734
AFRICAN FERN PINE (Podocarpus gracilior)	4,711
ALEPPO PINE (Pinus halepensis)	4,396
TULIP TREE (Liriodendron tulipifera)	4,343
BRADFORD PEAR (Pyrus calleryana)	4,225
YEW PINE (Podocarpus macrophyllus)	4,192
DEODAR CEDAR (Cedrus deodara)	4,081
CALIFORNIA PEPPER (Schinus molle)	4,067
OLEANDER (Nerium oleander)	4,047
BLACK LOCUST (Robinia pseudoacacia)	4,008
AUSTRALIAN WILLOW (Geijera parviflora)	3,989
GOLD MEDALLION TREE (Cassia leptophylla)	3,780
ARIZONA ASH (Fraxinus velutina)	3,486
BLUE GUM (Eucalyptus globulus)	3,485
OLIVE (Olea europaea)	3,368
CHINESE FLAME TREE (Koelreuteria bipinnata)	3,363
WHITE BIRCH (Betula pendula)	3,234

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SAWTOOTH ZELKOVA (Zelkova serrata) 1,623
SWEETSHADE (Hymenosporum flavum) [ 1,619
ENGLISH WALNUT (Juglans regia) 1,593
KING PALM (Archontophoenix cunningham.) 1,582
NEW ZEALAND CHRISTMAS TREE (Metrosideros excelsus) 1,567
WEEPING BOTTLE BRUSH (Callistemon viminalis) 1,557
CHINESE FLAME TREE (Koelreuteria bipinnata) 1,539
RED IRONBARK (Eucalyptus sideroxylon) 1,526
PEACH (Prunus persica) 1,480
RED GUM (Eucalyptus camaldulensis) 1,477
FERN PINE (Podocarpus gracilior) 1,449
QUEENSLAND PITTOSPORUM (Pittosporum rhombifolium) 1,434
PURPLE-LEAF PLUM (Prunus pissardii) 1,405
CORK OAK (Quercus suber) 1,387
TREE OF HEAVEN (Ailanthus altissima) 1,377
CHINESE PISTACHE (Pistacia chinensis) 1,338
LEMON-SCENTED GUM (Eucalyptus citriodora) 1,313
SWAMP MAHOGONY (Eucalyptus robusta) 1,312
AVOCADO (Persea americana) 1,303
GOLDEN TRUMPET TREE (Tabebuia chrysotricha) 1,261
MODESTO ASH (Fraxinus velutina glabra) 1,241
MAIDENHAIR TREE (Ginkgo biloba) 1,238
AMERICAN ELM (Ulmus americana) 1,188

SPECIES	COUNT
EDIBLE LOQUAT (Eriobotrya japonica)	1,161
ITALIAN ALDER (Alnus cordata)	1,161
CHINABERRY (Melia azedarach)	1,144
TORREY PINE (Pinus torreyana)	1,144
WESTERN REDBUD (Cercis occidentalis)	1,139
SOUTHERN LIVE OAK (Quercus virginiana)	1,138
JAPANESE PRIVET (Ligustrum japonicum)	1,080
RIVER SHE-OAK (Casuarina cunninghamiana)	1,054
LEMON (Citrus limon)	999
CUNNINGHAM BEEFWOOD (Casuarina cunninghamiana)	998
PALM SPECIES (Palm spp.)	984
COAST REDWOOD (Sequoia sempervirens)	936
WHITE ALDER (Alnus rhombifolia)	921
LEYLAND CYPRESS (Cupressocyparis leylandii)	918
NORFOLK ISLAND PINE (Araucaria excelsa)	908
CHITALPA (CHITALPA TASHKENTENSIS)	882
APRICOT (Prunus armeniaca)	881
HORSETAIL TREE (Casuarina equisetifolia)	870
PLUM (Prunus domestica)	809
KAFFIRBOOM CORAL TREE (Erythrina caffra)	765
AUSTRALIAN BRUSH CHERRY (Eugenia myrtifolia)	763
RUBBER TREE (Ficus elastica)	732
GUADALUPE PALM (Brahea edulis)	621
MIMOSA (Albizia julibrissin cultivar)	619
SUGAR GUM (Eucalyptus cladocalyx)	553
HOLLYWOOD TWISTED JUNIPER (Juniperus chin. 'Torulosa')	520
MEDITERRANEAN FAN PALM (Chamaerops humilis)	508
AFRICAN SUMAC (Rhus lancea)	494
RUSTY-LEAF FIG (Ficus rubiginosa)	487
RIGIDLEAF MELALEUCA (Melaleuca styphelioides)	486
MOCK ORANGE (Pittosporum tobira)	483
SYDNEY GOLDEN WATTLE (Acacia longifolia)	482
CAPE CHESTNUT (Calodendrum capense)	478
EUROPEAN WHITE BIRCH (Betula alba pendula)	465
MYOPORUM (Myoporum laetum)	465
MORETON-BAY FIG (Ficus macrophylla)	449
WILSON HOLLY (Ilex altaclar. 'Wilsonii')	446
BAILEY ACACIA (Acacia baileyana)	440
FLAX-LEAF PAPERBARK (Melaleuca linariifolia)	434
GREEN WATTLE (Acacia decurrens)	424
PAPER MULBERRY (Broussonetia papyrifera)	412
DRACAENA (Cordyline australis)	404
ARIZONA CYPRESS (Cupressus glabra)	403
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CHINESE HACKBERRY (Celtis sinensis)	151
PENCIL TREE (Euphorbia tirucalli)	149
MELALEUCA (Melaleuca nesophila)	147
NEW CALEDONIA PINE (Araucaria columnaris)	143
PECAN (Carya pecan)	143
NAKED CORAL TREE (Erythrina coralloides)	142
PRIMROSE TREE (Lagunaria patersonii)	140
WHITE SAPOTE (Casimiroa edulis)	133
GIANT YUCCA (Yucca elephantipes)	132
FREMONT COTTONWOOD (Populus fremontii)	131
HYBRID CATALPA (Catalpa X hybrida)	131
IDAHO LAVENDER LOCUST (Robinia ambigua 'Idahoensis')	129
INDIAN LAUREL FIG (Ficus retusa)	124
COCKSPUR CORAL TREE (Erythrina crista-galli)	120
JUNIPER SPECIES (Juniperus spp.)	113
HACKBERRY SPECIES (Celtis spp.)	111
SAGO PALM (Cycas revoluta)	111
SWEET BAY (Laurus nobilis)	106
FIDDLELEAF FIG (Ficus lyrata)	105
MONKEY PUZZLE TREE (Araucaria araucana)	102
CAROLINA POPLAR (Populus canadensis)	98
ATHEL TREE (Tamarix aphylla)	96
RED OAK (Quercus rubra)	96
ROSE-OF-CHINA (Hibiscus rosa-sinensis)	93
OCTOPUS TREE (Brassaia actinophylla)	92
BLACK COTTONWOOD (Populus trichocarpa)	91
CALIFORNIA JUNIPER (Juniperus californica)	90
JAPANESE FLOWERING CHERRY (Prunus serrulata)	89
PINK FLOWERING LOCUST (Robinia ambig. 'Decaisneana')	87
CHIR PINE (Pinus roxburghii)	86
TANGERINE (Citrus reticulata)	86
COCONUT PALM (Cocos nucifera)	85
ROSE-OF-SHARON (Hibiscus syriacus)	85
CHINESE COLUMNAR JUNIPER (Juniperus chin. 'Columnaris')	83
COLORADO BLUE SPRUCE (Picea pungens)	83
ORIENTAL SWEETGUM (Liquidambar orientalis)	81
TOMLINSON ASH (Fraxinus uhdei 'Tomlinson')	80
DRACAENA (Dracaena australis)	79
LAUREL SUMAC (Rhus laurina)	79
CHINESE FRINGE TREE (Chionanthus retusus)	78
HOPSEED (Dodonaea viscosa)	77
PERUVIAN PEPPER TREE (Schinus polygamus)	77
SAUCER MAGNOLIA (Magnolia soulangiana)	77
EDIBLE APPLE (Malus sylvestris)	73
SILVER WATTLE (Acacia dealbata)	72
EASTERN REDBUD (Cercis canadensis)	71
FLAME TREE (Brachychiton acerifolius)	69
JAPANESE PLUM (Prunus salicina)	69
JAPANESE PERSIMMON (Diospyros kaki)	68
LAUREL-LEAF SNAILSEED (Cocculus laurifolius)	68
SPOTTED GUM (Eucalyptus maculata)	68

SPECIES	COUNT
CHINESE SWEETGUM (Liquidambar formosana)	67
PURPLE HOPSEED (Dodonaea viscosa 'Purpurea')	66
MEXICAN BLUE PALM (Brahea armata)	63
CHINESE JUNIPER (Juniperus chinensis)	60
WHITE POPINAC (Leucaena glauca)	60
ATLAS CEDAR (Cedrus atlantica)	59
MARRI (Eucalyptus calophylla)	59
COMMON BANANA (Musa X paradisiaca)	58
MONTEREY CYPRESS (Cupressus macrocarpa)	58
TEXAS UMBRELLA TREE (Melia aze. 'Umbraculiformis')	58
BLUE POTATO BUSH (Lycianthus rantonnetii)	55
CALIFORNIA BAY (Umbellularia californica)	55
SENEGAL PALM (Phoenix reclinata)	55
BISHOP PINE (Pinus muricata)	54
FORMOSA SWEETGUM (Liquidambar formosana)	54
RAYWOOD ASH (Fraxinus oxycarpa)	54
AUSTRALIAN TEA TREE (Leptospermum laevigatum)	52
ELM SPECIES (Ulmus spp.)	52
MAYTEN TREE (Maytenus boaria)	52
WHITE ORCHID TREE (Bauhinia variegata 'Candida')	52
FAN PALM SPECIES (Livistona spp.)	51
COMMON BANANA (Musa paradisiaca sapientum)	50
CORAL GUM (Eucalyptus torquata)	50
CRABAPPLE (Malus floribunda)	50
BALD CYPRESS (Taxodium distichum)	48
JAPANESE VIBURNUM (Viburnum japonicum)	48
WILLOW (Salix commutata)	48
ARROYO WILLOW (Salix lasiolepis)	47
CEDAR OF LEBANON (Cedrus libani)	47
JELECOTE PINE (Pinus patula)	47
DRAGON TREE (Dracaena draco)	46
TEA TREE (Leptospermum scoparium)	46
HOLLY SPECIES (Ilex spp.)	44
REDBUD (Cercis occidentalis)	44
ROUNDLEAF SWEETGUM (Liquidambar rotundiloba)	44
WILLOW (Salix spp.)	44
BLUE ATLAS CEDAR (Cedrus atlantica 'Glauca')	43
JAPANESE PAGODA TREE (Sophora japonica)	43
WILLOW ACACIA (Acacia saligna)	42
GUATEMALAN HOLLY (Olmediella betschlerana)	41
HAT TREE (Brachychiton discolor)	41
JERUSALEM THORN (Parkinsonia aculeata)	41
RED MULBERRY (Morus rubra)	41
BALSAM POPLAR (Populus balsamifera)	39
SAND PEAR (Pyrus pyrifolia)	39
TREE TOBACCO (Nicotiana glauca)	39
MEALY-WHITE GUM (Eucalyptus pulverulenta)	38
SCOTCH PINE (Pinus sylvestris)	38
STRAWBERRY GUAVA (Psidium littorale)	38
BUSHY YATE (Eucalyptus lehmannii)	37
WILLOW PITTOSPORUM (Pittosporum phillyraeoides)	37

SPECIES	COUNT
AUSTRALIAN TREE FERN (Sphaeropteris cooperii)	36
COMMON CATALPA (Catalpa bignonioides)	36
COMMON GUAVA (Psidium guajava)	36
COMMON HACKBERRY (Celtis occidentalis)	36
GLOSSY ARALIA TREE (Tupidanthus calyptratus)	36
KNIFE ACACIA (Acacia cultriformis)	36
CYPRESS (Cupressus nevadensis)	35
PARADOX WALNUT (Juglans X 'Paradox')	34
FLOWERING PLUM (Prunus blireiana)	33
PLUME ALBIZIA (Albizia distachya)	33
WESTERN HACKBERRY (Celtis reticulata)	33
CALIFORNIA BIG TREE (Sequoiadendron giganteum)	32
DIGGER PINE (Pinus sabiniana)	31
CHINESE PHOTINIA (Photinia serrulata)	30
ENGLISH HOLLY (Ilex aquifolium)	30
SMOOTH-BARK ARIZONA CYPRESS (Cupressus glabra)	30
WESTERN RED CEDAR (Thuja plicata)	30
EVERBLOOMING ACACIA (Acacia longifolia)	29
MACADAMIA (Macadamia integrifolia)	29
WEEPING MYALL (Acacia pendula)	29
EDIBLE PEAR (Pyrus communis)	28
MONTEZUMA CYPRESS (Taxodium mucronatum)	28
PUSSY WILLOW (Salix discolor)	28
SOAPBARK TREE (Quillaja saponaria)	28
CALIFORNIA PRIVET (Ligustrum ovalifolium)	26
SMALL-LEAVED GUM (Eucalyptus parvifolia)	26
AMERICAN WHITE ASH (Fraxinus americana)	25
EUROPEAN HACKBERRY (Celtis australis)	25
WHITE POPLAR (Populus alba)	25
BLACK WILLOW (Salix nigra)	24
COMMON PERSIMMON (Diospyros virginiana)	24
FIREWHEEL TREE (Stenocarpus sinuatus)	24
INDIAN HAWTHORN (Rhapiolepis indica)	24
JEFFREY PINE (Pinus jeffreyi)	24
PAPER BIRCH (Betula papyrifera)	24
PIN OAK (Quercus palustris)	24
ARAUCARIA SPECIES (Araucaria spp.)	23
BUNYA-BUNYA TREE (Araucaria bidwillii)	23
KATSURA TREE (Cercidiphyllum japonicum)	23
PRINCESS TREE (Paulownia tomentosa)	23
QUEENSLAND UMBRELLA TREE (Schefflera actinophylla)	23
BEEFWOOD (Casuarina stricta)	22
CORKSCREW WILLOW (Salix matsudana 'Tortuosa')	22
KUMQUAT (Fortunella margarita)	22
LIME (Citrus aurantifolia)	22
NEW ZEALAND CHASTE TREE (Vitex lucens)	22
SWEET CHERRY (Prunus avium)	22
YELLOW OLEANDER (Thevetia peruviana)	22
YOSHINO FLOWERING CHERRY (Prunus yedoensis)	22
FORBES CYPRESS (Cupressus forbesii)	21
QUEENSLAND NUT (Macadamia ternifolia)	21

SPECIES	COUNT
STIFF BOTTLEBRUSH (Callistemon rigidus)	21
GIANT BIRD OF PARADISE SHRUB (Caesalpinia gilliesii)	20
HEATH MELALEUCA (Melaleuca ericifolia)	20
MAUL OAK/CANYON LIVE OAK (Quercus chrysolepis)	20
CANOE BIRCH (Betula papyrifera)	19
CHINESE FAN PALM (Livistona chinensis)	19
SUGAR BUSH (Rhus ovata)	19
WOOLLY SENNA (Cassia tomentosa)	19
BANYAN FIG (Ficus mysorensis)	18
CHINESE PARASOL TREE (Firmiana simplex)	18
COLORADO JUNIPER (Juniperus scopulorum)	18
COULTER PINE (Pinus coulteri)	18
LAURUSTINUS (Viburnum tinus)	18
RIDGE-FRUITED MALLEE (Eucalyptus incrassata)	18
RIVER BIRCH (Betula nigra)	17
BLACK MULBERRY (Morus nigra)	16
KINGANS FRUITLESS MULBERRY (Morus alba 'Kingan')	16
NECTARINE (Prunus persica nucipersica)	16
PACIFIC PLUM (Prunus subcordata)	16
POPLAR (Populus)	16
RED MAPLE (Acer rubrum)	16
BIGLEAF MAPLE (Acer macrophyllum)	15
PLUME ALBIZIA (Albizia lopantha)	15
RED CLUSTERBERRY (Cotoneaster lacteus)	15
CALIFORNIA SCRUB OAK (Quercus dumosa)	14
CRIMSON MALLEE BOX (Eucalyptus lansdowneana)	14
DOUGLAS FIR (Pseudotsuga menziesii)	14
FLOWERING ASH (Fraxinus ornus)	14
SPANISH-BAYONET (Yucca aloifolia)	14
SWEET HAKEA (Hakea suaveolens)	14
AMERICAN MOUNTAIN ASH (Sorbus americana)	13
CALIFORNIA BLACK OAK (Quercus kelloggii)	13
CHINESE HOLLY (Ilex cornuta)	13
CHINESE WISTERIA (Wisteria sinensis)	13
DAWN REDWOOD (Metasequoia glyptostroboides)	13
MAUL OAK (Quercus chrysolepis)	13
MORAINE ASH (Fraxinus holo. 'Moraine')	13
RED BAY (Persea borbonia)	13
AMERICAN CHESTNUT (Castanea dentata)	12
CATALINA IRONWOOD (Lyonothamnus floribundus)	12
JAPANESE CAMELLIA (Camellia japonica)	12
JUNIPER (Juniperus monosperma)	12
MONTEBELLO ASH (Fraxinus velutina 'Coriacea')	12
PINK MELALEUCA (Melaleuca nesophila)	12
PONYTAIL PALM (Beaucarnea recurvata)	12
SHORE PINE (Pinus contorta)	12
TUPIDANTHUS (Tupidanthus calyptratus)	12
BOWER WATTLE (Acacia subporosa)	11
CHILEAN PEPPER TREE (Schinus polygamus)	11
CHINESE JUJUBE (Ziziphus jujuba)	11
COLORADO RED LOCUST (Robinia pse. 'Colorado')	11

SPECIES	COUNT
ENGELMAN SPRUCE (Picea engelmannii)	11
LILLY OF THE VALLEY TREE (Tricuspidaria dependens)	11
SPANISH CHESTNUT (Castanea sativa)	11
STAR MAGNOLIA (Magnolia stellata)	11
BUSHY YATE/LEHMANS YATE (Eucalyptus lehmannii)	10
MT. ATLAS MASTIC TREE (Pistacia atlantica)	10
MYRTLE (Myrtus communis)	10
OSAGE ORANGE (Maclura pomifera)	10
PINK BOTTLE TREE (Brachychiton discolor)	10
POTATO TREE (Solanum macranthum)	10
SWISS MOUNTAIN PINE (Pinus mugo)	10
WEEPING MULBERRY (Morus alba 'Pendula')	10
CHERIMOYA (Annona cherimola)	9
DROOPING MELALEUCA (Melaleuca armillaris)	9
FLAMEGOLD (Koelreuteria elegans)	9
HOOP PINE (Araucaria cunninghamii)	9
PEPPERMINT EUCALYPTUS (Eucalyptus amygdalina)	9
PONDEROSA PINE (Pinus ponderosa)	9
SANDANKWA VIBURNUM (Viburnum suspensum)	9
SANTA CRUZ ISLAND IRONWOOD (Lyonothamnus asplenifolius)	9
SMALLLEAF SWEETGUM (Liquidambar orientalis)	9
STRIBLING FRUITLESS MULBERRY (Morus alba 'Striblingii')	9
TECATE CYPRESS (Cupressus forbesii)	9
AFRICAN TULIP TREE (Spathodea campanulata)	8
BO TREE (Ficus religiosa)	8
DOGWOOD (Cornus spp.)	8
ENGLISH ELM (Ulmus procera)	8
JAPANESE CEDAR (Cryptomeria japonica)	8
KENTIA PALM (Howea forsterana)	8
PAPAYA (Carica papaya)	8
PINON PINE (Pinus edulis)	8
RED HORSE-CHESTNUT (Aesculus carnea)	8
ROUND-LEAF MOORT (Eucalyptus platypus)	8
SCARLET-PLUME (Euphorbia fulgens)	8
TAIWAN CHERRY (Prunus campanulata)	8
TARATA (Pittosporum eugenioides)	8
FLOWERY SENNA (Cassia corymbosa)	7
LILLY OF THE VALLEY TREE (Crinodendron patagua)	7
RED-CAP GUM (Eucalyptus erythrocorys)	7
WASHINGTON THORN (Crataegus phaenopyrum)	7
YATE (Eucalyptus cornuta)	7
FLANNEL BUSH (Fremontodendron californicum)	6
FLOWERING MAPLE (Abutilon striatum)	6
LILLY PILLY TREE (Acmena smithii)	6
MADEIRA BAY FIG (Persea indica)	6
NORWAY MAPLE (Acer platanoides)	6
RED WILLOW (Salix laevigata)	6
WHITE-FLOWERED MIMOSA (Albizia julibrissin 'Alba')	6
AUSTRIAN PINE (Pinus nigra)	5
BECHTEL CRABAPPLE (Malus ioensis 'Plena')	5
BLACK ALDER (Alnus glutinosa)	5

SPECIES	COUNT
CHINESE FOUNTAIN PALM (Livistona chinensis)	5
FLOWERING DOGWOOD (Cornus florida)	5
KUMQUAT (Fortunella japonica)	5
LACEBARK PINE (Pinus bungeana)	5
MONARCH BIRCH (Betula maximowicziana)	5
NEW ZEALAND PALM (Dracaena indivisa)	5
PINK FLOWERING TAMARISK (Tamarix parviflora)	5
PINK IRONBARK (Eucalyptus sider. 'Rosea')	5
QUINCE TREE (Cydonia oblonga)	5
RING-LEAF WILLOW (Salix babylonica 'Crispa')	5
RUSSIAN OLIVE (Elaeagnus augustifolia)	5
SIRIS TREE (Albizia lebbeck)	5
SUGAR MAPLE (Acer saccharum)	5
SWEET BAY MAGNOLIA (Magnolia virginiana)	5
SYDNEY GOLDEN WATTLE (Acacia floribunda)	5
TRIDENT MAPLE (Acer buergeranum)	5
BENGAL PALM (Phoenix paludosa)	4
CALIFORNIA BUCKEYE (Aesculus californica)	4
CALIFORNIA ELDERBERRY (Sambucus caerulea 'Velutina')	4
CARIBBEE ROYSTONEA PALM (Rovstonea oleracea)	4
CHINESE WINGNUT (Pterocarva stenoptera)	4
CLIFF DATE PALM (Phoenix rupicola)	4
FRAGRANT OLIVE (Osmanthus fragrans)	4
KARO (Pittosporum crassifolium)	4
LIVISTONA PALM (Livistona australis)	4
MEXICAN HAND PLANT (Chiranthodendron pentadactvl)	4
NATAL CORAL TREE (Ervthrina humeana)	4
NOSEGAY (Plumeria rubra)	4
OREGON ASH (Fraxinus oregona)	4
POINSETTIA (Euphorbia pulcherrima)	4
PORT ORFORD CEDAR (Chamaecyparis lawsoniana)	4
RED ALDER (Alnus oregona)	4
SCARLET OAK (Quercus coccinea)	4
SMOKE TREE (Cotinus coggygria)	4
SOUR ORANGE (Citrus aurantium)	4
TANBARK OAK (Lithocarpus densiflorus)	4
TREE ALOE (Aloe arborescens)	4
WHITE PEPPERMINT (Eucalyptus pulchella)	4
ALLIGATOR JUNIPER (Juniperus deppeana)	3
AMERICAN HOLLY (llex opaca)	3
ARIZONA CYPRESS (Cupressus arizonica)	3
BRAZILWOOD (Caesalpinia echinata)	3
COMMON JUNIPER (Juniperus communis)	3
COMMON LILAC (Syringa vulgaris)	3
FALSE CYPRESS SPECIES (Chamaecyparis spp.)	3
FISHTAIL PALM (Carvota ochlandra)	3
FRANGIPANI (Plumeria rubra)	3
ITALIAN BUCKTHORN (Rhamnus alaternus)	3
JAPANESE RED PINE (Pinus densiflora)	3
LEMONADE BERRY (Rhus integrifolia)	3
MADRONA (Arbutus menziesii)	3

SPECIES	COUNT
MESA OAK (Quercus engelmannii)	3
NATAL PLUM (Carissa grandiflora)	3
PARANA PINE (Araucaria angustifolia)	3
QUEENSLAND GREVILLEA (Grevillea banksii)	3
RED FIR (Abies magnifica)	3
ROSE GUM (Eucalyptus grandis)	3
SPANISH FIR (Abies pinsapo)	3
SPINDLE TREE (Euonymous japonica)	3
TRINIDAD FLAME BUSH (Calliandra tweedii)	3
WHITE BOTTLEBRUSH (Callistemon salignus)	3
AUSTRALIAN FAN PALM (Livistona australis)	2
AUSTRALIAN JUNIPER-MYRTLE (Agonis juniperina)	2
BEECH (Fagus grandifolia)	2
ENGLISH YEW (Taxus baccata)	2
EVERGREEN DOGWOOD (Cornus capitata)	2
FERNLEAF CATALINA IRONWOOD (Lyonothamnus f. asplenifol.)	2
FLOWERING CHERRY (Prunus subhirtella)	2
FOOTHILL ASH (Fraxinus dipetala)	2
FULL MOON MAPLE (Acer japonicum)	2
GIANT ARBORVITAE (Thuia plicata)	2
GLOBE WILLOW (Salix matsudana 'Navajo')	2
GOLDEN WATTLE (Acacia pycnantha)	2
GUM-BARKED COOLABAH (Eucalvotus intertexta)	2
HIMALAYAN JUNIPER (Juniperus recurva)	2
HIMALAYAN PINE (Pinus wallichiana)	2
IRISH YEW (Taxus baccata 'Stricta')	2
JAPANESE FLOWERING APRICOT (Prunus mume)	2
KNOBCONE PINE (Pinus attenuata)	2
LAWSON CYPRESS (Chamaecyparis lawsoniana)	2
MORETON BAY CHESTNUT (Castanospermum australe)	2
MOUNTAIN IRONWOOD (Cercocarpus betuloides)	2
MT ATLAS PISTACHE TREE (Pistacia atlantica)	2
NEW ZEALAND LAUREL (Corvnocarpus laevigata)	2
PARLOR PALM (Chamaedorea elegans)	2
PINK FLOWERING GUM (Eucalvotus leuc, 'Rosea')	2
PINK POWDER PUFF (Calliandra haematocephala)	2
PORTUGAL LAUREL (Prunus lusitanica)	2
QUEENSLAND KAURI (Agathis robusta)	2
RED MAHOGANY (Eucalyptus resinifera)	2
SOUR CHERRY (Prunus cerasus)	2
SPANISH RED OAK (Quercus falcata)	2
TEXAS PALMETTO (Sabal mexicana)	2
THORNY ELAEAGNUS (Elaeagnus pungens)	2
WHITE BASSWOOD (Tilia heterophylla)	2
WHITE BOTTLE BRUSH (Melaleuca decora)	2
WHITE PINE (Pinus strobus)	2
WHITE WILLOW (Salix alba)	2
BLUE BLOSSOM (Ceanothus thvrsiflorus)	1
CALIFORNIA NUTMEG (Torreva californica)	1
CHASTE TREE (Vitex agnus-castus)	1
CHILEAN WINE PALM (Jubaea chilensis)	1
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SPECIES	COUNT
COMMON MANZANITA (Arctostaphylos manzanita)	1
COYOTE BRUSH (Baccharis pilularis)	1
FLOWERING MAPLE (Abutilon pictum thompsonii)	1
GOWEN CYPRESS (Cupressus goveniana)	1
GUM MYRTLE (Angophora lanceolata)	1
JAPANESE YEW PINE (Podocarpus m. 'Maki')	1
KANGAROO THORN (Acacia armata)	1
LG. FRUIT RED FLOWERING GUM (Eucalyptus macro. 'Rosea')	1
LILAC MELALEUCA (Melaleuca decussata)	1
MOCKERNUT HICKORY (Carya tomentosa)	1
NEEDLE PALM (Trithrinax acanthacoma)	1
PARRY PINYON PINE (Pinus quadrifolia)	1
PAUL'S SCARLET HAWTHORN (Crataegus oxycantha 'Paulii')	1
PLUME CEDAR (Cryptomeria japon. 'Elegans')	1
RED SPRUCE (Picea rubens)	1
ROSE APPLE (Syzygium jambos)	1
SEA-URCHIN TREE (Hakea laurina)	1
SHOESTRING ACACIA (Acacia stenophylla)	1
SILVER SAW PALM (Acoelorrhaphe wrightii)	1
SILVER TREE (Leucodendron argenteum)	1
SINGLELEAF PINYON PINE (Pinus monophylla)	1
SKY FLOWER (Duranta repens)	1
TIGER-CLAW CORAL TREE (Erythrina rubinerba)	1
TITOKI (Alectryon excelsus)	1
TOTAL	711,248



Mature Tree Average Canopy Diameter By Species

5

## Appendix B2 Sensitive Plant Species with Potential to Occur within the Project Site

### Sensitive Plant Species with Potential to Occur within the Project Site

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Abrams' alumroot Heuchera abramsii	4.3	Perennial rhizomatous herb. Rocky soil in upper montane coniferous forest; 2800-3500 m (9184 - 11480 ft.). Blooming period: July - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Abrams' oxytheca Acanthoscyphus parishii var. abramsii	1B.2	Annual herb. Chaparral, sand and shale. 1143-2057 m (3750-6748 ft.). Blooming period: June-August.	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
adobe yampah Perideridia pringlei	4.3	Perennial herb. Serpentine or often clay soils in chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland; 300-1800 m (984 - 5904 ft.). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Agoura Hills dudleya Dudleya cymosa ssp. agourensis	FT, 1B.2	Perennial herb. Rocky and volcanic soils in chaparral and cismontane woodland; 200-500 m (656 - 1640 ft.). Blooming period: May - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
alkali mariposa lily <i>Calochortus striatus</i>	1B.2	Perennial bulbiferous herb. Alkaline and mesic soils in chaparral, chenopod scrub, Mojavean desert scrub, meadows, seeps, desert grasslands; 70-1595 m (230 - 5232 ft.). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
alpine sulfur- flowered buckwheat <i>Eriogonum</i> <i>umbellatum var.</i> <i>minus</i>	4.3	Perennial herb. Gravelly soil in upper montane and subalpine coniferous forest; 1800-3068 m (5904 - 10063 ft.). Blooming period: June - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
aphanisma Aphanisma blitoides	18.2	Annual herb. Sandy soils in coastal bluff scrub, coastal dunes, and coastal scrub; 1-305 m (3-1000 ft). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
appressed muhly Muhlenbergia appressa	2B.2	Annual herb. Rocky coastal scrub, Mojavean desert scrub, and valley and foothill grassland; 20-1600 m (65-5248 ft). Blooming period: April - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Baja navarretia Navarretia peninsularis	1B.2	Annual herb. Mesic soils in chaparral openings, lower montane coniferous forest, meadows and seeps, and pinyon and juniper woodland; 1500 - 2300 m (4920- 7544 ft). Blooming period: June - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Bakersfield cactus Opuntia basilaris var. treleasei	FE, CE, 1B.1	Stem succulent shrub. Sandy to gravelly soil in chenopod scrub, cismontane woodland, and valley and foothill grassland; 120-1140 m (394 - 3739 ft.). Blooming period: April - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Ballona cinquefoil Potentilla multijuga	1A	Perennial herb. Meadows and seeps in brackish water; 0-2 m (0 - 7 ft.). Blooming period: June - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Barstow woolly sunflower Eriophyllum mohavense	1B.2	Annual herb. Chenopod scrub, mojavean desert scrub, and playas; 500-960 m (1640 - 3149 ft.). Blooming period: March - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Beach spectaclepod Dithyrea maritima	CT, 1B.1	Perennial rhizomatous herb. Coastal dunes and sandy coastal scrub; 3-50 m (10 - 164 ft.). Blooming period: March - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Big Bear Valley milk-vetch Astragalus lentiginosus var. sierrae	1B.2	Perennial herb. Gravelly to rocky soil in meadows, seeps, Mojavean desert scrub, upper montane coniferious forest, pinyon and juniper woodland; 1800-2600 m (5904 - 8528 ft.). Blooming period: April - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Big Bear Valley woollypod Astragalus leucolobus	1B.2	Perennial herb. Rocky areas in lower and upper montane coniferous forest, pavement pebble plain, and pinyon and juniper woodland; 1750-2885 m (5740-9642 ft). Blooming period: May - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Blochman's dudleya Dudleya blochmaniae ssp. blochmaniae	1B.1	Perennial herb. Rocky, often clay or serpentine soils in coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland; 5-450 m (16-1476 ft). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
bluish spike-moss <i>Selaginella asprella</i>	4.3	Perennial rhizomatous herb. Granitic or rocky soils in cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest, and upper montane coniferous forest; 1600-2700 m (5248-8856 ft). Blooming period: July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Bolander's water- hemlock <i>Cicuta maculata var.</i> <i>bolanderi</i>	2B.1	Perennial herb. Marshes and swamps near coast in fresh or brackish water; 0-200 m (0 - 656 ft.). Blooming period: July - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Brand's star phacelia Phacelia stellaris	18.1	Annual herb. Coastal dunes, coastal scrub; 1-400 m (3- 1312 ft). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Braunton's milk- vetch <i>Astragalus</i> brauntonii	FE, 1B.1	Perennial herb. Recently burned and disturbed areas, in sandstone and carbonite soils, in chaparral, coastal scrub, and valley and foothill grasslands; 4-640 m (13 - 2099 ft.). Blooming period: January - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Brewer's calandrinia Calandrinia breweri	4.2	Annual herb. Sandy or loamy soils, disturbed and/or burned sites in chaparral and coastal scrub; 10-1220 m (32-4001 ft). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
bright green dudleya Dudleya virens ssp. virens	1B.2	Perennial herb. Chaparral, Coastal Sage Scrub. 13-60 m (42-196). Low water tolerant. Blooming period: April to July. Limited habitat info available.	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
California androsace Androsace elongata ssp. acuta	4.2	Annual herb. Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, and valley and foothill grassland; 150-1200 m (492-3937 ft). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
California box-thorn <i>Lycium californicum</i>	4.2	Perennial shrub. Coastal bluff scrub and coastal scrub; 5-150 m (16-492 ft). Blooming period: December - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
California muhly Muhlenbergia californica	4.3	Perennial rhizomatous herb. Mesic soils and seeps and streambeds; 100-2000 m (328 - 6560 ft.). Blooming period: June - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
California Orcutt grass <i>Orcuttia californica</i>	FE, CE, 1B.1	Annual herb. Vernal pools; 15-660 m (49-2165 ft). Blooming period: April - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
California satintail Imperata brevifolia	2B.1	Perennial rhizomatous herb. Mesic soils in chaparral, coastal scrub, mojavean desert scrub, riparian scrub, meadows and seeps (often alkali); 0-1215 m (0 - 3985 ft.). Blooming period: September - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
California sawgrass Cladium californicum	2B.2	Perennial rhizomatous herb. Meadows, seeps, marshes, and swamps either alkaline or freshwater; 60-865 m (197 - 2837 ft.). Blooming period: June - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
California spineflower <i>Mucronea californica</i>	4.2	Annual herb. Sandy soils in chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland; 0-1400 m (0-4592 ft). Blooming period: March - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Catalina crossosoma Crossosoma californicum	1B.2	Deciduous shrub. Rocky soils in chaparral and coastal scrub; 0-500 m (0 - 1640 ft.). Blooming period: February - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Catalina Island dudleya Dudleya virens ssp. hassei	1B.2	Perennial herb. Rocky soil in coastal bluff scrub; 0-400 m (0 - 1312 ft.). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Catalina mariposa lily Calochortus catalinae	4.2	Perennial bulbiferous herb. Chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland; 15-700 m (49-2296 ft). Blooming period: February - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
chaparral ragwort Senecio aphanactis	2B.2	Annual herb. Chaparral, cismontane woodland, coastal scrub, and alkaline flats; 15-800 m (49-2624 ft.). Blooming period: January - April	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
chaparral rein orchid Piperia cooperi	4.2	Perennial herb. Chaparral, cismontane woodland, and valley and foothill grassland; 15-1585 m (49-5200 ft). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
chaparral sand- verbena Abronia villosa var. aurita	1B.1	Perennial herb. Coastal dunes; 0-100 m (0-328 ft). Blooming period: February - November	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
chickweed oxytheca Sidotheca caryophylloides	4.3	Annual herb. Sandy soil in lower montane coniferous forest; 1114-2600 m (3654 - 8528 ft.). Blooming period: July - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
cliff spurge Euphorbia misera	2B.2	Perennial shrub. Rocky areas in coastal bluff scrub, coastal scrub, and Mojavean desert scrub; 10-500 m (32-1640 ft). Blooming period: December - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Clokey's cryptantha Cryptantha clokeyi	1B.2	Annual herb. Mojavean desert scrub; 725-1365 m (2378 - 4477 ft.). Blooming period: April	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
club-haired mariposa lily Calochortus clavatus var. clavatus	4.3	Perennial bulbiferous herb. Clay, rocky, or serpentine soils in chaparral, coastal scrub, cismontane woodland, valley and foothill grassland; 75-1300 m (246 - 4264 ft.). Blooming period: May - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
coast woolly-heads Nemacaulis denudata var. denudata	1B.2	Annual herb. Coastal dunes; 0-100 m (0-328 ft). Blooming period: April - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
coastal dunes milk- vetch <i>Astragalus tener var.</i> <i>titi</i>	FE, CE, 1B.1	Annual herb. Often in vernally mesic areas in sandy coastal bluff scrub, coastal dunes, and mesic coastal prairie; 1-50 m (3-164 ft). Blooming period: March - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
coastal goosefoot Chenopodium littoreum	1B.2	Annual herb. Coastal dunes; 10-30 m (33 - 98 ft.). Blooming period: April - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Coulter's goldfields Lasthenia glabrata ssp. coulteri	1B.1	Annual herb. Coastal salt marsh, coastal salt swamps, playas, vernal pools; 1-1220 m (3-4001 ft). Blooming period: February - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Coulter's matilija poppy Romneya coulteri	4.2	Perennial rhizomatous herb. Chaparral and coastal scrub; often in burned areas; 20-1200 m (65-3936 ft). Blooming period: March - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Coulter's saltbush Atriplex coulteri	1B.2	Perennial herb. Alkaline or clay soils in coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grassland; 3-460 m (9-1509 ft). Blooming period: March - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
crested milk-vetch Astragalus bicristatus	4.3	Perennial herb. Sandy or rocky ground in mostly carbonite soils in montane coniferous forest; 1700- 2745 m (5576 - 9004 ft.). Blooming period: May - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
crowned muilla <i>Muilla coronata</i>	4.2	Perennial bulbiferous herb. Chenopod scrub, mojavean desert scrub, joshua tree and pinyon and juniper woodland; 765-1960 m (2509 - 6429 ft.). Blooming period: March - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Cuyama gilia Gilia latiflora ssp. cuyamensis	4.3	Annual herb. Sandy soil in pinyon and juniper woodland; 595-2000 m (1952 - 6560 ft.). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Davidson's bush- mallow Malacothamnus davidsonii	1B.2	Deciduous shrub. Chaparral, coastal scrub, cismontane and riparian woodland; 185-855 m (607 - 2804 ft.). Blooming period: June - January	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Davidson's saltscale Atriplex serenana var. davidsonii	1B.2	Annual herb. Alkaline conditions in coastal bluff scrub and coastal scrub; 10-200 m (32-656 ft). Blooming period: April - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
decumbent goldenbush Isocoma menziesii var. decumbens	1B.2	Perennial shrub. Chaparral and in sandy coastal scrub, often in sandy disturbed areas; 10-135 m (33-443 ft). Blooming period: April - November	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
desert cymopterus Cymopterus deserticola	1B.2	Perennial herb. Sandy soil in Joshua tree woodland and Mojavean desert scrub; 630-1500 m (2066 - 4920 ft.). Blooming period: March - May.	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Duran's rush Juncus duranii	4.3	Perennial rhizomatous herb. Mesic soils in montane coniferous forest, meadows, and seeps; 1768-2804 m (5799 - 9197 ft.). Blooming period: July - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Engelmann oak <i>Quercus engelmannii</i>	4.2	Deciduous tree. Cismontane woodland, chaparral, riparian woodland, and valley and foothill grassland; 50-1300 m (164-4265 ft). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
estuary seablite Suaeda esteroa	1B.2	Perennial herb. Coastal salt marshes and swamps; 0-5 m (0-16 ft). Blooming period: May - January	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Ewan's woodbeauty Drymocallis cuneifolia var. ewanii	1B.3	Perennial herb. meadows, seeps, and mesic areas in lower montane coniferous forests; 1900-2400 m (6232 - 7872 ft.). Blooming period: June - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Fish's milkwort Polygala cornuta var. fishiae	4.3	Perennial deciduous shrub. Chaparral, cismontane woodland, and riparian woodland; 100-1000 m (328- 3280 ft). Blooming period: May - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
fragrant pitcher sage <i>Lepechinia fragrans</i>	4.2	Perennial herb. Chaparral; 20-1310 m (66 - 4297 ft.). Blooming period: March - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Gairdner's yampah Perideridia gairdneri ssp. gairdneri	4.2	Perennial herb. Vernally mesic areas in broadleaf upland forest, chaparral, coastal prairie, valley and foothill grassland, and vernal pools; 0-610 m (0-2000 ft). Blooming period: June - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Gambel's water cress Nasturtium gambelii	FE, CT, 1B.1	Annual/perennial herb. Marshes and swamps, also riverbanks and lake margins; 5-500 m (16-1640 ft). Blooming period: January - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
golden goodmania Goodmania luteola	4.2	Annual herb. Alkaline or clay soils in mojavean desert scrub, meadows, seeps, playas, and valley and foothill grassland; 20-2200 m (66 - 7216 ft.). Blooming period: April - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
golden violet Viola purpurea ssp. aurea	2B.2	Perennial herb. Sandy soils in Great Basin scrub and pinyon and juniper woodland; 1000-2500 m (3280- 8200 ft). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
golden-rayed pentachaeta Pentachaeta aurea ssp. aurea	4.2	Annual herb. Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, and valley and foothill grassland; 80-1850 m (262-6068 ft). Blooming period: March - July.	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
golden-spined cereus Bergerocactus emoryi	2B.2	Perennial stem succulent. Sandy soils in costal scrub, chaparral, and closed-cone coniferous forest, moist ocean breezes may be a key to its habitat requirements; 3-395 m (9-1295 ft). Blooming period: May - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
gray monardella Monardella australis ssp. cinerea	4.3	Perennial rhizomatous herb. Lower, upper, and subalpine coniferous forest; 1800-3050 m (5904 - 10004 ft.). Blooming period: July - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Greata's aster Symphyotrichum greatae	1B.3	Perennial rhizomatous herb. Mesic soils in chaparral, cismontane and riparian woodland, broadleaved upland and lower montane coniferious forest; 300- 2010 m (984 - 6593 ft.). Blooming period: June - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
green monardella Monardella viridis ssp. viridis	4.3	Perennial rhizomatous herb. Broadleafed upland forest, chaparral, cismontane woodland. 100-1010 m (328 – 3313 ft.) Blooming period: June - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
grey-leaved violet Viola pinetorum var. grisea	1B.3	Perennial herb. Meadows, seeps, upper montane and subalpine coniferous forest; 1500 - 3400 m (4920 - 11152 ft.). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Hall's monardella Monardella macrantha ssp. hallii	1B.3	Perennial rhizomatous herb. Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland; 730- 2195 m (2394-7199 ft). Blooming period: June - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
heart-leaved thorn- mint Acanthomintha obovata ssp. cordata	4.2	Annual herb. Clay soils in chaparral, valley and foothill grasslands, cismontane and pinyon and juniper woodland; 785-1540 m (2575 - 5051 ft.). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Hoover's eriastrum Eriastrum hooveri	4.2	Annual herb. Chenopod scrub, pinyona nd juniper woodland, valley and foothill grassland; 50-915 m (164 - 3001 ft.). Blooming period: March - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
hot springs fimbristylis Fimbristylis thermalis	2B.2	Perennial rhizomatous herb. Alkaline soils near hot springs in meadows and seeps; 110-1340 m (361 - 4395 ft.). Blooming period: July - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Hubby's phacelia Phacelia hubbyi	4.2	Annual herb. Gravelly to rocky soil or talus in chaparral, coastal scrub, valley and foothill grassland; 0-1000 m (0 - 3280 ft.). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
interior bush lupine Lupinus excubitus var. johnstonii	4.3	Shrub. Decomposed granitic soils in chaparral and lower montane coniferous forest; 1500-2500 m (4920 - 8200 ft.). Blooming period: May - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
interior manzanita Arctostaphylos parryana ssp. tumescens	4.3	Evergreen shrub. Montane chaparral and cismontane woodland; 2100-2310 m (6888 - 7577 ft.). Blooming period: February - April	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
intermediate mariposa lily Calochortus weedii var. intermedius	1B.2	Perennial bulbiferous herb. Rocky and calcareous areas in chaparral, coastal scrub, and valley and foothill grassland; 105 -855 m (345-2804 ft). Blooming period: May -July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
island green dudleya Dudleya virens ssp. insularis	1B.2	Perennial herb. Rocky soil in coastal bluff scrub and coastal scrub; 5-300 m (16 - 984 ft.). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
island mountain- mahogany <i>Cercocarpus</i> <i>betuloides var.</i> <i>blancheae</i>	4.3	Evergreen shrub. Closed-cone coniferous forests and chaparral; 30-600 m (98 - 1968 ft.). Blooming period: February - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
island wallflower Erysimum insulare	1B. 3	Perennial herb. Mesas and cliffs. 0 – 304 m (0-1000 ft). Blooming period: March - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Jepson's bedstraw <i>Galium jepsonii</i>	4.3	Perennial rhizomatous herb. Granitic, rocky, or gravelly soil in lower and upper montane coniferous forest; 1540-2500 m (5051 - 8200 ft.). Blooming period: July - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Johnston's bedstraw <i>Galium johnstonii</i>	4.3	Perennial herb. Chaparral, lower montane coniferous forest, pinyon and juniper woodland, riparian woodland; 1220-2300 m (4001-7544 ft). Blooming period: June - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Johnston's buckwheat Eriogonum microthecum var. johnstonii	1B.3	Deciduous shrub. Rocky soil in upper montane and subalpine coniferous forest; 1829-2926 m (5999 - 9597 ft.). Blooming period: July - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Johnston's monkeyflower Mimulus johnstonii	4.3	Annual herb. In the scree, disturbed areas, roadsides, and rocky to gravelly soils in lower montane coniferous forest; 975-2920 m (3198 - 9578 ft.). Blooming period: May - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Kern Canyon clarkia Clarkia xantiana ssp. parviflora	4.2	Annual herb. Sandy to rocky soil in chaparral, cismontane woodland, great basin scrub, and valley and foothill grassland; 700-3620 m (2296 - 11874 ft.). Blooming period: May - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Lancaster milk- vetch Astragalus preussii var. laxiflorus	1B.1	Perennial herb. Chenopod scrub; elevation range unknown due to lack of records. Blooming period: March - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
late-flowered mariposa lily <i>Calochortus</i> <i>fimbriatus</i>	1B.3	Perennial bulbiferous herb. Serpentine soils in chaparral, cismontane and riparian woodland; 275- 1905 m (902 - 6248 ft.). Blooming period: June - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Lemmon's syntrichopappus Syntrichopappus lemmonii	4.3	Annual herb. Sandy to gravelly soil in chaparral, joshua tree woodland, and pinyon and juniper woodland; 500-1830 m (1640 - 6002 ft.). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
lemon lily Lilium parryi	1B.2	Perennial bulbiferous herb. Mesic areas in upper and lower montane coniferous forest, meadows and seeps, and riparian forest; 1220-2745 m (4001-9003 ft). Blooming period: July - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Lincoln rockcress Boechera lincolnensis	2B.3	Perennial herb. Creosote bush scrub, shadescale scrub; 850-2260 m (2788 - 7414 ft.). Blooming period: April - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Los Angeles sunflower Helianthus nuttallii ssp. parishii	1A	Perennial rhizomatous herb. Coastal salt and freshwater marshes and swamps; 10-1675 m (33 - 5494 ft.). Blooming period: August - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Lyon's pentachaeta Pentachaeta lyonii	FE, CE, 1B.1	Annual herb. Rocky or clay soils in coastal scrub, valley and foothill grassland, and openings in chaparral; 30-630 m (98 - 2066 ft.). Blooming period: March - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Malibu baccharis Baccharis malibuensis	1B.1	Deciduous shrub. Chaparral, coastal scrub, cismontane and riparian woodland; 150-305 m (492 - 1000 ft.). Blooming period: August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
many-stemmed dudleya Dudleya multicaulis	1B.2	Perennial herb. Often in clay soils in chaparral, coastal scrub, and valley and foothill grassland; 15-790 m (49- 2591 ft). Blooming period: April to July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
marcescent dudleya Dudleya cymosa ssp. marcescens	FT, CR, 1B.2	Perennial herb. Rocky and volcanic soils in chaparral; 150-520 m (492 - 1706 ft.). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
marsh sandwort Arenaria paludicola	FE, CE, 1B.1	Perennial stoloniferous herb. Sandy soils in marshes and swamps with brackish freshwater; 3-170 m (10 - 558 ft.). Blooming period: May - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Mason's neststraw Stylocline masonii	1B.1	Annual herb. Sandy soil in chenopod scrub and pinyon and juniper woodland; 100-1200 m (328 - 3936 ft.). Blooming period: March - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
mesa horkelia Horkelia cuneata var. puberula	1B.1	Perennial herb. Sandy and gravelly soils within maritime chaparral, cismontane woodland, and coastal scrub; 70-810 m (229-2657 ft). Blooming period: February - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Mojave paintbrush <i>Castilleja plagiotoma</i>	4.3	Hemiparasitic perennial herb. Great basin scrub (alluvial soils), lower montane coniferous forests, Joshua tree, pinyon and juniper woodland; 300-2500 m (984 - 8200 ft.). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Mojave phacelia Phacelia mohavensis	4.3	Annual herb. Sandy to gravelly soil in meadows, seeps, cismontane, pinyon, and juniper woodland, lower montane coniferous forest; 1400-2500 m (4592 - 8200 ft.). Blooming period: April - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Mojave spineflower Chorizanthe spinosa	4.2	Annual herb. Sometimes alkaline soils in chenopod scrub, Joshua tree woodland, Mojavean desert scrub, and playas; 6-1300 m (20 - 4264 ft.). Blooming period: March - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
monkey-flower savory Clinopodium mimuloides	4.2	Perennial herb. Streambanks and mesic soils in chaparral and central coast coniferous forests; 305- 1800 m (1000 - 5904 ft.). Blooming period: June - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Mt. Gleason paintbrush Castilleja gleasoni	CR, 1B.2	Hemiparasitic perennial herb. Granitic soils in chaparral, lower montane coniferous forests, and pinyon and juniper woodland; 1160-2170 m (3805 - 7118 ft.). Blooming period: May - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Mt, Pinos onion Allium howellii var. clokeyi	1B.3	Perennial bulbiferous herb. Great basin scrub and pinyon and juniper woodland; 1300-1850 m (4264 - 6068 ft.). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
mud nama Nama stenocarpum	2B.2	Annual/perennial herb. Marshes and swamps, also riverbanks and lake margins; 5-500 m (16-1640 ft). Blooming period: January - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
narrow-petaled rein orchid <i>Piperia leptopetala</i>	4.3	Perennial herb. Cismontane woodland, lower and upper montane coniferous forest; 380-2225 m (1246- 7298 ft). Bloooming period: May - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Nevin's barberry <i>Berberis nevinii</i>	FE, CE, 1B.1	Evergreen shrub. Sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, and riparian scrub; 274-825 m (898-2707 ft). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Newhall sunflower Helianthus inexpectatus	1B.1	Perennial rhizomatous herb. Freshwater and seeps in marshes, swamps, and riparian woodland; elevation range unknown. Blooming period: August - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
ocellated Humboldt lily Lilium humboldtii ssp. ocellatum	4.2	Perennial bulbiferous herb. Openings in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and riparian woodland; 30-1800 m (98-5904 ft). Blooming period: March - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Ojai navarretia Navarretia ojaiensis	1B.1	Annual herb. Openings in chaparral and coastal sage scrub and valley and foothill grassland; 275-620 m (902 - 2034 ft.). Blooming period: May - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Orcutt's linanthus Linanthus orcuttii	1B.3	Annual herb. Openings in chaparral, lower montane coniferous forest, and pinyon and juniper woodland; 915-2145 m (3001-7035 ft). Blooming period: May - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Orcutt's pincushion Chaenactis glabriuscula var. orcuttiana	1B.1	Annual herb. Sandy soils in coastal bluff scrub and coastal dunes; 0-100 m (0-328 ft). Blooming period: January - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
pale-yellow layia Layia heterotricha	1B.1	Annual herb. Alkaline or clay soils in coastal scrub, valley and foothill grassland, cismontane and pinyon and juniper woodland; 300-1705 m (984 - 5592 ft.). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
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Palmer's grapplinghook Harpagonella palmeri	4.2	Annual herb. Clay soils in chaparral, grasslands, coastal sage scrub; 20-955 m (65 to 3132 ft). Blooming period: March - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Palmer's mariposa lily Calochortus palmeri var. palmeri	1B.2	Perennial bulbiferous herb. Mesic soils in chaparral, lower montane coniferous forests, meadows and seeps; 1000-2390 m (3280 - 7839 ft.). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
paniculate tarplant Deinandra paniculata	4.2	Annual herb. Coastal scrub, valley and foothill grasslands, vernal pools. 25-940 m (82 – 3083 ft.) Blooming period: April – November.	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Parish's brittlescale Atriplex parishii	1B.1	Annual herb. Alkaline soils in chenopod scrub, playas, and vernal pools; 25-1900 m (82-6232 ft). Blooming period: June - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Parish's gooseberry Ribes divaricatum var. parishii	1A	Deciduous shrub. Riparian woodland; 65-300 m (2132 - 984 ft.). Blooming period: February - April	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Parish's oxytheca Acanthoscyphus parishii var. parishii	4.2	Annual herb. Sandy to gravelly soil in chaparral and lower montante coniferious forest; 1220-2600 m (4002 - 8528 ft.). Blooming period: June - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Parish's popcorn- flower Plagiobothrys parishii	1B.1	Annual herb. Alkaline or mesic soils in great basin scrub and joshua tree woodland; 750-1400 m (2460 - 4592 ft.). Blooming period: March - November	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Parish's rupertia <i>Rupertia rigida</i>	4.3	Perennial herb. Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, pavement pebble plain; 700-2500 m (2297-8202 ft). Blooming period: June - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Parry's spineflower Chorizanthe parryi var. parryi	1B.1	Annual herb. Sandy or rocky openings in chaparral, coastal scrub, cismontane woodland, and valley and foothill grassland; 275-1220 m (902-4001 ft). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Parry's sunflower Hulsea vestita ssp. parryi	4.3	Perennial herb. Granitic, carbonite, or rocky openings in lower and upper coniferous forest and pinyon and juniper woodland; 1370-2895 m (4494 - 9496 ft.). Blooming period: April - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Peirson's lupine Lupinus peirsonii	1B.3	Perennial herb. Gravelly to rocky soil in joshua tree, pinyon and juniper woodland, lower and upper montane coniferous forest; 1000-2500 m (3280 - 8200 ft.). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Peirson's morning- glory <i>Calystegia peirsonii</i>	4.2	Perennial rhizomatous herb. Chaparral, chenopod scrub, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland; 30-1500 m (98 - 4920 ft.). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Peruvian dodder Cuscuta obtusiflora var. glandulosa	2B.2	Parasitic annual vine. Marshes and freshwater swamps; 15-280 m (49 - 918 ft.). Blooming period: July - October.	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
phlox-leaf serpentine bedstraw Galium andrewsii ssp. gatense	4.2	Perennial herb. Serpentine and rocky soil in chaparral, cismontane woodland, and lower montane coniferous forest; 150-1450 m (492 - 4756 ft.). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
pine fritillary Fritillaria pinetorum	4.3	Perennial bulbiferous herb. Granitic or metamorphic rock in chaparral, pinyon and juniper woodland, lower, upper, and subalpine coniferous forest; 1735- 3300 m (5691 - 10824 ft.). Blooming period: May - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
pine green-gentian Frasera neglecta	4.3	Perennial herb. Lower and upper montane coniferous forest, pinyon and juniper woodland; 1400-2500 m (4592 - 8200 ft.). Blooming period: May - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
pinyon rockcress Boechera dispar	2B.3	Perennial herb. Granitic to gravelly soil in joshua tree, juniper, and pinyon pine woodland, and mojavean desert scrub; 1200-2540 m (3936 - 8331 ft.). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Piute Mountains navarretia Navarretia setiloba	1B.1	Annual herb. Clay or gravelly loam soils in cismontane, pinyon and juniper woodland and valley and foothill grassland; 285-2100 m (935 - 6888 ft.). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Plummer's baccharis Baccharis plummerae ssp. plummerae	4,3	Deciduous shrub. Rocky soils in chaparral, coastal scrub, broadleaf upland and cismontane woodland; 5- 425 m (16 - 1394 ft.). Blooming period: May - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Plummer's mariposa lily Calochortus plummerae	4.2	Perennial bulbiferous herb. Granitic and rocky areas in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland; 100-1700 m (328-5576 ft). Blooming period: May - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
prostrate vernal pool navarretia <i>Navarretia prostrata</i>	1B.1	Annual herb. Mesic coastal scrub, meadows and seeps, alkaline valley and foothill grassland, and vernal pools; 15-1210 m (49-3968 ft). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
red sand-verbena Abronia maritima	4.2	Perennial herb. Coastal dunes; 0-100 m (0-328 ft). Blooming period: February - November	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
rigid fringepod Thysanocarpus rigidus	1B.2	Annual herb. Dry rocky slopes in pinyon and juniper woodland; 600-2200 m (1968-7216 ft.). Blooming period: February - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Robbins' nemacladus Nemacladus secundiflorus var. robbinsii	1B.2	Annual herb. Openings in chaparral and valley and foothill grassland; 350-1700 m (1148 - 5576 ft.). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Robinson's pepper- grass Lepidium virginicum var. robinsonii	4.3	Annual herb. Openings in chaparral and sage scrub; below 885 m (2900 ft). Blooming Period: January - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Rock Creek broomrape Orobanche valida ssp. valida	1B.2	Parasitic perennial herb. Granitic soils in chaparral and pinyon and juniper woodland; 1250-2000 m (4100 - 6560 ft.). Blooming period: May - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
rock monardella <i>Monardella saxicola</i>	4.2	Perennial rhizomatous herb. Rocky, usually serpentinite soils in chaparral, closed-cone and lower montane coniferous forest; 500-1800 m (1640 - 5904 ft.). Blooming period: June - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
rock-loving oxytrope Oxytropis oreophila var. oreophila	2B.3	Perennial herb. Gravelly to rocky soils in subalpine coniferous forest and alpine boulder and rock fields; 3400-3800 m (11152 - 12464 ft.). Blooming period: June - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Rosamond eriastrum Eriastrum rosamondense	1B.1	Annual herb. Alkaline hummocks in often sandy soil in openings of chenopod scrub and the edges of vernal pools; 700-715 m (2296 - 2345 ft.). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Ross' pitcher sage Lepechinia rossii	1B.2	Perennial herb. Chaparral; 305-790 m (1000 - 2591 ft.). Blooming period: May - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
sagebrush loeflingia Loeflingia squarrosa var. artemisiarum	2B.2	Annual herb. Sandy soil in desert dunes, great basin scrub, and sonoran desert scrub; 700-1615 m (2296 - 5297 ft.). Blooming period: April - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
salt marsh bird's- beak Chloropyron maritimum ssp. maritimum	FE, CE, 1B.2	Hemiparasitic annual herb. Coastal dunes and coastal salt marshes and swamps; 0-30 m (0-98 ft). Blooming period: May - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
salt spring checkerbloom <i>Sidalcea</i> neomexicana	2B.2	Perennial herb. Alkaline and mesic soils within chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and playas; 15-1530 m (49-5020 ft). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
San Antonio Canyon bedstraw Galium angustifolium ssp. gabrielense	4.3	Perennial herb. Granitic, sandy, or rocky soil in chaparral, lower montane coniferous forest; 1200- 2650 m (3936 - 8692 ft.). Blooming period: April - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Antonio milk- vetch Astragalus lentiginosus var. antonius	1B.3	Perennial herb. Montane coniferous forest; 1500-2600 m (4920 - 8528 ft.). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Bernardino aster Symphyotrichum defoliatum	1B.2	Perennial rhizomatous herb. Near ditches, streams, and springs in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and vernally mesic valley and foothill grassland; 2-2040 m (7-6693 ft). Blooming period: July - November	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Bernardino grass-of-Parnassus Parnassia cirrata var. cirrata	1B.3	Perennial herb. Mesic soils, streamsides, and sometimes calcareous soils in montane coniferous forest, meadows, and seeps; 1250-2440 m (4100 - 8003 ft.). Blooming period: August - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Bernardino ragwort Packera bernardina	1B.2	Perennial herb. Mesic to alkaline meadows and seeps, pebble plains (semi desert pavement), and upper montane coniferous forest; 1800-2300 m (5904 - 7544 ft.). Blooming period: May - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Fernando Valley spineflower Chorizanthe parryi var. fernandina	FC, CE, 1B.1	Annual herb. Sandy soil in coastal scrub and valley and foothill grassland; 150-1220 m (492 - 4002 ft.). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Gabriel bedstraw Galium grande	1B.2	Deciduous shrub. Chaparral, cismontane woodland, broadleafed upland and lower montane coniferous forest; 425-1500 m (1394 - 4920 ft.). Blooming period: January - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
San Gabriel linanthus <i>Linanthus concinnus</i>	1B.2	Annual herb. Rocky openings in chaparral, lower and upper montane coniferous forest; 1520-2800 m (4986 - 9184 ft.). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Gabriel manzanita Arctostaphylos glandulosa ssp. gabrielensis	1B.2	Evergreen shrub. Rocky soil in chaparral; 595-1500 m (1952 - 4920 ft.). Blooming period: March	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Gabriel Mountains dudleya Dudleya densiflora	1B.1	Perennial herb. Granitic cliffs and canyon walls in chaparral, coastal scrub, lower montane coniferous forest, riparian and cismontane woodland; 244-610 m (800 - 2001 ft.). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Gabriel Mountains sunflower Hulsea vestita ssp. gabrielensis	4.3	Perennial herb. Rocky soil in lower and upper montane coniferous forest; 1500-2500 m (4920 - 8200 ft.). Blooming period: May - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Gabriel oak Quercus durata var. gabrielensis	4.2	Evergreen shrub. Chaparral and cismontane woodland; 450-1000 m (1476 - 3280 ft.). Blooming period: April - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Gabriel ragwort Senecio astephanus	4.3	Perennial herb. Rocky slopes in coastal bluff scrub and chaparral; 400-1500 m (1312 - 4920 ft.). Blooming period: May - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Gabriel River dudleya Dudleya cymosa ssp. crebrifolia	1B.2	Perennial herb. Granitic soil in chaparral; 275-457 m (902 - 1499 ft.). Blooming period: April - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Jacinto Mountains daisy Erigeron breweri var. jacinteus	4.3	Perennial rhizomatous herb. Rocky soil in subalpine and upper montane coniferous forest; 2700-2900 m (8856 - 9512 ft.). Blooming period: June - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Santa Barbara bedstraw <i>Galium cliftonsmithii</i>	4.3	Perennial herb. Cismontane woodland; 200-1220 m (656 - 4002 ft.). Blooming period: May - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Santa Barbara honeysuckle Lonicera subspicata var. subspicata	1B.2	Evergreen shrub. Chaparral, cismontane woodland, and coastal scrub; 10-1000 m (33 - 3280). Blooming period: May - February	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Santa Barbara morning-glory Calystegia sepium ssp. binghamiae	1B.1	Perennial rhizomatous herb. Wetlands, marshes, alkaline soils, alluvial riparian scrub; 0-220 m (0 - 722 ft.). Blooming period: April - May (found in planter in 2011, previously thought extinct)	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Santa Catalina Island currant <i>Ribes viburnifolium</i>	1B.2	Evergreen shrub. Chaparral and cismontane woodland; 30-305 m (98-1000 ft). Blooming period: February - April	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Santa Catalina Island desert-thorn Lycium brevipes var. hassei	1B.1	Decidous shrub. Coastal bluff scrub and coastal scrub; -65-300 m (213 - 984 ft.). Blooming period: June - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Santa Cruz Island manzanita Arctostaphylos crustacea ssp. subcordata	4.2	Evergreen shrub. Rocky soils in chaparral and closed- cone coniferous forest; 100-730 m (328 - 2394 ft.). Blooming period: January - April	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Santa Monica dudleya Dudleya cymosa ssp. ovatifolia	FT, 1B.2	Perennial herb. Volcanic or sedimentary rocy soils in chaparral and coastal scrub; 150-1675 m (492 - 5494 ft.). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Santa Susana tarplant Deinandra minthornii	CR, 1B.2	Deciduous shrub. Rocky soils in chaparral and coastal scrub; 280-760 m (918 - 2493 ft.). Blooming period: July - November.	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
scalloped moonwort Botrychium crenulatum	2B.2	Perennial rhizomatous herb. Bogs, fens, meadows, seeps, marshes, freshwater swamps, montane coniferous forests; 1268-3280 m (4159 - 10758 ft.). Blooming period: June - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
seaside cistanthe <i>Cistanthe maritima</i>	4.2	Annual herb. Sandy soils in coastal bluff scrub, coastal scrub, and valley and foothill grassland; 5-300 m (16- 984 ft). Blooming period: February - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
short-joint beavertail Opuntia basilaris var. brachyclada	1B.2	Stem succulent shrub. Chaparral, mojavean desert scrub, joshua tree, pinyon and juniper woodland; 425- 1800 m (1394 - 5904 ft.). Blooming period: April - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
short-lobed broomrape Orobanche parishii ssp. Brachyloba	4.2	Parasitic perennial herb. Sandy coastal bluff scrub, coastal dunes, and coastal scrub; 3-305 m (9-1000 ft). Blooming period: April - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
silky lupine Lupinus elatus	4.3	Perennial herb. Lower and upper montane coniferous forest; 1500-3000 m (4920 - 9840 ft.). Blooming period: June - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
silvery false lupine Thermopsis californica var. argentata	4.3	Perennial rhizomatous herb. Lower montane coniferous forest and pinyon and juniper woodland; 665-1595 m (2181 - 5232 ft.). Blooming period: April - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
slender bedstraw Galium angustifolium ssp. gracillimum	4.2	Perennial herb. Granitic rocky outcrops. Joshua tree woodland, Sonoran desert scrub. 130-550 m (426 – 1804 ft). Blooming period: April – July.	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
slender mariposa lily Calochortus clavatus var. gracilis	1B.2	Perennial bulbiferous herb. Chaparral, coastal scrub, valley and foothill grassland; 320-1000 m (1050 - 3280 ft.). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
slender nemacladus Nemacladus gracilis	4.3	Annual herb. Sandy to gravelly soil in cismontane woodland and valley and foothill grassland; 120-1900 m (394 - 6232 ft.). Blooming period: March - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
slender-horned spineflower Dodecahema leptoceras	FE, CE, 1B.1	Annual herb. Sandy soils in chaparral, cismontane woodland, and alluvial fan coastal scrub; 200-760 m (656-2493 ft). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
small-flowered microseris Microseris douglasii ssp. platycarpha	4.2	Annual herb. Clay soils in cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pools; 15-1070 m (49-3510 ft). Blooming period: March - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
small-flowered morning-glory Convolvulus simulans	4.2	Annual herb. Friable clay soils or serpentine seeps in chaparral openings, coastal scrub, and valley and foothill grassland; 30-700 m (98-2297 ft). Blooming period: March - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Sonoran maiden fern Thelypteris puberula var. sonorensis	2B.2	Perennial rhizomatous herb. Meadows, seeps, and streams; 50-610 m (164 - 2001 ft.). Blooming period: January - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
South Coast saltscale Atriplex pacifica	1B.2	Annual herb. Coastal bluff scrub, coastal dunes, coastal scrub, playas; 0-140 m (0-459 ft). Blooming period: March - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
southern alpine buckwheat Eriogonum kennedyi var. alpigenum	1B.3	Perennial herb. Granitic and gravelly soil in alpine boulder and rock fields, and subalpine coniferous forest; 2600-3500 m (8528 - 11480 ft.). Blooming period: July - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Southern California black walnut Juglans californica	4.2	Deciduous tree. Alluvial areas in chaparral, cismontane woodland, and coastal scrub; 50-900 m (164-2952 ft). Blooming period: March - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
southern mountain misery Chamaebatia australis	4.2	Evergreen shrub. Gabbroic or metavolcanic chaparral; 300-1020 m (984-3345 ft). Blooming period: November - May	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
southern mountains skullcap Scutellaria bolanderi ssp. austromontana	1B.2	Perennial rhizomatous herb. Moist embankments of montane creeks, mesic chaparral, mesic cismontane woodland, and mesic lower montane coniferous forest; 425-2000 m (1394-6562 ft). Blooming period: June – August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
southern tarplant Centromadia parryi ssp. australis	1B.1	Annual herb. Found within the margin of marshes and swamps, vernally mesic soils in valley and foothill grassland, and vernal pools; 0-480 m (0-1574 ft). Blooming period: May - November	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
southwestern spiny rush Juncus acutus ssp. Leopoldii	4.2	Perennial rhizomatous herb, Mesic soils in coastal dunes, alkaline seeps in meadows and seeps, and coastal salt marshes and swamps; 3-900 m (9-2953 ft). Blooming period: May - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
spreading navarretia Navarretia fossalis	FT, 1B.1	Annual herb. Chenopod scrub, assorted freshwater marshes and swamps, playas, and vernal pools; 30- 655 m (98-2149 ft). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
suffrutescent wallflower Erysimum suffrutescens	4.2	Perennial herb. Maritime chaparral, coastal bluff scrub, coastal scrub, and coastal dunes; 0-150 m (0 - 492 ft.). Blooming period: January - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
sylvan microseris <i>Microseris sylvatica</i>	4.2	Perennial herb. Chaparral, great basin scrub, valley and foothill grassland (in serpentinite soil), cismontane, pinyon and juniper woodland; 45-1500 m (148 - 4920 ft.). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Tehachapi ragwort Packera ionophylla	4.3	Perennial herb. Granitic to rocky soil in lower and upper montane coniferous forest; 1500-2700 m (4920 - 8856 ft.). Blooming period: June - July	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
thread-leaved brodiaea Brodiaea filifolia	FT, CE, 1B.1	Perennial bulbiferous herb. Often found in clay soils in openings in chaparral, cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal pools; 25-1120 m (82-3673 ft). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Transverse Range phacelia <i>Phacelia exilis</i>	4.3	Annual herb. Sandy to gravelly soil in lower and upper montane coniferous forest, meadows, seeps, and pebble plains (desert pavement); 1100-2700 m (3608 - 8856 ft.). Blooming period: May - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
urn-flowered alumroot <i>Heuchera caespitosa</i>	4.3	Perennial rhizomatous herb. Rocky soil in montane riparian forest, cismontane woodland, lower and upper montane coniferous forest; 1155-2650 m (3788 - 8692 ft.). Blooming period: May - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Ventura marsh milk- vetch Astragalus pycnostachyus var. lanosissimus	FE, CE, 1B.1	Perennial herb. Coastal dunes and scrub, marshes and swamps at ocean edges; 1-35 m (3 - 115 ft.). Blooming period: June - October	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
vernal barley Hordeum intercedens	3.2	Annual herb. Coastal dunes, coastal scrub, saline flats and depressions in valley and foothill grassland, and vernal pools; 5-1000 m (16-3280 ft). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Watson's amaranth Amaranthus watsonii	4.3	Annual herb. Mojavean and Sonoran desert scrub; 20- 1700 m (66 - 5576 ft.). Blooming period: April - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
western dichondra Dichondra occidentalis	4.2	Perennial rhizomatous herb. Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland; 50-500 m (164 - 1640 ft.). Blooming period: January - July.	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
western sedge Carex occidentalis	2B,3	Perennial rhizomatous herb. Lower montane coniferous forest, meadows, and seeps; 1645-3135 m (5396 - 10283 ft.). Blooming period: June - August	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
western spleenwort Asplenium vespertinum	4.2	Perennial rhizomatous herb. Rocky areas in chaparral, cismontane woodland, and coastal scrub; 180-1000 m (590-3281 ft). Blooming period: February - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
white pygmy-poppy Canbya candida	4.2	Annual herb. Gravelly, sandy, or granitic soils in Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland; 600-1460 m (1968 - 4789 ft.). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
white rabbit- tobacco Pseudognaphalium leucocephalum	2B.2	Perennial herb. Sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, and riparian woodland; 0-2100 m (0-6888 ft). Blooming period: July - December	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
white-bracted spineflower Chorizanthe xanti var. leucotheca	1B.2	Annual herb. Sandy or gravelly soils in coastal scrub alluvial fans, Mojavean desert scrub, and pinyon and juniper woodland; 300-1200 m (984-3936 ft). Blooming period: April - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
white-veined monardella Monardella hypoleuca ssp. hypoleuca	1B.3	Perennial herb. Chaparral and cismontane woodland; 50-1525 m (164 - 5002 ft.). Blooming period: April - December	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Wiggins' cryptantha Cryptantha wigginsii	1B.2	Annual herb. Often in clay soils in coastal scrub; 20- 275 m (65-902 ft). Blooming period: February - June.	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
woolly chaparral- pea Pickeringia montana var. tomentosa	4.3	Annual herb. Coastal dunes, coastal scrub; 1-400 m (3- 1312 ft). Blooming period: March - June	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
woolly mountain- parsley Oreonana vestita	1B.3	Perennial herb. Gravel or talus soil in lower, upper, and subalpine montane coniferous forest; 1615-3500 m (5297 - 11480 ft.). Blooming period: March - September	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
woolly seablite Suaeda taxifolia	4.2	Evergreen shrub. Coastal bluff scrub, coastal dunes, and the margins of coastal salt marshes and swamps; 0-50 m (0-164 ft). Blooming period: January - December	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

	Sensitivity			
Common Name	Code and		Potential to	
Scientific name	Status	Habitat Preference/Requirements	Occur	Rationale

Sources: CDFW 2015; CNPS 2015; CNDDB 2015.

FE - listed as endangered under the federal Endangered Species Act

SE - listed as endangered under the California Endangered Species Act

CA Rare Plant Rank (CRPR) – Formerly known as CNPS List

1B. Rare, Threatened, or Endangered in California and elsewhere

2B. Rare, Threatened, or Endangered in California; more common elsewhere

4: Watch list, plants of limited distribution

Threat Ranks

.1 - Seriously threatened in California, >80% occurrences threatened

.2 – Moderately threatened in California, 20-80% occurrences threatened

.3 – Not very threatened in California, <20% occurrences threatened

Due to the urban developed nature of the proposed Project, federally or state-listed plants and plants considered rare by CRPR are not expected to occur.

## Appendix B3 Sensitive Wildlife Species with Potential to Occur within the Project Site

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Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Invertebrates		•	·	•
El Segundo blue butterfly <i>Euphilotes battoides</i> allyni	FE	Habitat limited two dunes with obligate host plant, coast buckwheat ( <i>Eriogonum parvifolium</i> ). Habitat loss has limited range to primarily two areas: dunes west of Los Angeles International Airport, the Chevron Butterfly Preserve.	None	Project area is urban and developed, and lacks dune habitat and larval host plants.
Palos Verdes blue butterfly Glaucopsyche lygdamus palosverdesensis	FE	Geographically isolated to Palos Verdes Peninsula. Require coast locoweed ( <i>Astragalus trichopodus lonchus</i> ) and deerweed ( <i>Acmispon glaber</i> ) as larval host plants.	None	Project area is urban and developed and lacks larval host plants.
Quino Checkerspot Butterfly Euphydryas editha quino	FE	Inhabits openings on clay soils within or near shrublands, grasslands, meadows, vernal pools, and lake margins. Closely tied to its larval host plants, dwarf plantain ( <i>Plantago erecta</i> ) or owl's clover ( <i>Castilleja</i> <i>exserta ssp. exserta</i> ).	None	Project area is urban and developed and lacks larval host plants.
Riverside fairy shrimp Streptocephalus woottoni	FE	Vernal pools. All known localities are below 2,300 feet (700 m) and are within 40 miles (64 km) of the Pacific Ocean.	None	Vernal pools and vernal pool complexes do not occur in the project area.
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i>	FT	Vernal pools; inhabit small, clear-water sandstone depression pools and grassed swale, earth slump, or basalt-flow depression pools. Primary constituent elements of critical habitat include: complexes of swales and pools with intermittently or continuously flowing surface water; depressional features that become inundated by winter rains and continuously hold water for a minimum of 18 days; and sources of food and habitat structure within pools.	None	Vernal pools and vernal pool complexes do not occur in the project area.

#### Sensitive Wildlife Species with Potential to Occur within the Project Site

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Fish			•	
Arroyo Chub Gila orcuttii	SSC	The species inhabits slow moving reaches and backwaters of cool to warm water streams (50-74°F [10-23°C]). They are commonly found over sand and silt substrates, and are known to be able to tolerate hypoxic conditions and elevated temperatures typical of southern California stream habitats.	None	Project area is urban and developed and lacks necessary freshwater resources for species.
Mohave tui chub Siphateles bicolor mohavensis	FE SE FPS	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 46-54.5°F (8.0-12.5°C). Habitat types are riffles, runs, and pools.	None	Project area is urban and developed and lacks necessary freshwater resources for species.
Santa Ana Speckled Dace Rhinichthys osculus	SSC	The species inhabits shallow riffles of cool perennial stream habitats, and prefers cobble substrates. In streams where riffles are interspersed with run and pool habitats, the species will concentrate in the riffle habitat.	None	Project area is urban and developed and lacks necessary freshwater resources for species.
Santa Ana Sucker Catostomus santaanae	FT	Most abundant in unpolluted, clear water, at temperatures that are typically less than 72 °F (22°C). Optimal stream conditions include course substrates (e.g., gravel, cobble, boulders), a combination of shallow riffle areas and deeper pools with algae present, and consistent flow. Adults prefer deeper water habitats such as pools and runs and utilize streams with gravelly substrates for spawning; juveniles occupy primarily riffle habitats. No fish have been found in streams with greater than 7 percent gradient. In-stream or bank habitat with riparian vegetation providing shade is important for larvae and juveniles. Tributary habitat inflows create refuge for larvae and juveniles	None	Project area is urban and developed and lacks necessary freshwater resources for species.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Unarmored Threespine Stickleback Gasterosteus aculeatus williamsoni	FE SE FPS	Occur only in freshwater and require clear, flowing, well-oxygenated water with pools and areas of dense vegetation or organic growth for refugia and food supply. Prefers clean low turbidity water with temperatures no greater than approximately 75°F (24°C). They utilize eddies and vegetated banks for refugia in larger streams.	None	Project area is urban and developed and lacks necessary freshwater resources for species.
Steelhead (Southern California Coast Steelhead DPS) Oncorhynchus mykiss	FE	Steelhead are capable of surviving in a wide range of temperature conditions. They do best where dissolved oxygen concentration is at least 7 parts per million. In streams, deep low-velocity pools are important wintering habitats. Spawning habitat consists of gravel substrates free of excessive silt.	None	Project area is urban and developed and lacks necessary freshwater and marine resources for species.
Tidewater Goby Eucyclogobius newberryi	FE SSC	Adapted to coastal lagoons and the uppermost brackish zone of larger estuaries, rarely occurring in marine or freshwater habitats. Typically found in water less than 1 meter deep and salinities of less than 12 part per thousand.	None	Project area is urban and developed and lacks necessary brackish resources for species.
Amphibians			·	·
Arroyo Toad Anaxyrus californicus	FE	Exposed shallow pools with a sand or gravel base are used for breeding. Breeding pools must occur in the vicinity of a braided sandy channel with shorelines or central bars made of stable, sandy terraces. Sandy terraces are utilized for foraging and aestivation. Upland habitat typically consist of riparian habitats of semi-arid areas with mature willow (Salix spp.) stands, cottonwoods (Populus spp.), western sycamore (Platanus racemose).	None	Project area is urban and developed and lacks necessary freshwater resources and substrate type for species.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
California Red- legged Frog <i>Rana draytonii</i>	FT SSC	California red-legged frogs use a variety of habitats, including aquatic, riparian, and upland habitat. Aquatic breeding habitat consists of low-gradient freshwater bodies, including natural and manmade ponds, backwaters within streams and creeks, marshes, lagoons, and dune ponds that hold water for a minimum of 20 weeks in all but the driest of years. It does not include deep lacustrine water habitat (e.g., deep lakes and reservoirs 50 acres or larger. California red-legged frogs may use uplands for moving to and from aquatic habitats during periods of wet weather or may seek out other aquatic habitats while ones they are in dry up.	None	Project area is urban and developed and lacks necessary freshwater resources for species.
Coast Range Newt Taricha torosa	SSC	Occurs from near seal level to around 6,000 feet (1,830 m). Frequent terrestrial habitats near suitable breeding habitat. Breeds in ponds, reservoirs, and slow moving streams	None	Project area is urban and developed and lacks necessary freshwater resources for species.
Foothill Yellow- legged Frog <i>Rana boylii</i>	СТ	Occurs in Klamath Mountains; Cascade, north and south Coast, and Transverse Ranges; and Sierra Nevada up to approximately 6,000 feet. Creeks or rivers in woodland, forest, mixed chaparral, and wet meadow habitats with rock and gravel substrate and low overhanging vegetation along edge. Usually found near riffles with rocks and sunny banks nearby.	None	Project area is urban and developed and lacks necessary freshwater resources for species.
Southern Mountain Yellow-legged Frog Rana muscosa	FE SE	Habitat consists of rocky and shaded streams with boulders or vegetation to the water's edge. This species is highly aquatic and rarely found more than 3 feet (1 m) away from water. Found in creeks and streams with at least some portion with permanent water. Perennial flows are needed for reproduction, larval growth and survival of juveniles and adults. Are absent from the smallest creeks because they lack the depth for aquatic refuge and overwintering.	None	Project area is urban and developed and lacks necessary freshwater resources for species.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Western Spadefoot <i>Spea hammondi</i> i	SSC	Are found in grassland and valley-foothill hardwood woodlands. Essential breeding habitat include temporary rainpools that last at least three weeks with water temperatures between 48°F to <86°F (9°C to < 30°C).	None	Project area is urban and necessary freshwater resources for species.
Reptiles				
California Glossy Snake Arizona elegans occidentalis	SSC	Prefers open areas in a variety of habitats, including light shrubby to barren desert scrub, grassland, chaparral, cismontane, and coastal sage scrub. The species is active mostly at night and remains underground during the day.	None	Project area is urban and developed and lacks natural habitat for species.
California legless lizard Anniella pulchra	SSC	Inhabits coastal dunes, valley-foothills, chaparral and coastal scrub areas with loose soil and leaf litter, can also be found under rocks and loose boards and debris. Feeds on small invertebrates.	None	Project area is urban and developed and lacks substrate and cover requirements for species.
Coast horned lizard Phrynosoma blainvilii	SSC	Found in arid and semi-arid climate conditions in chaparral, coastal sage scrub, primarily below 2,000 feet in elevation. Critical factors are the presence of loose soils with a high sand fraction; an abundance of native ants or other insects, especially harvester ants (Pogonomyrmex spp.), and the availability of both sunny basking spots and dense cover for refuge.	None	Project area is urban and developed and lacks cover and substrate requirements for species.
Coast Patched- Nosed Snake Salvadora hexalepis virgultea	SSC	Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	None	Project area is urban and developed and lacks natural vegetation and habitat for species.
Coastal Whiptail Aspidoscelis tigris stejnegeri	SSC	Found in a variety of habitats, including coastal sage scrub, chaparral, riparian, oak woodlands, and rocky areas up to 5,000 ft. (1,500 m). Occur primarily in areas with habitats with sandy or gravel soils, and is often associated with washes. Not found in areas where the habitat has been fragmented by roads and development	None	Project area is urban and developed and lacks natural habitat and cover.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Green Sea Turtle <i>Chelonia mydas</i>	FT	Occurs within or adjacent to the shallow eelgrass beds. Individuals may enter or leave the bay and can be found between Long Beach and Mexico.	None	Project area is urban and developed and does not occur in an aquatic marine setting.
Northern California legless lizard <i>Anniella pulchra</i>	SSC	Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas often indicate suitable habitat.	None	Project area is urban and developed and lacks substrate and cover requirements for species.
Red Diamond Rattlesnake <i>Crotalus ruber</i>	SSC	Occurs from sea level to 3,000 feet (914m) in chaparral, woodland, and arid desert habitats with rocky areas and dense vegetation.	None	Project area is urban and developed and lacks natural habitat and cover.
San Diego Banded Gecko Coleonyx variegatus abbottii	SSC	Prefers rocky areas in coastal sage scrub and chaparral habitats.	None	Project area is urban and developed and lacks rocky areas with adequate cover.
South-Coast Garter Snake Thamnophis sirtalis	SSC	Restricted to marsh and upland habitats near permanent water that have good strips of riparian vegetation. Historical records indicate that this species formerly inhabited meadow-like habitats adjacent to marshlands	None	Project area is urban and developed and lacks necessary freshwater resources for species.
southern California legless lizard Anniella stebbinsi	SSC	Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas often indicate suitable habitat.	None	Project area is urban and developed and lacks natural habitat and cover.
Two-striped Garter Snake Thamnophis hammondii	SSC	Inhabits perennial and intermittent streams with rocky beds and bordered by willow thickets or other dense vegetation.	None	Project area is urban and developed and lacks necessary freshwater resources for species.
western pond turtle <i>Emys marmorata</i>	SSC	Found in permanent and intermittent waters with adequate emergent substrate for basking. Feeds on invertebrates, tadpoles, fish, and aquatic vegetation.	None	Project area is urban and developed and lacks necessary freshwater resources for species.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Birds	1	·		
American Peregrine Falcon Falco peregrinus anatum	FPS	Nests on cliff ledges or on tall building or bridges. Will forage over a wide variety of habitats.	Nesting: No Foraging: Yes	American peregrine falcon are frequently observed foraging in urban settings. Trees do not host adequate nesting potential, however birds which utilize street trees may are likely prey species to peregrine falcon.
American White Pelican Pelecanus erythrorhynchos	SSC	Only breeding colonies in the state occur at lower Klamath National Wildlife Refuge, Siskiyou County, and at Clear Lake, Modoc County; winters along the California coast from southern Sonoma County. Frequents freshwater lakes with islands for breeding; inhabits river sloughs, freshwater marshes, salt ponds, and coastal bays during the rest of the year.	Nesting: No Foraging: No	Project area is urban and developed and outside of the nesting range. Project area also lacks necessary aquatic resources for species.
Ashy Storm-petrel Oceanodroma homochroa	SSC	Nest on crevices of talus slopes, rock walls, sea caves, and sea cliffs.	Nesting: No Foraging: No	Project area lacks slopes and rock walls for nesting, and marine system for foraging.
Bald Eagle Haliaeetus leucocephalus	SE FPS	Nests and roosts in coniferous forests generally within 1 mile (1.6 km) of a lake, reservoir, stream, or the ocean.	Nesting: No Foraging: No	Project area lacks adequate forest and aquatic resources nesting and foraging habitat.
bank swallow Riparia riparia	ST	Reside along watercourses adjacent to nesting habitat like vertical cliffs and eroded streambanks where they can burrow. Typically forage on flying insects.	Nesting: No Foraging: No	Project area lacks both nesting and freshwater foraging habitat.
Belding's Savanna Sparrow Passerunculus sandwichensis beldingi	SE	Resident species that is restricted to coastal marshes dominated by pickleweed.	Nesting: No Foraging: No	Project area lacks marsh habitat type requirement for species.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Black Skimmer <i>Rynchops niger</i>	SSC	Nests on gravel bars and sandy beaches; forages in shallow, calm waters.	Nesting: No Foraging: No	Project area lacks beach areas and shallow coastal areas for foraging opportunities.
Black storm-petrel Oceanodroma melania	SSC	Nests in small colonies on islands and forages in open ocean systems for small fish and crustaceans.	Nesting: No Foraging: No	Project area lacks nesting requirements and open ocean marine system for foraging.
Black Swift Cypseloides niger	SSC	Nest behind or next to permanent or semipermanent waterfalls or vertical cliffs near water	Nesting: No Foraging: No	Project area lacks aquatic areas for nesting and foraging.
Black tern Chlidonias niger	SSC	Forages along fresh marshes and lakes, sometimes coastal waters. Nesting in freshwater marshes and meadows, wintering in tropical coastal regions. Forages on insects and fish.	Nesting: No Foraging: No	Project area lacks aquatic resources required for nesting and foraging.
brant Branta bernicla	SSC	Found in estuaries and freshwater lakes. Uncommon in Southern California. Forages on aquatic vegetation in large flocks.	Nesting: No Foraging: No	Project area lacks aquatic resources required for this species.
Bryant's savannah sparrow Passerculus sandwichensis alaudinus	SSC	Prefer grasslands with minimal trees, meadows, pastures wetlands, and cultivated lands. Forage primarily on terrestrial invertebrates.	Nesting: No Foraging: No	Project area is urban and developed and lacks grasslands.
burrowing owl Athene cunicularia	SSC	Burrowing owls inhabit grasslands, lowland scrub, desert scrub, agricultural lands, and open developed areas, such as urban parks. They require large open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows. They use rodent or other burrows for roosting and nesting cover. Will use pipes, culverts, and other man-made burrows where natural burrows are scarce.	Nesting: No Foraging: No	Project area is urban and developed, and lacks necessary burrowing areas and preferred landscape for species.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
California Black Rail Laterallus jamaicensis coturniculus	ST, FPS	Species occurs in saline, brackish along the California coast and in fresh emergent wetlands inland.	Nesting: No Foraging: No	Project area lacks aquatic resources required for species.
California Brown Pelican Pelecanus occidentalis californicus	FPS	Present along the entire California coastline, Typically in littoral ocean zones, just outside the surf line; nests on offshore islands	Nesting: No Foraging: No	Project area lacks coastal areas for foraging and nesting.
California Condor Gymnogyps californianus	FE SE FPS	Requires large blocks of open savanna, grasslands, and foothill chaparral with large trees, cliffs, and snags for roosting and nesting.	Nesting: No Foraging: No	Project area is urban and developed, and lacks large trees for nesting and open landscape for foraging.
CaliforniaLleast Tern Sterna antillarum browni	FE SE FPS	Nests on non-vegetated coastal areas and forages in shallow estuaries, lagoons, and along marine shores.	Nesting: No Foraging: No	Project area lacks coastal setting for nesting and marine resource for foraging.
California Ridgeway's rail <i>Rallus obsoletus</i> <i>obsoletus</i>	FE SE FPS	Saltwater and brackish marshlands with pickleweed (Salicornia pacifica) and Spartina sp., foraging for mollusks.	Nesting: No Foraging: No	Project area lacks marine resources required for foraging.
California spotted owl Strix occidentalis occidentalis	SSC	Large old growth forest with dense canopy cover with individual territories up to 2400 acres. Primary prey are rodents like flying squirrels and woodrats.	Nesting: No Foraging: No	Project area is urban and developed, and lacks mature forests for nesting and foraging.
Clark's Marsh Wren Cistothorus palustris clarkae	SSC	Restricted to freshwater and brackish marshes dominated with cattails and bulrushes.	Nesting: No Foraging: No	Project area lacks aquatic resources and wetland vegetation type required for species.
Coastal Cactus Wren Campylorhynchus brunneicapillus sandiegensis	SSC	Cactus thickets of Opuntia or Cylindropuntia species, preferably over 3 feet (1m) tall.	Nesting: No Foraging: No	Project area is urban and developed and lacks cactus variety required for species.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Coastal California Gnatcatcher Polioptila californica californica	FT SSC	Prefer open scrubby habitats such as coastal sage scrub and some forms of chaparral.	Nesting: No Foraging: No	Project area is urban and developed and lacks coastal sage scrub and chaparral.
common loon Gavia immer	SSC	Require clear water for hunting fish species. In winter, can be found in nearshore coastal areas and bays.	Nesting: No Foraging: No	Project area lacks aquatic resources required for species.
fork-tailed storm- petrel Oceanodroma furcate	SSC	Breeds on offshore islands. Winters and forages in nearshore waters feeding on small fish and crustaceans.	Nesting: No Foraging: No	Project area lacks marine resources required for foraging.
Fulvous Whistling- duck <i>Dendrocygna bicolor</i>	SSC	Habitat includes shallow freshwater and coastal marshes. Shows a preference for rice fields and tall-grass areas flooded to a depth of <1.5 feet (<0.5 m).	Nesting: No Foraging: No	Project area lacks aquatic resources required for species.
Golden Eagle Aquila chrysaetos	FPS	Nest on cliff ledges or large trees in open areas. Forage in grasslands, sage scrub, open chaparral, and open woodlands.	Nesting: No Foraging: No	Project area is urban and developed, and lacks large trees and open landscape required for species.
Grasshopper Sparrow Ammodramus savannarum perpallidus	SSC	Occurs in dry, dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches. Nests in slight depressions in dense grasslands.	Nesting: No Foraging: No	Project area lacks open grasslands required for species.
gray vireo Vireo vicinior	SSC	Found in desert scrub, juniper or pinyon pine scrub, and chaparral. Primarily occurring in hot, arid environments.	Nesting: No Foraging: No	Project area is urban and developed, and lacks vegetation requirements for species.
Greater Sandhill Crane <i>Grus canadensis</i> tabida	ST FPS	Winter visitors only in the Central Valley. Forages on waste seed and other grains on agricultural fields. Also consumes invertebrates and small vertebrates.	Nesting: No Foraging: No	Project area is urban and developed and lacks open agricultural setting required for foraging.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
large-billed savannah sparrow Passerculus sandwichensis rostratus	SSC	Inhabits shoreline areas, salt marshes, beaches with salt marsh vegetation.	Nesting: No Foraging: No	Project area lacks aquatic resources required for species.
Least Bell's Vireo Vireo bellii pusillus	FE SE	Most commonly found in riparian thickets either near water or in dry portions of river bottoms; nests along margins of bushes and forages low to the ground; may also be found using mesquite and arrow weed in desert canyons.	Nesting: No Foraging: No	Project area is urban and developed and lacks riparian areas and vegetation types required for species.
Least Bittern Ixobrychus exilis	SSC	Occurs in freshwater or brackish marshes with tall emergent vegetation.	Nesting: No Foraging: No	Project area is urban and developed and lacks aquatic resource requirements for species.
Lesser Sandhill Crane Grus canadensis canadensis	SSC	Winter visitors only in the Central Valley. Forages on waste seed and other grains on agricultural fields. Also consumes invertebrates and small vertebrates.	Nesting: No Foraging: No	Project area is urban and developed and lacks open agricultural setting required for foraging.
Light-footed Clapper Rail <i>Rallus</i> <i>longirostris levipes</i>	FE SE FPS	Species is found in freshwater and brackish emergent wetlands and in coastal wetlands.	Nesting: No Foraging: No	Project area is urban and developed and lacks aquatic resource requirements for species.
Loggerhead Shrike Lanius ludovicianus	SSC	Found near grassland, open sage scrub and chaparral, and desert scrub. Nest in dense vegetation adjacent to their open foraging habitats.	Nesting: No Foraging: No	Project area is urban and developed and lacks grassland and open space requirements for species.
Long-eared Owl Asio otus	SSC	Scattered breeding populations along the coast and in southeastern California. Winters throughout the Central Valley and southeastern California. Nests in abandoned crow, or hawk nests, usually in dense riparian stands of willows, cottonwoods, live oaks, or conifers	Nesting: No Foraging: No	Project area is urban and developed and lacks dense riparian areas and is unlikely to nest in street trees.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale			
Marbled Murrelet Brachyramphuis marmoratus	FT	Mature, coastal coniferous forests for nesting; nearby coastal water for foraging; nests in conifer stands greater than 150 years old and may be found up to 35 miles (56km) inland; winters on subtidal and pelagic waters often well offshore.	Iture, coastal coniferous forests for nesting; nearby astal water for foraging; nests in conifer stands eater than 150 years old and may be found up to 35 les (56km) inland; winters on subtidal and pelagic aters often well offshore.Nesting: No Foraging: No				
Mountain Plover Charadrius montanus	PT SSC	Does not breed in California; winters in the Central Valley south of Yuba County, along the coast in parts of San Luis Obispo, Santa Barbara, Ventura, and San Diego Counties; parts of Imperial, Riverside, Kern, and Los Angeles Counties.	Nesting: No Foraging: No	Project area is urban and developed and lacks undisturbed area for potential foraging.			
Northern Goshawk <i>Accipiter gentilis</i>	SSC	Nests and roosts in older stands of red fir, Jeffrey pine, Ponderosa pine, lodgepole pine, Douglas fir, and mixed conifer forests.	Nesting: No Foraging: No	Project area is urban and developed and lacks vegetation requirements for species.			
Northern Harrier <i>Circus cyaneus</i>	SSC	Grasslands and marshes. Nests are on the ground and typically concealed within a marsh or other dense, low- growing vegetation. Forages in grasslands, wetlands, and other open areas with abundant rodent populations	Nesting: No Foraging: No	Project area is urban and developed and lacks freshwater resource requirements for species.			
olive-sided flycatcher <i>Contopus cooperi</i>	SSC	Winters in forest clearings with tall trees. Breeds in coniferous forests edges and openings.	Nesting: No Foraging: No	Project area is urban and developed and lacks forested area requirements for species.			
Oregon vesper sparrow Pooecetes gramineus affinis	SSC	Open grasslands with sporadic trees and shrubs for foraging and nesting.	Nesting: No Foraging: No	Project area is urban and developed and lacks open grassland requirements for species.			
Purple Martin <i>Progne subis</i>	SSC	Nests in abandoned woodpecker holes in oaks, cottonwoods, and other deciduous trees in a variety of wooded and riparian habitats. Also nests in vertical drainage holes under elevated freeways and highway bridges.	Nesting: Yes Foraging: Yes	Project area is urban and developed and has trees which may provide adequate nesting requirements in larger street trees. Species is also found in urban settings.			

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale		
Redhead Aythya americana	SSC	Habitat includes shallow freshwater lakes, ponds, and marshes. The body of water needs to be at least 2 feet (0.6m) deep so that they can dive.	Nesting: No Foraging: No:	Project area is urban and developed and lacks freshwater resource requirements for species.		
short-tailed albatross Phoebastria albatrus	FE SSC	Nests on islands off Japan. Range throughout the Pacific Ocean where they forage for fish and invertebrates.	Nesting: No Foraging: No:	Project area is urban and developed and lacks marine resource requirements for species.		
Southwestern Willow Flycatcher Empidonax trallii extimus	FE SE	Breeds and forages in riparian woodlands along rivers, streams, or other wetlands. They usually nest within close proximity of water or very saturated soil.	Nesting: No Foraging: No	Project area is urban and developed and lacks freshwater resource requirements for species.		
summer tanager Piranga rubra	SSC	Breed in low elevation cottonwood and willows. Also found in mesquite and saltcedar. Forage on invertebrates and fruits.	Nesting: No Foraging: No	Project area is urban and developed and lacks vegetation requirements for species.		
Swainson's hawk Buteo swainsoni	ST	Open prairie and grassland habitats, including pasture and agricultural areas.	Nesting: No Foraging: No	Project area is urban and developed and lacks open grassland and prairie requirements for species.		
Tricolored Blackbird Agelais tricolor	СТ	Breeds near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs. Feeds in grassland and grain fields.	Nesting: No Foraging: No	Project area is urban and developed and lacks freshwater resource requirements for species.		
Vaux's Swift <i>Chaetura vauxi</i>	SSC	Nests in cavity or a variety of trees and less frequently in artificial structures. Cavities need to be large enough to allow the birds to fly while within the cavity. Shows a strong positive association with old-growth forests. Habitats include redwoods, Douglas fir, and other forest types found further inland. Currently found using chimneys and other man-made structures more than in the past.	Nesting: No Foraging: No	Project area is urban and developed and lacks old growth forest resource requirements for species.		

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale		
vermilion flycatcher Pyrocephalus rubinus	SSC	Feeds on insects and terrestrial arthropods. Found in desert scrub, desert, and riparian woodlands.	Nesting: No Foraging: No	Project area is urban and developed and lacks desert, scrub, and riparian area requirements for species.		
Western Snowy Plover Charadrius <i>alexandrinus nivosus</i>	FT SSC	Requires open, relatively flat areas with little or no vegetation, including undisturbed beaches, salt flats, playas, dredge spoils, levees, and river bars. The species occurs more along the coast during the winter months, and may include sewage treatment ponds and agricultural wastewater sites.	Nesting: No Foraging: No	Project area is urban and developed and lacks undisturbed beach and dune habitat and coastal resource requirements for species.		
Western Yellow- billed Cuckoo Coccyzus americanus occidentalis	FE SE	Currently only a handful of small populations remaining in California. The species occurs in relatively broad, well-shaded riparian forests.	Nesting: No Foraging: No	Project area is urban and developed and lacks riparian forests.		
White-tailed Kite Elanus leucarus	FPS	Nests in large trees adjacent to open areas. Forages in grasslands and other open habitats.	Nesting: No Foraging: No	Project area is urban and developed and lacks open landscape requirements for species.		
Yellow Rail Coturnicops noveboracensis	SSC	Winter records along the coast from Humboldt County to Orange County. Utilizes grassy marshes and wet meadows, building well-concealed firm grass cup nests. Especially secretive and seldom seen.	Nesting: No Foraging: No	Project area is urban and developed and lacks aquatic resources for species.		
Yellow Warbler Setophaga petechial	SSC	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks and urban areas near stream courses.	Nesting: Yes Foraging: Yes	Species can occur in urban settings. Street trees may provide marginal nesting habitat.		
Yellow-breasted Chat Icteria virens	SSC	Nests in dense riparian thickets of willow and other brushy tangles, including briars and stream thickets near watercourses	Nesting: No Foraging: No	Project area is urban and developed and lacks riparian forest requirement for species.		

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale		
Yellow-headed Blackbird Xanthocephalus xanthocephalus	SSC	Nest over persistent water in freshwater emergent wetlands with dense vegetation adjacent to deep water, and along borders of lake or ponds.	Nesting: No Foraging: No	Project area is urban and developed and lacks freshwater resource requirement for species.		
Yuma Ridgway's rail Rallus obsoletus yumanensis	FE ST FPS	Found along the lower Colorado river and nearby freshwater marshes.	Project area is urban and developed and lacks freshwater resource requirements for species.			
Mammals		·	•			
American Badger Taxidea taxus	SSC	Inhabit a diversity of habitats with principal requirements of sufficient food, friable soils, and relatively open, uncultivated ground. Grasslands, savannas, and mountain meadows and desert scrub.	None	Project area is urban and developed and lacks open landscape requirements for species.		
Big free-tailed Bat Nyctinomops macrotis	SSC	Inhabits arid, rocky areas; roosts in crevices in cliffs. Species is rare in California.	Roosting: No Foraging: No	Project area is urban and developed and lacks arid rocky roosting habitat. Foraging unlikely.		
California leaf-nosed bat <i>Macrotus</i> californicus	SSC	Roosts in deep caves, mine tunnels and grottos. Cool temperatures being a primary driver in roosting habitat. Forages for insects very close to the ground.	Roosting: No Foraging: No	Project area is urban and developed and lacks adequate cave and tunnel roosting habitat. Foraging is unlikely.		
cave myotis <i>Myotis velifer</i>	SSC	Prefers caves for roosting, however, it can also be found using rock outcrops, crevices, and abandoned buildings and beneath bridges.	Roosting: No Foraging: No	Project area is urban and developed and lacks caves and rock outcrops. Species sometimes found in urban settings beneath bridges and abandoned buildings.		

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Desert Bighorn Sheep Ovis canadensis nelsoni	FPS	Generally occurs in areas with steep slopes with abundant rock outcrops and sparse shrubs for escape terrain. Escarpment chaparral with ceanothus, mtn. mahogany associations for foraging. Range from 3,000 - 10,000 feet (914 – 3,048 m).	None	Project area is urban and developed and lacks steep slopes and is below elevation range for species.
Los Angeles Pocket Mouse Perognathus longimembris brevinasus	SSC	Lower elevation grassland and coastal sage communities with sandy soils	None	Project area is urban and developed and lacks grasslands, sage scrub communities, and soil requirements for species.
Pacific Pocket Mouse Perognathus longimembris pacificus	FE SSC	Coastal strand, coastal dunes, river alluvium, and coastal sage scrub, favoring less densely vegetated areas.	None	Project area is urban and developed and lacks dune habitat and vegetation requirements for species.
Pallid Bat Antrozous pallidus	SSC	Species is found from coast to mixed conifer forest; grasslands, shrublands, woodlands, & forest; most common in open, dry habitats w/ rocky areas for roosting; yearlong resident in most of range. Roosts in rock crevices, caves, mine shafts, under bridges, in buildings and tree hollows.	Roosting: Yes Foraging: Yes	Project area is urban and developed a natural setting, however species is sometimes associated with tree hollows, buildings, and bridges.
Pocketed Free-tailed Bat Nyctinomops femorosaccus	SSC	Occurs in desert scrub, desert riparian, chaparral, and pine oak forests. Roosts in rocky crevices.	Roosting: No Foraging: No	Project area is urban and developed and lacks vegetation type and rocky crevice requirements for species
Ringtail Bassariscus astutus	FPS	Occurs primarily in riparian habitats but also known from moist forest and shrub habitats from lower to mid elevations. Usually found near water.	None	Project area is urban and developed and lacks riparian areas and vegetation requirements for species.
San Diego Black- tailed Jackrabbit <i>Lepus californicus</i> <i>bennettii</i>	SSC	Mostly found on the coastal side of mountains in open habitats, usually avoiding dense stands of chaparral or woodlands.	None	Project area is urban and developed and lacks open space requirements for species.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
San Diego Desert Woodrat Neotoma lepida intermedia	SSC	Occurs in a variety of shrub and desert habitats primarily associated with rock outcroppings, boulders, cacti, or areas of dense undergrowth.	None	Project area is urban and developed and lacks desert habitat.
south coast marsh vole <i>Microtus californicus</i> <i>stephensi</i>	SSC	Found in grasslands, wet meadows, and coastal wetlands.	None	Project area is urban and developed and lacks grassland and aquatic resource requirements for species.
southern California saltmarsh shrew Sorex ornatus salicornicus	SSC	Saltmarsh and wetlands dominated with Salicornia virginica, Salix sp., Scirpus sp., with dense ground cover.	None	Project area is urban and developed and lacks aquatic resource requirements for species.
Southern Grasshopper Mouse Onychomys torridus ramona	SSC	Hot and arid scrub desert, with primary forage being arthropods.	None	Project area is urban and developed and lacks arid setting and vegetation requirements for species.
Spotted bat Euderma maculatum	SSC	Occurs in wide-range of habitats, including conifer and mixed forests, chaparral, shrub lands, and grasslands	None	Project area is urban and developed and lacks natural vegetation requirements for species.
Townsend's Big- eared Bat <i>Corynorhinus</i> <i>townsendii</i>	SSC	The species is found in a variety of habitats throughout California where appropriate roosting habitat exists. Primarily roosts in caves and cavern-like spaces; also include in abandoned buildings, mines, culverts, box-like spaces in bridges and other structures, and large hollows in trees. Very sensitive to human disturbances.	Roosting: No Foraging: No	Project area is urban and developed and likely has too much anthropogenic disturbances to provide habitat, although species can occur in man-made structures.
Western Mastiff Bat Eumops perotis californicus	SSC	Primarily a cliff-dwelling species for breeding. Found foraging in a variety of habitats, from dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, montane meadows, and agricultural areas.	Roosting: No Foraging: No	Project area is urban and developed and lacks cliff habitat and open setting for foraging.

Common Name Scientific name	Sensitivity Code and Status	Habitat Preference/Requirements	Potential to Occur	Rationale
Western Red Bat <i>Lasiurus blossevillii</i>	SSC	Usually among dense foliage, in forests and wooded areas, making long migrations from the northern latitudes to warmer climates for winter, sometimes hibernates in tree hollows or woodpecker holes.	Roosting: Yes Foraging: Yes	Project area is urban and developed a natural setting, however species is sometimes associated with tree hollows.
Western Yellow Bat Lasiurus xanthinus	SSC	Roosting habitat mostly associated desert riparian habitats, palm oasis, and urban areas with palm groves.	None	Project area is urban and developed a natural setting and lacks palm areas preferred by species.

Source: CDFW 2015

FE – listed as endangered under the federal Endangered Species Act.

FT – listed as threatened under the federal Endangered Species Act.State

SE - listed as endangered under the California Endangered Species Act.

ST – listed as threatened under the California Endangered Species Act.

FPS – fully protected species in California.

SSC – species of special concern in California.

LEGEND T: TYPE H:HEIGHT C DT: DROUGHT TOLERANT	S : CROWI E : EVEF	N SPREA	D S : SP. D : DEC	acing P	S : PAF	RKWAY	SIZE	N : NATIVE P : PALM
Botanical Name/Common Name	T	Н	CS	S	PS	DT	N	
115 Podocarpus gracilior/African Fern Pine	E.	40 +	20-40	30-35	6-8			
116 Podocarpus macrophyllus/Shrubby Yew Pine	Ε.	20-40	-20	25-30	4-6			
117 Prosopis alandulosa/Mesquite	D.	20-40	40+	35-40	6-8	Yes	Yes	
118 Prunus caroliniana/Carolina Laurel Cherry	E.	20-40	20-40	30-35	4-6	Yes		
119 Prunus cerasifera/Purple-leaf Flowering Plur	n D.	20-40	20-40	25-30	3-4			
120 Prunus ilicifolia/Hollyleaf Cherry	E.	20-40	20-40	30-35	4-6	Yes	Yes	
121 Pyrus callervang/Ornamental Pear	D.	20-40	-20	30-35	3-4			
122 Pyrus kawakamii/Everareen Pear	E.	20-40	20-40	30-35	4-6			
123 Quercus agrifolia/Coast Live Oak	E.	40 +	40 +	35-40	8+	Yes	Yes	
124 Quercus coccinea/Scarlet Oak	D.	40 +	40 +	35-40	8+	Yes		
125 Quercus engelmannii/Mesa Oak	E.	40 +	40+	35-40	6-8	Yes	Yes	
126 Quercus lobata/Valley Oak	D.	40 +	40 +	35-40	8+	Yes	Yes	
127 Quercus ilex/Holly Oak	F.	40 +	40+	35-40	6-8	Yes		
128 Quercus suber/Cork Oak	E	20-40	20-40	30-35	6-8	Yes		
129 Quercus virginigna/Southern Live Oak	F	40 +	40 +	35-40	6-8			
130 Quillaia saponaria/Soanhark Tree	Ē.	20-40	20-40	30-35	6-8	Yes		
131 Rhus lancea/African Sumac	E.	20-40	20-40	30-35	4-6	Yes		
132 Robinia pseudoacacia/Black Locust	D.	20-40	20-40	30-35	4-6	Yes		
133 Robinia ambiaua Idahoensis/Idaho Locust	D.	20-40	20-40	30-35	3-4	Yes		
134 Sanium sebiferum/Chinese Tallow Tree	D.	20-40	20-40	30-35	4-6			
135 Schinus molle/California Penner	F	20-40	20-40	30-35	4-6	Yes		
136 Schinus terebinthifolius/Brazilian Penner	F	20-40	20-40	30-35	4-6	Yes		
137 Sequoiadendron ajaanteum/Giant Sequoja	C.	40 +	40+	35-40	8+	Yes	Yes	
138 Sequoid sempervirens/Redwood	C	40 +	40 +	35-40	8 +	Yes		
139 Stenocarous sinuatus/Firewheel Tree	E.	20-40	20-40	30-35	4-6			
140 Tabebuig avellanedge/Lavender Trumpet Tre	e D.	20-40	20-40	30-35	3-4			
141 Tabebuig chrysotrichg/Golden Trumpet Tree	D.	20-40	20-40	30-35	3-4			
142 Taxadium mucronatum/Montezuma Cypress	C	40 +	40 +	35-40	8+			
143 Tilia americana/American Linden	D.	40 +	40 +	35-40	6-8			
144 Tilia cordate/Little Leaf Linden	D.	40 +	40 +	35-40	6-8			
145 Tipuana tipu/Tipu Tree	D.	40 +	40 +	35-40	8+			
146 Trachycorpus fortunei/Windmill Polm	P	20-40	20	30-35	4-6	Yes		
147 Ulmus parvifolia Sempervirens/ Chinese Flm	ı F	20-40	20-40	35-40	6-8	Yes		
148 Umbellularia californica/California Laurel	F	40 +	20-40	35-40	6-8	Yes	Yes	
149 Washingtonia filifera/California Fan Palm	P	40 +	20-40	30-35	6-8	Yes	Yes	
150 Washingtonia robusta/Mexican Fan Palm	P.	40+	20-40	30-35	4-6	Yes		

All tree plantings in public right of ways must have the prior approval of Street Tree Division and the property owner. This list is designed to be used as a guide for tree planting projects. The Street Tree Division must review all tree species requests to ensure that it is appropriate for your particular micro-climate, soil conditions and growth space. Approval will given if Street Tree division deems the species selected is appropriate for the site. The Street Tree Division will be the final arbiter of tree selection for all tree planting projects in the public right of way. To obtain a Plant Permit, please contact the Street Tree Division at (800) 996-CITY. For the hearing impaired TDD (213) 473-6600.



**Street Tree Division** 

600 S. Spring St., 10th fl.

Los Angeles, CA 90014

#### Additional information is available: - Neighbor Tree Planting Guide

- Landscape Guidelines for Adopt-a-Median Program
- The City of Los Angeles Managing It's Urban Forest
- Street Tree Division Tree Spacing Guidelines
- Bureau of Engineering Standard Plan/Specifications
- Bureau of Engineering Standard Plan/Specificati
- Tree trimming Guidelines

Department of Public Works BUREAU OF STREET SERVICES



revised date:12/01

www.lacity.org/BOSS

Managing the Urban Forest of the City of Los Angeles

# STREET TREE SELECTION GUIDE





BUREAU OF STREET SERVICES



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## STREET TREE SELECTION GUIDE

Rotanical Name/Common Name	Т	H	27	S	PS	DT	N
1 Acacia baileyang/Railey Acacia	F	20-40	20-40	30-35	4-6	Yes	11
2 Acacia melanovylon/Black Acacia	F	40 +	40 +	35-40	6-8	Yes	
3 Acer macrophyllum/Rig Leaf Maple	D	40 +	40 +	35-40	8+	100	Yes
4 Acer negundo/Box Elder	D	40 +	40 +	35-40	6-8		Yes
5 Agonis flevuoso/Pennermint Tree	F.	20-40	20-40	35-40	4-6	Yes	105
6 Albizin julibrissin/Silk Tree	D.	20-40	20-40	35-40	4-6	Yes	
7 Alous cordata/Italian Alder	D.	40 +	20-40	35-40	6-8	105	
8 Alnus rhomhifolia/White Alder	D.	40 +	40 +	35-40	8+		Yes
9 Annoshiona lanceolata/Gum Myrtle	F	20-40	20-40	35-40	4-6	Yes	
10 Arguraria excelso/Norfolk Island Pine	(	40 +	20-40	30-35	4-6	Yes	
11 Arbutus menziesii/Madrone	F	40 +	40 +	35-40	6-8	Yes	Yes
12 Archontonhoenix cunninghamiang/King Palm	P	40 +	20-30	25-30	3-4	Yes	2981
13 Arecastrum romanzoffianum/Queen Palm	P.	40 +	40 +	25-30	3-4	Yes	
14 Bauhinia purpurea/Purple Orchid Tree	D.	20-40	-20	25-30	3-4	Yes	
15 Bauhinia V. candida/White Orchid Tree	D.	20-40	-20	25-30	3-4	Yes	
16 Betula niara/River Birch	D.	40 +	20-40	35-40	4-6		
17 Betula pendula/European White Birch	D.	20-40	20-40	30-35	3-4		
18 Bischofia javanica/Tooa Tree	E.	40 +	20-40	35-40	6-8		
19 Brahea armata/Mexican Blue Palm	Ρ.	20-40	-20	25-30	4-6	Yes	
20 Brahea edulis/Guadalupe Palm	Ρ.	20-40	-20	25-30	4-6	Yes	
21 Broussonetia papyrifera/Paper Mulberry	D.	20-40	20-40	35-40	6-8	Yes	
22 Butia capitita/Pindo Palm	E.	-20	-20	25-30	3-4	Yes	
23 Callistemon salignus/White Bottle Brush	E.	20-40	20-40	30-35	3-4	Yes	
24 Calistemon viminalis/Weeping Bottle Brush	Ε.	20-40	20-40	30-35	3-4	Yes	
25 Calocedrus decurrens/Incense Cedar	C.	40 +	20-40	30-35	6-8	Yes	Yes
26 Calodendrum capense/Cape Chestnut	D.	20-40	40+	35-40	8+	Yes	
27 Carya illinoensis/Pecan	D.	40 +	40+	35-40	6/8	Yes	
28 Cassia excelsa/Crown of Gold	E.	20-40	20-40	30-35	4-6		
29 Cassia leptophylla/Gold Medallion Tree	E.	20-40	20-40	30-35	4-6		
30 Castanea mollissima/Chinese Chestnut	D.	40+	40 +	35-40	8+		
31 Castanea sativa/Spanish Chestnut	D.	40+	40 +	35-40	8+		
32 Castanospermum australe/Moreton Bay Chestnut	E.	40 +	40+	35-40	8+	23-	
33 Casuarina cunninghamiana/River She-oak	C.	20-40	20-40	35-40	6-8	Yes	
34 Catalpa bignonioides/Common Catalpa	D.	20-40	20-40	30-35	6-8	Yes	
35 Catalpa speciosa/Western Catalpa	D.	40 +	40 +	35-40	6-8	Yes	
36 Cedrela fissilis/Brazilian Cedar Wood	D.	40+	40 +	35-40	8+	Yes	
37 Cedrus atlantica/Atlas Cedar	C.	40+	40+	35-40	8+	Yes	
38 Cedrus deodara/Deodar Cedar	(.	40+	40+	35-40	8+	Yes	
39 Cedrus libani/Cedar of Lebanon	(.	40+	40 +	35-40	8+	Yes	
40 Celtis occidentalis/Common Hackberry	U.	20-40	20-40	30-35	4-6	Yes	V.
41 Celtis reticulata/Western Hackberry	D.	20-40	20-40	30-35	4-0	res	Yes
42 Cercis canadensis/Eastern Redbud	U.	-20	-20	25-30	3-4	Ver	Ver
43 Cercis occidentalis/ Western Reabua	U.	-20	-20	20-30	5-4	Vec	Vec
44 Unitopsis linearis/ Desert Willow	U.	20-40	20-40	20-33	4-0	162	162
45 Unionanthus retusus/Uninese rinige Tree	U.	-20 40	-20	25-50	4-0	Vac	
46 Unitalpa tashkentensis/Unitalpa	υ.	20-40	20-40	25-30	4-0	Vec	
47 Cinnamomum campnora/Campnor Tiee	E.	20-40	40+	20 25	20	162	
48 Crinodenaron paragua/Lily OF the valley free	E.	20-40	20-40	30-33 2E 10	0-0		
49 Cryptocatya tubia/Cryptocatya Rubia	E.	20-40	40+	35-40	0-0 8 I		
50 Crytomenu juponicu/Jupunese Cedur	C.	40+	40 +	35 10	68	Voc	
51 Cupressus grubiu/ Arizonia Cypress	C.	40 -	40 +	35 10	6.8	Vac	Voc
52 Eriobatrua daflava/Brazza Laguat	C.	-20	-20	25-30	3_4	103	105
54 Enthring crista Calli/Cacksour Caral Trad	D.	20 40	20.40	30-35	6-8	Vac	
55 Enthring coralloides/Naked Coral	D.	20-40	20-40	30-35	6-8	Ypc	
56 Earthring humenna/Natal Coral	D.	20-40	20-40	30-35	6-8	Yes	
57 Eucolyntus citriodora/Lemon Scented Gum	F	40 +	20-40	30-35	6-8	103	
51 Eddaypids childrardy conton sconton Odni	he e	19	20 10	00 00	~ ~		

LEGEND T: TYPE H:HEIGHT CS: CR DT: DROUGHT TOLERANT E: E	OWN	I SPREAD GREEN	S : SPA	ACING PS	S : PA C : co	RKWAY	SIZE	N : NATIVE P : PALM
Botanical Name/Common Name	T	Н	CS	S	PS	DT	N	
58 Fucalyntus comuta/Yate Tree	F	20-40	20-40	30-35	6-8	Yes		
59 Eucalyptus erythrocorys/Redcan Gum	F	20-40	20-40	30-35	6-8	Yes		
40 Eucalyntus ficifalia/Redflowering Gum	F	20-40	20-40	30-35	6-8	100		
61 Eucalyptus Johnannii/Rushy Yate	F	20-40	20-40	35-40	6-8	Yes		
62 Eucolyptics leucovilon White Ironhark	E.	20-40	20-40	35-40	6-8	Yes		
62 Eucalyptus redeaxyon/ White Hondark	E.	20-40	20-40	30-35	1-6	Vac		
44 Eucalyptus nationaly winowiedri reppennin	E	10-40	20-40	35 10	6.8	Voc		
45 Eucalyptus cideroxylon (Pad Iranhark	L.	40 1	10 1	35 10	8_	Voc		
65 Eucliphios sideroxyroll/ Red Horiburk	L. E	20 40	20 10	30 35	16	Voc		
7 Fine posses alle Messter Dev Fin	E.	10 40	20-40	10 1	9-0	Vec		
07 FICUS ITIUCIOPTIVITU/WOTETOTT BUY FIG	E.,	20 40	20 40	25 10	40	Voc		
68 Ficus rubigenosa/ Kustyleat Fig	E.	20-40	20-40	20 25	0-0	Vec		
69 Geilera parvitiora/Australian Willow	E.	20-40	20-40	30-35	0-0	tes		
70 Ginkgo biloba/malaennair Tree	D.	40+	20-40	20-25	4-0			
71 Gleditsia friacanthos Inermis/Honey Locust	D.	20-40	20-40	30-35	4-0	W.		
72 Harpephyllum caffrum/Kaffir Plum	E.	20-40	20-40	35-40	6-8	res		
73 Hymenosporum flavum/Sweet Shade	E.	20-40	-20	25-30	3-4	N.		
74 Ilex Altaclarensis wilsonii/Wilson Holly	Ł.	-20	-20	25-30	3-4	Yes		
75 Jacaranda mimositolia/Jacaranda	D.	20-40	20-40	35-40	6-8			
76 Jubaea chilensis/Chilean Wine Palm	P.	40 +	20-40	30-35	4-6			
77 Koelreuteria bipinnata/Chinese Flame Tree	D.	20-40	20-40	30-35	6-8	212.5		
78 Koelreuteria paniculata/Golden Rain	D.	20-40	20-40	30-35	6-8	Yes		
79 Lagerstroemia indica/Crape Myrtle	D.	-20	-20	25-30	3-4	Yes		
80 Lagunaria patersonii/Primrose Tree	E.	40+	20-40	30-35	6-8	Yes		
81 Laurus nobilis/Sweet Bay	E.	20-40	-20	25-30	4-6	Yes		
82 Ligustrum japonicum/Japanese Privet	E.	20-40	20-40	30-35	4-6	Yes		
83 Liriodendron tulipifera/Tulip Tree	D.	40+	20-40	35-40	6-8			
84 Lithocarpus densiflorus/Tanbark Oak	E.	40+	20-40	30-35	6-8	Yes	Yes	
85 Liquidambar orientalis/Oriental Sweetaum	D.	20-40	20-40	25-35	4-6	Yes		
86 Lyonathamnus floribondus/Catalina Ironwood	E.	40+	20-40	30-35	4-6	Yes	Yes	
87 Macadamia integrifolia/Smoothshell Macadamia	E.	20-40	20-40	30-35	4-6	Yes		
88 Maanolia arandiflora/Southern Maanolia	E.	20-40	20-40	35-40	6-8			
89 Maanolia arandiflora/Saint Marv	E.	-20	-20	25-30	3-4			
90 Maanolia arandiflora/Majestic Beauty	Ε.	20-40	20-40	25-30	4-6			
91 Melaleuca linariifolia/Elaxleaf Paperbark	F	20-40	20-40	30-35	4-6	Yes		
92 Melaleuca auinquenervia/Caieput	F	20-40	20-40	30-35	4-6	Yes		
93 Melia azedarach/Chingherry	D	20-40	40 +	35-40	6-8	Yes		
94 Metrosideros excelsus/New Zenland Christmas Tree	F.	-20	-20	25-30	3-4	Yes		
95 Myonorum Inetum/Myonorum	F	-20	20-40	30-35	6-8	100		
96 Nyssa sylvatica/Sour Gum	D	40 +	-20	30-35	4-6	Yes		
97 Oleg europae/Olive	F	20-40	-20	30-35	6-8	Yes		
98 Phoenix canariensis/Canary Island Date Palm	Ρ.	40 +	40 +	35-40	6-8	Yes		
99 Phoenix dachdifera/Date Palm	P	40 +	40 +	35-40	6-8	Yes		
100 Photinia corrulata/Chinoso Photinia	F	20	20	25-30	3-1	Voc		
101 Photining fragori/Photining	E.	20	20	25-30	3_4	Yos		
102 Pinus canacionsis/Canany Island Pino	C.	10	20 40	25-00	6.8	Voc		
102 Pinus elderice (Meedell Pine	C.	40 +	20-40	35 10	4.8	Voc		
104 Disus belancesis (Alance Dise	C.	40 +	20-40	25 10	2 0	Voc		
104 Fillios Indiepensis/ Aleppo Fille	C.	40 +	40 +	25 10	2 0	Vec	Vac	
105 PINUS MURICATO/BISNOP PINE	L.	40+	40+	35-40	0-0	162	162	
106 Pinus patula/Jelecore Pine	6	40+	40+	35-40	0-0	Vec		
10/ Pinus pined/Italian Stone Pine	6	40+	40+	35-40	0-0	Tes	Vee	
108 Pinus radiata/Monterey Pine	C.	40+	40+	35-40	0-0	Tes	Tes	
119 Pinus forreyand/ forrey Pine	L.	40+	40+	35-40	0-0	Yes	res	
110 Pistacia chinensis/Chinese Pistache	U.	40+	40+	35-40	6-0	Yes		
III Pittosporum rhombitolium/Queensland Pittosporum	Ł.	20-40	20-40	30-35	4-6	Yes		
112 Pittosporum undulatum/Victorian Box	E	20-40	70-40	30-35	4-6	Yes		
113 Platanus X aceritolia/London Plane	D.	40+	40+	35-40	6-8			
114 Platanus racemosa/Lalitornia Sycamore	D.	40 +	40 +	35-40	6-8	Yes		

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## 2.1 Project Overview

The proposed Sidewalk Repair Program (also referred to as the Project) is a Citywide program to modify the manner in which sidewalk repair projects are undertaken pursuant to the City of Los Angeles' (City) obligations under the *Willits* Settlement Agreement (Settlement).<sup>1</sup> Currently, the City is complying with the Settlement using existing ordinances and policies. The existing process requires case-by-case review and approval of each sidewalk repair project funded as a result of the Settlement. With the Project, the City is proposing to adopt a new uncodified ordinance<sup>2</sup> to revise the way sidewalk repairs undertaken pursuant to the *Willits* Settlement are reviewed and approved, with a primary goal of streamlining the Settlement implementation process. As explained more fully below, the key components of the ordinance include:

- A ministerial approval process to enable sidewalk repair projects falling within certain specified parameters to proceed upon approval by the City Engineer or a designee, without undergoing further environmental review under the California Environmental Quality Act (CEQA);
- A streamlined discretionary approval process for sidewalk repair projects falling outside the specific parameters for a ministerial sidewalk repair approval;
- A streamlined discretionary approval process for sidewalk repair projects involving the proposed removal of three or more street trees to proceed upon approval by the Board of Public Works;
- A revised Street Tree Retention, Removal and Replacement Policy establishing a 2:1 street tree replacement to removal ratio requirement for years 1-10, 3:1 for years 11-21, and 2:1 for years 22-30, and;
- Mandatory Project Design Features (PDFs) generally consisting of regulatory compliance measures and standard construction conditions and procedures.

The City is the Lead Agency for purposes of CEQA review for the Project, as discussed in Chapter 1, *Introduction*. The Los Angeles City Council is the City entity responsible for approval of the Project, and the Bureau of Engineering of the City's Department of Public Works (BOE) is the City department responsible for implementation of the Project.

## 2.2 Project Approvals and Intended Uses of the EIR

The statutory provisions of CEQA, found within the Public Resources Code Section 21000 et seq., and the State CEQA Guidelines, found within Title 14 of the California Code of Regulations at Section 15000 et seq., authorize lead agencies to prepare various types of EIRs, depending on the circumstances of a particular project and in order to render the environmental review as efficient and useful as possible.

<sup>&</sup>lt;sup>1</sup> Mark Willits, et al. v. City of Los Angeles (U.S. Dist. Court Case No. CV10-05782 CBM (RZX), Term Sheet approved by City Council on April 1, 2015, also referred to as the Willits Settlement Agreement.
<sup>2</sup> Generally, uncodified ordinances are those for specific and non-permanent matters (such as modifying the waythe Settlement obligations are implemented), while codified ordinances in the City's municipal and administrativecodes are those for general and permanent matters. The types of EIRs available to lead agencies under CEQA are:

- Project EIRs (CEQA Guidelines Section 15161),
- EIRs as part of general plans (Section 15166),
- master EIRs (Sections 15175–15179.5),
- program EIRs (Section 15168),
- staged EIRs (Section 15167),
- subsequent EIRs (Section 15162), and
- supplements to EIRs (Section 15163).

The EIR types listed above "are not exclusive" (CEQA Guidelines Section 15160). The various types of EIRs allow agencies to tailor their environmental analysis depending on the nature of a proposed project. The different types of EIRs also allow agencies to avoid needless redundancy and duplication. By choosing the most appropriate form of EIR, lead agencies can effectively analyze the foreseeable consequences of a proposed project, including cumulative impacts (CEQA Guidelines Section 15160).

Here, the City determined that the most appropriate type of EIR for the Project is a hybrid project specific and program EIR. The EIR's analysis is project specific to the extent it considers the reasonably foreseeable and potentially significant direct and cumulative significant adverse impacts of the ordinance proposed to govern the majority of sidewalk repairs under the *Willits* Settlement, including all phases of the sidewalk improvements proposed for future ministerial approval, included in Scenarios 1 and 2 described below. The EIR is also programmatic in its analysis of specific sidewalk improvement projects described as Scenario 3, that may require future discretionary approval(s) because of the potential to have a substantial adverse change on a historically significant resource, including any resource identified as a Historic-Cultural Monument or encompassed within the City's Cultural Heritage Ordinance; unique archaeological resource; unique paleontological resource; tribal cultural resource; and aesthetic resource as affected by a substantial adverse change to ta cultural resource. (Los Angeles Administrative Code Section 22.171; see also CEQA Guidelines Sections 15152, 15162-15164, 15168.)

The City has determined that each proposed sidewalk improvement segment, including those that were previously approved or are ongoing, has independent utility justifying their separate processing and approval. Each improved segment, for example, would serve a viable purpose by ensuring continued disability law compliance, consistent with the terms of the Settlement Agreement, even if other segments are never built. One improved sidewalk segment, moreover, does not cause the need for other improvements. (See *Del Mar Terrace Conservancy, Inc. v. City Council of the City of San Diego* (1992) 10 Cal.App.4th 712, 728-729 [upholding an EIR that treated as the "project" at issue one freeway segment within a long-term, multi-segment regional plan to expand the freeway system throughout San Diego County].) The City has nevertheless determined that preparation of an EIR which considers all the reasonably foreseeable effects of the proposed ordinance and Scenarios 1-3, to the extent feasible, will render the City's existing sidewalk improvement process more efficient, thereby ensuring timely compliance with the terms of the *Willits* Settlement.

As such, the EIR serves as an informational document for the general public and the Project's decision-makers. The Final EIR must be certified as adequate prior to adoption of the ordinance.

Implementation of the Project may require discretionary actions and permits from the agencies identified in Table 2-1, below.

Agency	Permit/Approval	Issue
Local		
City of Los Angeles, City Council	CEQA document and proposed ordinance	Certification of the EIR and related findings. Ordinance would govern implementation for all Project activities over the next approximately 30 years
City of Los Angeles, Department of Public Works, Bureau of Engineering	Local Coastal Development Permit	City will obtain any required local coastal approvals in a coastal zone for Project activities.
Regional		
Los Angeles Regional Water Quality Control Board	National Pollutant Discharge Elimination System Construction Stormwater Pollution Prevention Plan Permit	Water quality and the placement of discharges associated with dewatering activities, if required; no permit required for discharges to sewer (general permit may be used).
State		
California Coastal Commission	State Coastal Development Permit or other approval	City will obtain any required local coastal approvals in a coastal zone for Project activities.

#### Table 2-1. Anticipated Permits and Approvals for Project

## **2.2.1** Baseline Year

This Draft Environmental Impact Report (Draft EIR) uses July 2017 as the baseline year against which Project impacts are compared. This baseline was selected to reflect the physical environmental conditions at the time the Notice of Preparation (NOP) was published, including ongoing sidewalk repair projects occurring in 2017 and leading up to the NOP, consistent with CEQA Guidelines Section 15125(a)(1).

In 2017–2018, approximately 24 miles of sidewalks were repaired in the City. In that same 12month period, <u>211-280</u> street trees were removed and <u>484-526</u> new street trees were planted. Data from this past work is used to make projections and assumptions for analysis in this Draft EIR. The analysis of Project impacts was prepared assuming that the maximum construction activities possible as a result of City's commitments under the *Willits* settlement will occur.

## **2.2.2** Background

## 2.1.2.1 <u>2.2.2.1</u> Accessibility Laws

Several federal and state accessibility laws, including the Americans with Disabilities Act of 1990 (ADA), the Rehabilitation Act of 1973, the Unruh Act, the Disabled Persons Act, and Title 24 of the California Building Code, among others, contain provisions pertaining to accessibility to certain covered public facilities for persons with disabilities. Public sidewalks and pathways are among the facilities covered by these federal and state accessibility laws and standards. For example, the ADA

specifies parameters for width, slope, and texture requirements for public sidewalks, as well as how curb ramps shall be designed to ensure sidewalks are readily accessible and usable by individuals with disabilities. (See https://www.ada.gov/regs2010/2010ADAStandards/2010ADAstandards.htm#c1 [DOJ 2010 ADA Standards for Accessible Design] and https://www.ada.gov/regs2010/2010ADAStandards/Guidance\_2010ADAStandards.pdf [2010 Guidance on the ADA Standards for Accessible Design]).

## 2.1.2.2 <u>2.2.2</u> *Willits* Settlement

Between December 2006 and March 2011, three separate lawsuits against the City were filed in which the plaintiffs alleged various claims arising under state and federal accessibility laws and involving the alleged conditions of existing City sidewalks. While the City did not admit any wrongdoing and affirmatively denied all of the allegations made by the plaintiff groups, during the pendency of the three lawsuits, the parties entered into the *Willits* Settlement Agreement (*Willits* Settlement).

Prior to entering into the *Willits* Settlement, the City Council instructed BOE to work with various other City departments to utilize existing City contracts for sidewalk repairs adjacent to City facilities as a matter of "urgent necessity" and established BOE as the program manager. Sidewalks adjacent to facilities of the United States, the State of California, the County of Los Angeles, or other governmental entities including, Los Angeles Unified School District facilities, state parks and lands, county parks and waterways, federal lands, Los Angeles County Metropolitan Transportation Authority, California Department of Transportation, and other third parties were not included in the City Council instruction because repair of those sidewalks are the responsibility of those non-City organizations/agencies.

The City Council approved the terms of the *Willits* Settlement in April 2015, and Judge Consuelo Marshall of the Federal District Court approved the Settlement in August 2016.<sup>3-2</sup>.Generally speaking, the *Willits* Settlement provides that the City will expend approximately \$1.3 billion on sidewalk repairs during the agreement's 30-year compliance period. The total amount of funding is broken down into annual commitments specified in 5-year increments. For example, the City shall expend

\$31 million per year for the first five years of the compliance period, increasing to \$63 million per year in the final five years of the compliance period. Repair activities covered by the *Willits* Settlement encompass:

- Installation of missing curb ramps;
- Repair of damage caused by street tree roots to sidewalk or walkway surface so that the sidewalk or walkway surfaces are made accessible to and usable by persons with mobility disabilities;
- Upgrading of existing curb ramps;
- Repair of broken and/or uneven pavement in the pedestrian rights of way deeper or wider than <sup>1</sup>/<sub>2</sub> inch;
- Repair of vertical or horizontal displacement or upheaval of the sidewalk or crosswalk surface greater than ½ inch;

<sup>&</sup>lt;sup>3-2</sup> Mark Willits, et al. v. City of Los Angeles (U.S. Dist. Court Case No. CV10-05782 CBM (RZX), Term Sheet approved by City Council on April 1, 2015, also referred to as the Willits Settlement Agreement or Willits Term Sheet.

- Correction of non-compliant cross-slopes in sidewalks or sections of sidewalks;
- Removal of protruding and overhanging objects and/or obstructions that narrow pedestrian rights of way to less than 4 feet of accessible width;
- Widening of pedestrian rights of way and sections thereof to provide 4 feet of accessible width;
- Providing 4 feet of clearance to the entrances of public bus shelters;
- Repair of excessive gutter slopes at the bottom of curb ramps leading into crosswalks;
- Elimination of curb ramp lips on curb ramps;
- Installation of accessible street tree grates, or other compliant remediation, where such grates are missing from street tree wells;
- Installation of missing utility covers where such covers are missing from sidewalks, crosswalks
  or pathways; and
- Remediating other conditions as appropriate for improving pedestrian access and complying with the Settlement.

Following the District Court's final approval of the *Willits* Settlement, the City Administrative Officer (CAO) released a report<sup>43</sup> that recommended consideration of new sidewalk repair policies for a City program that: (1) is permanent and ongoing, (2) is consistent with the *Willits* Settlement, (3) shares responsibility for maintenance and repair with adjacent property owners, and (4) ensures accessibility in areas with the most significant safety hazards. The *Willits* Settlement defines pedestrian facilities as "any sidewalk, intersection, crosswalk, street, curb, curb ramp, walkway, pedestrian right-of-way (ROW), pedestrian undercrossing, pedestrian overcrossing, or other pedestrian pathway or walkway of any kind that is, in whole or in part, owned, controlled, or maintained by or otherwise within the responsibility of the City of Los Angeles." The CAO report was prepared in consultation with various City departments and agencies. According to the CAO report, the City should prioritize sidewalk-related access improvements; address access barriers; and repair the most significant safety hazards.

### 2.1.2.3 Existing Willits Settlement Sidewalk Repairs

The City's current repairs of individual sidewalks required by the *Willits* Settlement are approved on a case-by-case basis. In November 2016, the City adopted Ordinance No. 184596 that amended Los Angeles Municipal Code (LAMC) Section 62.104 and established a "fix and release" program. The City inspects sidewalks for compliance with applicable accessibility requirements. If the inspection reveals that the sidewalk is not compliant with applicable accessibility requirements, then the City repairs the sidewalk. Repairs of sidewalks are undertaken pursuant to Sidewalks Standard Plan S-440-0, adopted by the City Engineer on June 25, 2014.

Once a sidewalk is repaired and compliant with applicable accessibility requirements, the City issues a Certificate of Sidewalk Compliance. When issued, a sidewalk repair warranty period of 20 years for residential property and 5 years for commercial property begins. During the warranty period, the City guarantees a one-time repair of the sidewalk, as deemed necessary. However, this sidewalk

<sup>&</sup>lt;sup>4-3</sup>City of Los Angeles. 2015. "New Policy for Repair and Management of Sidewalks Adjacent to Private Property." May 26, 2015. Available: https://investinginplace.files.wordpress.com/2015/06/cao-report\_5-26-15.pdf Accessed Sept. 4, 2019.

repair warranty is waived if the property owner elects to retain a street tree that has been recommended for removal. Once the warranty ends, the responsibility for maintenance is transferred back to the property owner.

Ordinance No. 184596 excludes any sidewalk adjacent to a lot owned by a governmental entity, including, but not limited to, the Federal Government, the State of California, any political or administrative subdivision of the Federal Government or State of California, and any county, city and county, municipal corporation other than the City, irrigation district, transit district, school district, or other district established by law.

As required under the terms of the *Willits* Settlement, in conjunction with criteria set forth by the City Council, BOE has developed a Prioritization and Scoring System (Prioritization System) to guide implementation of *Willits* Settlement repairs. Due to the significant number of requests received for sidewalk repair, the Prioritization System provides clear and objective direction for prioritizing work, including as follows: City government offices and facilities; transportation corridors; hospitals, medical facilities, assisted living facilities and other similar facilities; places of public accommodation such as commercial and business zones; facilities containing employers; and other areas such as residential neighborhoods and undeveloped areas. (Willits Term Sheet, p. 1.) The Prioritization System was adopted by the City Council in January 2018 (Council File No. 14-0163-S3).

The City offers three programs for sidewalk repairs: Access Request, Rebate, and Report a Sidewalk Problem. Constituents may submit requests under these programs, discussed further below, through the MyLA311 service request system.

Currently, individual sidewalk projects under the *Willits* Settlement are reviewed on a case-by-case basis under CEQA. CEQA Guidelines Sections 15300 to 15333 identify classes of projects that are categorically exempt from provisions of CEQA because they do not ordinarily result in a significant effect on the environment. Individual sidewalk repairs typically fit the definition of a Class 1 existing facility repair and maintenance, as identified under CEQA Guidelines Section 15301(c). However, this Draft EIR was prepared because, as explained above, the Project consists of a new proposed ordinance that revises the manner in which implementation of sidewalk repairs under the *Willits* Settlement will be implemented, including making certain sidewalk improvement approvals ministerial to avoid the need to undertake case-by-case sidewalk repair CEQA review.

## 2.1.2.4 2.2.2.4 Access Request

Under the Access Request Program, individuals with a mobility disability may submit a request to the City for sidewalk repairs related to physical access barriers, such as broken sidewalks, missing or broken curb ramps, or other access barriers in the public City ROW.

## 2.1.2.5 <u>2.2.2.5</u> Rebate

Under the Rebate Program, any residential or commercial property owner may voluntarily undertake sidewalk repair work that meets accessibility requirements, then receive a rebate in a specified amount. The Rebate Program is intended to accelerate sidewalk repairs in residential and commercial areas and leverage available City funds.

## 2.1.2.6 Report a Sidewalk Problem

By submitting information under the Report a Sidewalk Problem, the general public may report a sidewalk that is in need of repair. (See https://sidewalks.lacity.org.)

## 2.1.2.7 <u>2.2.2.7</u> Sidewalk Accessibility Grievance Policy and Procedure

Consistent with the *Willits* Settlement, the Sidewalk Accessibility Grievance Policy and Procedure system was launched on January 1, 2018. Under this policy, members of the Settlement class may submit grievances or complaints regarding access to the City's pedestrian ROW for persons with mobility disabilities.

# 2.3 **Project Objectives**

CEQA requires that an EIR include a statement of objectives sought by the project, and that the objectives include the underlying purpose of the project. These objectives help the lead agency determine the alternatives to evaluate in the EIR (see CEQA Guidelines Section 15124(a)). The fundamental and underlying purpose of the Project is to ensure the City's timely and efficient compliance with the *Willits* Settlement, including by streamlining review of future sidewalk repair projects consistent with applicable accessibility standards. The following is a list of objectives for the Project that support the underlying purpose, including the fundamental project objective which is to:

- Ensure the continued and efficient compliance with the requirements of the *Willits* Settlement while amending the existing program for sidewalk and curb ramp improvements within the City, in accordance with the applicable accessibility requirements, including those required by the Americans with Disabilities Act.

The following additional project objectives have also been identified:

- Retain existing street trees that are the cause of sidewalk barriers to the extent feasible, provided the sidewalk improvements would not result in street tree mortality or compromise public safety;
- If the removal of one or more street trees is required, ensure compliance with the City's replacement requirements adopted to ensure no net street tree canopy loss at the end of the Project implementation period.
- Identify the criteria and process for ministerial approval of future sidewalk improvements and street tree removals and replacements, with the goal of avoiding the need to undertake individualized environmental review of every repair of every City sidewalk or of every street tree removal and replacement and the potential legal challenge to each such approval; thereby streamlining the *Willits* Settlement implementation and providing certainty to the City and its disability community.

# 2.4 Project Location and Setting

## 2.4.1 Location

The City, located within Los Angeles County, covers approximately 467 square miles<sup>54</sup> (see Figure 2-1, Project Location). The City maintains approximately 9,000 miles of sidewalks. In Fiscal Year 2017-2018, the first year of the compliance period, the City completed 24.4 miles of sidewalk repair. Additional sidewalk within the City is privately owned by entities such as the Los Angeles Unified School District, which is responsible for its maintenance.

Los Angeles is bordered by the cities of Calabasas, Hidden Hills, and Santa Monica and the Pacific Ocean to the west; the cities of Burbank, Glendale, and Pasadena and the Angeles National Forest to the north; the cities of South Pasadena, Alhambra, Commerce, Vernon, and South Gate to the east; and the cities of Compton, Carson, Gardena, Inglewood, Culver City, and El Segundo to the south. In addition, West Hollywood, Beverly Hills, and San Fernando are "islands" within the City, and pockets of unincorporated Los Angeles County land lie within and adjacent to the City (see Figure 2-1, Project Location). Within the City, the following communities (either totally or partially) are located within the Coastal Zone: Brentwood/Pacific Palisades, Venice. Palms/Mar Vista/Del Rey, Winchester/Playa Del Rey, San Pedro, and Wilmington/Harbor City. Also located within the Coastal Zone is the Los Angeles Harbor Complex.

<sup>&</sup>lt;sup>5-4</sup>Los Angeles Department of City Planning. 2013. *Citywide Demographic Profile* (based on Census 2010). January 2. Available http://planning.lacity.org/censusinfo/census2010/censusRpt2010.pdf. Accessed: September 6, 2018.



Figure 2-1. Project Location

# 2.4.2 Setting

## 2.4.2.1 Project Zones

To organize the environmental setting within the Project area into manageable descriptive units, the City has been organized into seven regional project zones that overlap the boundaries of existing Area Planning Commissions (APCs) within the City: North Valley, South Valley, West Los Angeles, Central Los Angeles, East Los Angeles, South Los Angeles, and Harbor. APCs are used by the City Planning Department to determine significant planning and land use issues for proposed plans and projects. Details regarding the geographic project zones that correlate with the seven APCs within the City are summarized in Table 2-2. All data pertaining to each project zone APC were obtained from the City Planning Department website.<sup>65</sup>

Project Zone	Total Area (square miles)	<b>Council Districts</b>	Population	Housing Units
North Valley	126.8	2,3,6,7,12	707,390	203,971
South Valley	97.6	2,3,4,5,6,12	758,815	288,505
West Los Angeles	90.0	4,5,11	431,348	194,409
Central Los Angeles	48.8	1, 4, 5, 9, 10, 13,14	733,525	291,297
East Los Angeles	37.6	1,4, 13,14	432,611	130,516
South Los Angeles	43.8	1, 8, 9, 10, 15	734,593	218,287
Harbor	33.9	15	205,218	67,000

### Table 2-2. Project Zone Summary

The project zones range from approximately 33.9 to 126.8 square miles. The City is also divided into 15 Council Districts. In most cases, the project zones contain more than one Council District, and Council Districts are located in more than one project zone, as shown in Figure 2-2. In many sections of the Draft EIR, the existing environmental setting is divided according to the Project Zones.

## **North Valley**

The North Valley project zone is in the northernmost portion of the City and covers approximately 127 square miles. It includes the following communities: Chatsworth-Porter Ranch, Northridge, Granada Hills-Knollwood, Mission Hills-Panorama City-North Hills, Sylmar, Arleta-Pacoima, Sun Valley-La Tuna Canyon, and Sunland-Tujunga-Shadow Hills-Lakeview Terrace-East La Tuna Canyon.

<sup>6-5</sup>Los Angeles Department of City Planning. 2018. *Population and Housing Data by Area Planning Commission*. Demographic Research & Graphic Services Section. Available: http://cityplanning.lacity.org/dru/Locl/LocRpt.cfm?geo=AP&sgo=CP.Accessed September 6, 2018.



Figure 2-2. City of Los Angeles Council Districts

## South Valley

The South Valley project zone is south of the North Valley project zone and covers approximately 98 square miles. It includes the following communities: Canoga Park-West Hills-Winnetka-Woodland Hills, Reseda-West Van Nuys, Encino-Tarzana, Van Nuys-North Sherman Oaks, Sherman Oaks-Studio City-Toluca Lake-Cahuenga Pass, and North Hollywood-Valley Village.

## West Los Angeles

The West Los Angeles project zone is in the western portion of the City, below the South Valley project zone; covers approximately 90 square miles; and falls within the California Coastal Zone. This project zone includes the following communities: Brentwood-Pacific Palisades, Bel Air-Beverly Crest, Westwood, West Los Angeles, Palms-Mar Vista, Venice, Del Rey, Westchester, Playa Del Rey, and Los Angeles International Airport. Street tree removals and replacements in the California Coastal Zone Soastal Zone would require approval from the California Coastal Commission and the City.

## **Central Los Angeles**

The Central Los Angeles project zone is in the central portion of the City and covers approximately 49 square miles. It includes the following communities: Hollywood, Wilshire, Westlake, Central City, and Central North.

## **East Los Angeles**

The East Los Angeles project zone is east of the Central Los Angeles project zone and covers approximately 38 square miles. It includes the following communities: Silver Lake-Echo Park, Northeast Los Angeles, and Boyle Heights.

## South Los Angeles

The South Los Angeles project zone is south of the Central and East Los Angeles project zones. It covers approximately 44 square miles and includes the following communities: West Adams-Baldwin Hills-Leimert, South Los Angeles, and Southeast Los Angeles.

### Harbor

The Harbor project zone is in the southernmost portion of the City and covers approximately 34 square miles; it also falls within the California Coastal Zone. The Harbor project zone includes the following communities: Harbor-Gateway, Wilmington-Harbor City, San Pedro, and the Port of Los Angeles. Street tree removals and replacements in the California Coastal Zone would require approval from the California Coastal Commission and the City.

The percent distribution of land uses by project zones is shown in Table 2-3. Specifically, the table shows the variations in the types of land uses within the seven project zones.

Project Zone	Agricultural	Commercial	Education	Extraction	Industrial	Military	Open Space	<b>Public Facilities</b> <sup>b</sup>	Residential	Transportation	Undeveloped <sup>d</sup>	Utility Facilities <sup>e</sup>	Unknown <sup>f</sup>	Water-Related Usess
North Valley	1.0	8.9	2.9	1.3	4.0	0.0	12.3	2.1	43.0	0.9	17.2	5.7	0.5	0.2
South Valley	0.3	13.2	3.5	0.5	2.6	0.0	7.6	2.2	59.8	1.7	7.2	0.9	0.5	0.0
Central	0.0	15.1	2.0	0.8	5.3	0.0	16.0	4.9	41.1	1.5	7.3	4.4	0.8	0.8
East	0.2	10.6	3.9	1.0	4.7	0.0	10.1	2.9	52.7	3.4	7.8	1.7	0.4	0.7
West	0.1	8.6	2.5	0.5	1.4	0.0	7.6	2.0	33.4	6.0	32.0	1.3	4.0	0.6
South	0.2	11.9	5.3	0.8	4.9	0.0	2.6	3.3	68.3	0.9	0.5	0.5	0.9	0.0
Harbor	0.3	15.4	2.7	6.4	3.8	3.8	7.1	1.6	31.2	20.5	1.9	3.6	0.5	1.1

#### Table 2-3. Percent Distribution of Land Uses by Project Zone (in percent)<sup>a</sup>

a. Percentages rounded to the nearest decimal.

b. Public facilities include government offices, police/sheriff stations, fire stations, hospitals, religious facilities, convention centers, libraries, community centers, auditoriums, theaters, observatories, museums, correctional facilities, special care facilities, other special uses (i.e., youth organizations, homeless shelters).

c. Transportation facilities include airports, railroads, freeways and major roads, park-and-ride lots, bus terminals and yards, truck terminals, land portion of harbor facilities.

d. Undeveloped lands also include hillside conserved lands.

e. Utility facilities include power facilities, water facilities, and waste facilities.

f. Unknown land uses include development under construction or unidentified at the time of data collection.

g. Water-related uses include water portion of harbor facilities and water bodies.

Source: SCAG, 2015 Parcel-Based Existing Land Use Dataset

## 2.4.3 Infrastructure and Streets

Approximately 21 percent (63,888 acres) of all land in the City is developed for streets, storm drainage channels, utility facilities, and reservoirs. The streets are characterized by a grid-like linear pattern that crosses the City. Other infrastructure includes Chatsworth Reservoir, Sepulveda Basin, Los Angeles Reservoir, Hansen Dam, and the areas abutting Hansen Dam to the southwest.

## 2.4.3.1 Ongoing Sidewalk Repairs

Figures 2-3a and 2-3b depict examples of existing conditions with respect to sidewalks in the City. As shown in Figures 2-3a and 2-3b, existing conditions vary. Some of the examples show sidewalks and curbs that require repair work as a result of street tree uprooting or other effects. Maintenance has consisted of asphalt patching. Figures 2-4a and 2-4b show before-and-after photos of curb ramp installations and sidewalk repair with root pruning.

Figures 2-5a, 2-5b, and 2-5c provide three representative site plans for sidewalk repair and curb ramp installation work required to ensure compliance with accessibility standards. These are illustrative of the type and intensity of work that is associated with any given sidewalk repair. Figure 2-5a illustrates a typical construction site along an arterial street. In this instance, the sidewalks in front of a series of residences are being repaired and the street trees are being root pruned. In addition, the curb ramp at the southern end of the block is being repaired. Figure 2-5b illustrates the installation of two curb ramps. Curb ramp repair/installation includes an assessment of the four corners of an intersection. In this particular case, two of the corners already had compliant curb ramps. At one curb ramp, construction extends into private property to ensure that the walkway at the residence is accessible by conforming to the grade of the new curb ramp. Figure 2-5c illustrates curb ramp improvements and street tree removal at a park and community center. Street tree removal was necessary to improve the curb ramp to accessibility standards. Figure 2-6 shows removal of existing sidewalk and root pruning. In general, the sidewalk is 4 inches deep and, at times, includes 4 inches of base material. Figure 2-7 shows a sidewalk repair where a street tree is retained and the roots pruned. The sidewalk repair extends beyond the first property to the neighboring one. Figure 2-8 shows the intersection of a sidewalk repair with a curb ramp installation, with the sidewalk conforming to a private property walkway. Figures 2-9a and 2-9b show street tree root pruning associated with sidewalk repair. The root mass tends to be shallow, growing in a pan formation because of the presence of water for landscaping in adjacent yards. The roots do not grow deep because there is usually not enough groundwater to sustain them. Figures 2-10a and 2-10b show the location of a street tree removal. The street tree is removed in pieces, and the stump and roots are mulched.



Figure 2-3a. Existing Sidewalk Conditions

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Figure 2-3b. Existing Sidewalk Conditions



Figures 2-4a. Sidewalk Repair – Before and After



Figure 2-4b. Sidewalk Repair – Before and After



### Legend

X Tree Pruning or RemovalArea of Sidewalk Repair

Figure 2-5a. Representative Site Plan for Sidewalk Repair



#### Legend



Tree Pruning or Removal Area of Sidewalk Repair

Figure 2-5b. Representative Site Plan for Curb Ramp Repair



#### Legend

Χ

Tree Pruning or Removal

Area of Sidewalk Repair

Figure 2-5c. Representative Site Plan for Community Facility Access Repair



Figure 2-6. Photos of Existing Curb and Sidewalk Removed (above) Photo of Construction – Root Pruning – Existing Sidewalk Removed (below)



Figure 2-7. Existing Sidewalk Removed and Root Pruning Complete



Figure 2-8. Photo of Construction Affecting Private Walkway



Figure 2-9. Photo of Construction – Street Tree Root Pruning – Existing Sidewalk Removed

Chapter 2. Project Description



Figure 2-10a. Photo of Construction – Street Tree Removal



Figure 2-10b. Photo of Construction – Street Tree Removal

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## 2.4.3.2 Street Trees

Per LAMC Sections 62.161–62.177, the Board of Public Works and Bureau of Street Services (BSS) have certain specified jurisdiction over the trees within City streets. These trees, commonly referred to as street trees, are a subset of the urban forest that contains trees, plants, shrubs, and other vegetative material within private property, parks, state parkland, City facilities, and wildland areas.

BSS exercises management responsibility over street trees and, in coordination with the Los Angeles City Planning Department, "protected trees," as proscribed in LAMC Sections 46.00– 46.06. According to the U.S. Department of Agriculture Tree Canopy Assessment (January 2008), the City's urban forest contains approximately 10 million trees, which includes all trees in the urban forest and of which street trees comprise a limited fraction. A street tree inventory was conducted in 2014 by the City. This inventory identified 711,248 individual street trees comprising 585 species (including a few species that have had a scientific name change). See *Biology Appendix* for further discussion.

The native tree population, mainly within mountainous areas, was not included in the Tree Canopy Assessment; therefore, these population statistics are unknown.<sup>7</sup>

According to BSS, at this time, the percentage of sidewalk coverage by a street tree canopy is unknown; however, citywide canopy cover is estimated to be 21 percent.<sup>8</sup> Also, it is estimated that 88 percent of the available 800,000 street tree well sites are planted.<sup>9</sup>

An important component of the *Willits* Settlement sidewalk repairs is street tree root pruning as well as the removal and replacement of street trees. In June 2015, the Board of Public Works adopted the Street Tree Removal Permit and Tree Replacement Condition Policies. The Policies require all removed street trees to be replaced on a 2:1 basis. (See Policies, at: http://boe.lacity.org/docs/dpw/agendas/2015/201506/20150617/bss/20150617\_ag\_br\_bss\_1.pdf.)

Presently, the City considers whether to exempt or conduct further environmental review for individual sidewalk improvement projects on a case by case basis. As part of this process, every effort is made to plant replacement street trees at the same street tree removal location. BSS determines the appropriate species and location for the replacement street trees.

# 2.5 Proposed Project

## 2.5.1 Summary of New Ordinance and Primary Components

The Project is the proposed adoption of a new ordinance that revises the way sidewalk repairs pursuant to the *Willits* Settlement are reviewed and approved and is intended generally to improve and streamline the implementation process. The primary components of the ordinance include:

- Specific parameters to enable most sidewalk repairs to proceed as ministerial approvals, not subject to further environmental review applicable to discretionary actions;

<sup>7-6</sup> Sauceda, Nazario, Director, Bureau of Street Services, Office of the City Clerk. October 22, 2015—City Council Instruction for Bureau of Street Services to Report Relative Health of City of Los Angeles Trees (CF 15-0467).
8-7 Information provided by Urban Forestry Division, September 12, 2017

<sup>98</sup> Ibid.

- A streamlined discretionary approval process for sidewalk repair projects falling outside the specific parameters allowed for a ministerial sidewalk repair approval;
- A streamlined discretionary approval process for sidewalk repair projects involving the proposed removal of three or more street trees;
- A revised Street Tree Retention, Removal and Replacement Policy establishing a 2:1 street tree replacement to removal ratio requirement for the first 10 years (starting from July 2017), a 3:1 ratio for years 11 to 21, and a 2:1 ratio for the last 9 years of the 30-year program; and
- Mandatory Project Design Features (PDFs) generally consisting of regulatory compliance measures and standard construction conditions and procedures.

Each of these primary components is further described below.

## 2.5.2 Specific Parameters under Which Individual Sidewalk Repairs Would Proceed Ministerially

The new ordinance would enable, notwithstanding anything in the City code to the contrary (except for the City of Los Angeles Cultural Heritage Ordinance, City of Los Angeles Administrative Code (LAAC) Section 22.171), all sidewalk repair projects under the *Willits* Settlement to be subject to ministerial approval by the City Engineer or designee, so long as the individual project meets the following specified parameters:

- (1) It is for the repair or reconstruction of a sidewalk or other facilities in compliance with disability law accessibility requirements being implemented under the *Willits* Settlement;
- It is within specific parameters of the construction scenarios for the EIR assessment described below (Scenarios 1 and 2), specifically sidewalk repairs lasting no more than 30 non-consecutive construction days in duration and requiring excavation depth of no greater than 30 feet;
- (3) It would not cause a substantial adverse change to significance of a known historic, tribal cultural, unique archaeological, or unique paleontological resource, as those terms are defined by CEQA;
- (4) It complies with the Revised Street Tree Retention, Removal and Replacement Policy, as described below in Section 2.4<u>5</u>.4; and
- (5) It complies with PDFs included in the ordinance, as described in Chapter 3, *Environmental Impact Analysis* and summarized in the *Executive Summary*, Section ES.3.

If the individual project does not meet all the specific parameters listed above, it would be subject to (notwithstanding anything in the City code to the contrary, except for the Cultural Heritage Ordinance, LAAC Section 22.171), discretionary approval by the City Engineer or designee. Individual sidewalk repair projects subject to the future discretionary approval process still must: (1) be for the repair or reconstruction of a sidewalk or other facilities in compliance with the *Willits* Settlement; (2) comply with the Revised Street Tree Retention, Removal and Replacement Policy as described below in Section 2.4<u>5</u>.4; and (3) comply with the PDFs as described in Chapter 3, *Environmental Impact Analysis* and summarized in the *Executive Summary*, Section ES.3. For these discretionary approvals, this EIR would serve as programmatic analysis of the impacts, and further project-level environmental review would be performed as necessary depending on whether the project is within the scope of the EIR pursuant to CEQA Guidelines Section 15168, or if any applicable exemptions are appropriate.

Notwithstanding anything in the above, if the individual project involves the proposed removal of three or more street trees, it would be subject to discretionary approval by the Board of Public Works. Individual sidewalk repair projects subject to the future discretionary approval process still must: (1) be for the repair or reconstruction of a sidewalk or other facilities in compliance with the *Willits* Settlement; (2) comply with the Revised Street Tree Retention, Removal and Replacement Policy as described below in Section 2.5.4; and (3) comply with the PDFs as described in Chapter 3, *Environmental Impact Analysis* and summarized in the *Executive Summary*, Section ES.3. For these discretionary approvals, this EIR would serve as programmatic analysis of the impacts, and further project-level environmental review would be performed as necessary depending on whether the project is within the scope of the EIR pursuant to CEQA Guidelines Section 15168, or if any applicable exemptions are appropriate.

## 2.5.3 Construction Scenarios Assumed for EIR Analysis

## 2.5.3.1 Overview

The impacts analyzed for the Project are based on the City's commitments under the *Willits* Settlement, and the maximum construction activity possible in any single year over the course of the 30 year implementation period, from June 2017 through June 2047. For quantitative analysis purposes in this Draft EIR, an average site is assumed to be 650 linear feet long and 5 feet wide for each construction site. This assumption is based on data gathered from past work. As a conservative approach, it is also assumed that each repair site would include a street tree removal when the street tree cannot survive root pruning. The actual work completed in 2017-2018 (the first year of the *Willits* Settlement) was approximately 24.4 miles of sidewalk repair, <u>211-280</u> street tree removals, <u>484-526</u> new street trees replanted (at a 2:1 ratio) and no overhead utility relocation.

This environmental analysis is informed by past work completed pursuant to the *Willits* Settlement. Therefore, it was assumed that up to 37 miles per year of repair work will occur for the first five years and that repair work will increase thereafter based on varying financial commitments every five years, per the *Willits* Settlement.

With respect to construction activities, the sidewalk and curb ramp repair work throughout the City is anticipated to increase every five years of the Project as resources are available and efficient processes are implemented. Table 2-4 shows the projected total square feet of sidewalk and curb ramp proposed to be repaired every 5 years, with 37 miles annually for the first 5 years, increasing to approximately 75 miles annually during the last 5 years. Hence, the amount of sidewalk and curb ramp repair increases, and the number of construction activities and crew increases. The number of street trees removed per site, however, remains constant at one street tree removed per site.

Therefore, the analysis in this Draft EIR represents a conservative maximum construction work scenario from an environmental impact standpoint for air quality, canopy loss, greenhouse gas emissions, street tree removals, water demand, hydrology, transportation and use of construction equipment, and other resources that are affected by the amount of sidewalk repair completed by Year 30.

Additionally, as described further below, the City intends to achieve a "net neutral" street tree canopy by the end year of the Project. Net neutral means the amount of street tree canopy cover removed as a result of sidewalk repairs over the life of the Project would be completely offset by the growth in replacement street tree canopy cover by year 30 of the Project. As described in this Draft EIR, the Project includes a 2:1 street tree replacement ratio for years 1 through 10; a 3:1 street tree replacement ratio for years 11 through 21; and a 2:1 street tree replacement ratio for years 22 through 30. Following this replacement ratio, for the projected number of street trees removed, would provide the City with net neutral street tree canopy by year 30. As described in Section 2.5.4 below, the City will also monitor and replace dead or dying street trees replaced as part of a sidewalk improvement.

Street trees would be retained to the maximum extent feasible. However, there may be instances that street tree removal and replacement is necessary to ensure pedestrian facilities comply with the applicable accessibility requirements. The following table identifies the estimated maximum sidewalk repairs and street tree removal and replacements that would occur under the Project in 5-year increments.

Year	Estimated Sidewalk Repair (square feet)	Estimated Street Tree Removal (trees)	Estimated Street Tree Replacement (trees) <sup>1</sup>
1–5	4,843,750	1,460	2,915
6–10	5,584,845	1,680	3,360
11–15	6,437,500	1,940	5,820
16-20	7,421,875	2,235	6,705
21-25	8,560,940	2,575	5,665
26-30	9,870,315	2,970	5,940
TOTAL	42,719,225	12,860	30,405
Source: BOI	E 2018.		

Table 2-4. Estimated Maximum Sidewalk Repair and Street Tree Removal under the Project

<sup>1.</sup> Based on street tree replacement of 2:1 for years 1-10, 3:1 for years 11-21, and 2:1 for years 22-30

#### 2.5.3.2 Types of improvements for Individual Sidewalk Repair Projects

Based on the work already being performed under existing City programs, the repair projects proposed to be implemented under the Project may include the following types of improvements to meet applicable accessibility requirements:

- Install missing curb ramps; •
- Repair street tree damage to sidewalk or walkway surfaces;
- Upgrade existing curb ramps;
- Repair broken and/or uneven pavement in the pedestrian ROW; •
- Repair vertical or horizontal displacement or upheaval of the sidewalk or crosswalk surfaces; •
- Correct non-compliant cross slopes in sidewalks or sections of sidewalks; •
- Remove protruding and overhanging objects and/or obstructions; •
- Widen restricted pedestrian ROW when required; •
- Provide clearance to the entrances of public bus shelters; •
- Repair excessive gutter slopes at the bottom of curb ramps leading into crosswalks; •
- Eliminate of curb ramp lips on curb ramps; •
- Install utility covers; •
- Repair driveways, curbs, and gutters;
- Repair gaps and missing sidewalk sections; •
- Retain, remove, and/or replace street trees as needed;
- Widen street tree wells, to 4' by 6' as needed;
- Prune street tree roots and/or canopy as needed; and
- Addressing other non-compliant accessibility conditions, as required.

### 2.5.3.3 Assumptions for Individual Sidewalk Repair Projects

As described further below, all sidewalk repair segments involve common procedures and requirements. As explained herein, and for purposes of analyzing the maximum extent of activities and potential impacts under the three identified scenarios, this Draft EIR provides an analysis of the least complex to the most complex activities in order to describe the full range of construction activities that could occur, as required under CEQA.

## 2.5.3.4 General Requirements for all Construction Scenarios

### **Construction Equipment**

Project components under each of the construction scenarios could vary slightly, depending on the location of construction sites. For example, not all sidewalks would include removal and replacement of a street tree. One street removal and replacement in each scenario is included for analysis purposes in this Draft EIR, based on one, as the average, street tree removal and replacement for the majority of sidewalk segment improvements occurring at the time of the NOP release for the Project.

Construction equipment associated with implementation of the Project under all scenarios would typically include a concrete mixer, power tools (e.g., concrete cutting saws, chain saws), hand tools, dump trucks, bucket trucks with aerial lifts, and concrete trucks. In addition, traffic control measures, including traffic signs and traffic cones, would be required. During construction, pedestrian and/or car traffic may need to be routed around construction, and street parking may be temporarily limited in the area. Information regarding the construction equipment, duration, and activity assumptions used in this Draft EIR analysis is in Chapter 3.2, *Air Quality and Greenhouse Gas Emissions*, and is summarized below:

Event/Phase	Duration (days)	Daily Equipment Type (count)	Daily Workers	Truck Trips
Construction Scenario 1				
Mobilization	5	Compressor (1) Small Generator (1)	4	2
Traffic Control/ Demolition/Removal	1	Pneumatic Jackhammer (2) Concrete Saw (2) Skid-Steer Loader (1) Tractor (1)	4	2
Grading/Formwork	1	3 Ton Roller (1)	5	2
Concrete Pouring	1	Concrete Mixer (1) Concrete Vibrator (2)	9	2
Utility Adjustment	2	Manhole Cutter (1) Concrete Saw (1) Concrete Mixer (1)	5	2
Street Tree Removal	1	Bucket Truck (1) Chainsaw (1) Wood Chipper (1) Stump Grinder (1) Skid-Steer Loader (1)	5	0

### Table 2-5. Summary of Activities for Each Construction Scenario

Event/Phase	Duration (days)	Daily Equipment Type (count)	Daily Workers	Truck Trips
Street Tree Planting	1	Mini Excavator (1)	3	0
Cleanup	1	N/A	3	2
Construction Scenario 2				
Mobilization	5	Same equipment as under Construction Scenario 1	4	2
Traffic Control/ Demolition/Removal	1	Same equipment as under Construction Scenario 1	4	2
Grading/Formwork	1	Same equipment as under Construction Scenario 1	5	2
Concrete Pouring	1	Same equipment as under Construction Scenario 1	9	2
Utility Relocation	20	Concrete/Industrial Saw (1) Excavator (1) Vibratory Plate Compactor (1) Asphalt Paver (1)	5	2
Crosswalk Repaving	5	Concrete/Industrial Saw (1) Skid Steer Loader (1) Asphalt Paver (1) Line Striper (1)	4	1
Street Tree Removal	1	Same equipment as under Construction Scenario 1	5	0
Street Tree Planting	1	Same equipment as under Construction Scenario 1	3	0
Cleanup	1	N/A	4	2
Source: LABOE, 2018. N/A = Not Available				

## **Construction Crew**

It is estimated that the number of construction crews expected at any one time Citywide would range from six crews in the first 5 years, increasing incrementally in years 6–24, to 12 crews in the last 5 years of the Project. Crews would vary in composition and range from 3 to 9 workers per site for both construction scenarios. There would be approximately 298 crew teams for the first 5 years, or six crew teams at one time for 50 weeks. In the last 5 years of the Project, there would be approximately 607 crew teams, or 12 crew teams at one time.

Program Period (Years)	Total Period Estimated Sidewalk Repair (square feet)	Annual Estimated Sidewalk Repair (square feet)	Annual Number of Repair Sites	Number of Weekly Active Crew Teams
1–5	4,843,750	968,750	298	6
6–10	5,584,845	1,116,969	344	7
11-15	6,437,500	1,287,500	396	8
16-20	7,421,875	1,484,375	457	9
21–25	8,560,940	1,712,188	527	11
26-30	9,870,315	1,974,063	607	12
Source: MARRS Ser	vices, Inc., 2018.			

Table 2-6. Summar	y of Approximate	<b>Project Construction</b>	<b>Crew Activities</b>
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The remainder of this section offers a description of how the typical construction process would proceed. It should be noted that the actual construction process and schedule would be determined by the City and/or contractor at the time of mobilization, consistent with the approval given by the City Engineer for the individual sidewalk project under the Project; therefore, the information presented below should be regarded as illustrative of typical construction processes under each scenario as described above. All construction would be performed in accordance with the BOE Standard Plans and designs. The Standard Plans are divided into several series and contain standard plans for City infrastructure. The *Streets* section provides details regarding sidewalk repairs, street tree planting, curb ramps, and pedestrian walkways; other sections provide details related to sidewalk culverts, sidewalk outlet structure, curbside grating, and catch basin remodeling. BOE Master Specifications prescribe methodologies for shoring practices for trenching, environmental measures, treatment of historic resources, types of replacement materials, etc. (see BOE Master Specifications Library at http://boe.lacity.org/bms/menu.cfm?mid=0&did=2).

### **Days of Construction**

Construction activities could be for a minimum of approximately 5 non-consecutive construction days to up to 30 non-consecutive construction days; for example, a construction site that requires only minimal sidewalk repair would require a minimum of 5 non-consecutive construction days to complete (Scenario 1), whereas more extensive repair that would involve above- or below-ground utility relocation and street tree removal could require up to 30 non-consecutive days of construction (Scenario 2).

ConstructionScenario/Phase	Number of Work Days			
	2:1 ratio (years 1-10, 22-30)	3:1 ratio (years 11-21)		
1. Scenario #1				
Mobilization, Traffic Control, Demolition, and Removal	2	2		
Grading/formwork	1	1		
Concrete pouring	1	1		
Utility Adjustment	2	2		
Street Tree Removal and Replacement	2	3		
Cleanup	1	1		
SUBTOTAL	5	5		
2. Scenario #2				
Mobilization, Traffic Control, Demolition, and Removal	2	2		
Grading/formwork	1	1		
Concrete pouring	1	1		
Utilities relocation	20	20		
Crosswalk Repaving	5	5		
Street Tree Removal and Replacement	2	3		
Cleanup	1	1		
SUBTOTAL	30	30		

#### Table 2-7. Summary of Approximate Construction Phases and Duration

#### Table 2-8. Approximate Total Project Construction

Year	Estimated Sidewalk Repair (square feet)	Estimated Sidewalk Repair Per Year (sq ft)	Crew Teams Per Year	Crew Teams Per Week
1–5	4,843,750	968,750	298	6
6-10	5,584,845	1,116,969	344	7
11–15	6,437,500	1,287,500	396	8
16–20	7,421,875	1,484,375	457	9
21–25	8,560,940	1,712,188	527	11
26-30	9,870,315	1,974,063	607	12
TOTAL	42,719,225			

### **Construction Hours**

Construction would occur Monday through Friday between 7:00 a.m. and 4:00 p.m. On occasion, work may take place on a Saturday between 8:00 a.m. and 5:00 p.m. In select locations, work hours may be reduced to accommodate rush-hour restrictions. No construction would occur on Sundays or holidays. (See General Conditions 00210 and LAMC Section 41.40.)
### 2.5.3.5 Typical Construction Scenarios

The two prototypical construction scenarios below are developed for illustrative purposes to represent the most frequent sidewalk repair (Scenario 1) and the less frequent sidewalk repair (Scenario 2). An additional, rare, construction scenario (Scenario 3) was also developed for a programmatic analysis of repair projects that may result in significant impacts for illustrative purposes, particularly for the analysis of project alternatives. These scenarios are representative of various configurations, depending on the conditions of each site. All components described below may not occur at each project location.

The numerical estimates for sidewalk and curb ramp repairs are based on past data and past work for Scenario 1, whereas Scenario 2 is based on the same data with the addition of assumptions for future work.

# Scenario 1: Sidewalk Repair with Curb Ramp Repairs, Street Tree Removal and Replacement, and Minor Utility Work

This scenario includes the following construction activities and any combination thereof:

- Sidewalk repair work, including fixing broken concrete, cracks, uplifts, driveways, and curb and gutter, and making required accessibility improvements such as cross-slope work.
- Curb ramp repairs or installation.
- Street tree retention, removal, and replacement.
- Minor utility work, such as irrigation and curb drain replacements, and utility box adjustments.

#### Sidewalk Repair

Typical sidewalk repair at one construction location takes approximately 5 non-consecutive construction days for a 650-linear-foot site for a 6 to 8-person crew. On average, sidewalk repair requires the following: 1 day for demolition of the existing sidewalk, 1 day for grading and formwork, 1 day for street tree removal and replacement, 1 day for construction of the new sidewalk, and 1 day for cleanup and restoration of the parkway. In some instances, soil compaction may be required. The depth of excavation for sidewalks usually would typically be approximately 8 inches (i.e., 3 to 4 inches for concrete removal and 4 inches for untreated base material). Excavation at driveways would be up to approximately a foot deep (i.e., 6 inches for concrete removal and 6 inches for untreated base material). Excavations for street tree replacement and minor utility relocation could involve excavation extending to depths of 36 inches (3 feet). Construction equipment for sidewalk repair may include the following standard tools: concrete saws and backhoe for removing the existing sidewalk, a concrete truck for delivery of new concrete, vibratory plate compactor for soil/gravel compaction, and a dump truck to haul removed concrete.

### **Curb Ramp Repairs**

Curb ramp repairs may be needed as part of the sidewalk repair and may require a similar level of effort and equipment as sidewalk repair. A curb ramp repair typically lasts 3 to 4 days. Curb ramps could have an impact on pedestrian traffic and require temporary ramps. Temporary ramps would not damage existing pavement, curbs, or gutters near the proposed work. Curb ramp repairs would occur concurrently with other sidewalk repair activities.

#### Street Tree Retention, Removal and Replacement

Street tree removal equipment consists of chainsaws, wood chipper, skid steer, rigging equipment, rope, wedges, and clearing and cleaning tools. Street tree removal vehicles, bucket truck and stump grinders may be on-site for 1 to 2 days. The street would not be closed to vehicular traffic, but traffic flagpersons and/or devices would need to be in place during street tree removal to protect vehicles from unforeseen falling debris. Bicycle lanes will most likely be merged into traffic lanes if adequate lane width is available. If the traffic lane width is not adequate, then bicyclists would most likely be routed to an adjacent street. Pedestrians would be rerouted to the other side of the street for the entire block in most cases.

Underground Service Alert may be contacted prior to excavation to identify existing utilities in or near the tree wells for all street tree plantings. Depending on the location of the existing utilities and the number of plantings to be performed, equipment could include a mini excavator, or shovel. Root barrier installation is recommended between the street tree and the sidewalk. This would involve an area of around 18 inches deep and about 10 feet long. The street tree is planted, and stakes are typically installed and secured to the street tree. Decomposed granite is often placed in street tree wells, and soil is placed in parkways. New street trees would be watered for a 3-year establishment period, typically with a water truck. When manual watering is not available, other watering practices such as water bags may be used. See Chapter 3.3, *Biological Resources* and appendix for further discussion.

#### **Street Sign Relocation**

As part of sidewalk and curb ramp repairs, street signs, such as stop signs, pedestrian signs, crosswalk signs, etc., may need to be relocated. Such street signs are used for vehicle and pedestrian safety<sup>109</sup>. Trenching for pole-top street signs could be up to approximately 36 inches deep. Vehicles and pedestrians may be rerouted. Typically, this construction work takes approximately 4 hours and hand tools to complete.

#### **Minor Utility Work**

Minor utility relocations are usually due to utility laterals that interfere with sidewalk construction (e.g., gas and water service laterals to businesses and homes). Utilities that may be encountered include electrical (e.g., street lighting, Department of Water and Power lines), water and gas. If an existing utility lid or cover is damaged or missing, it will be replaced. Prior to construction, utility work involves coordination with property owners and utility agencies. Utility relocation typically requires trenching up to approximately 36 inches deep; mini-excavators; staging areas for excavated soils; and a vibratory plate compactor as part of sidewalk and/or curb ramp repairs for 650-linear-foot site with a 6 to 8-person crew.

#### Staging

Construction staging would be adjacent to the sidewalk improvements when possible and could occupy 3 or 4 parking spaces. Signage would be posted to reroute pedestrians and vehicles. When the concrete is being poured, cement trucks generally occupy one lane in the right of way and private driveways would be restricted to allow for concrete curing. A typical construction site would

<sup>&</sup>lt;sup>10.8</sup> City of Los Angeles, Department of Transportation, September 1, 2016, *Special Provisions and Standard Drawings for the Installation and Modification of Traffic Signals*. Available: http://ladot.lacity.org/sites/g/files/wph266/f/RED%20B00K%209-1-16.pdf. Accessed 6-25-2018.

include pickup trucks with trailers for equipment and a backhoe or skid steer. All construction vehicles, with the exception of backhoes, skid steers and portable toilets, would be removed daily from the construction site location.

### Scenario 2: Sidewalk Repair with Curb Ramp Repairs, Crosswalk Repaving, Street Tree Removals and Replacements, and Substantial Utility Work

This scenario represents the following construction activities and any combination thereof:

- Sidewalk repair work, including fixing broken concrete, cracks, uplifts, driveways, and curb and gutter, and making required accessibility improvements such as cross-slope work.
- Curb ramp repairs or installations.
- Crosswalk repaving.
- Street tree retention, removal, and replacement.
- Substantial underground and/or overhead utility work.

#### **Sidewalk Repair**

Same as Scenario 1, and may include the removal of more than on<u>e</u> street tree, with the potential addition of required coordination between subcontractors because of substantial utility work under this scenario.

#### **Curb Ramp Repairs**

Same as Scenario 1, with the potential addition of required coordination between subcontractors because of substantial utility work under this scenario.

#### **Crosswalk Repaving**

Crosswalk construction may include saw cutting, removal of existing asphalt, and paving, to alleviate existing shoving, cracks, or uplifts from curb ramp to curb ramp. Crosswalk construction is generally performed outside of peak travel times, which are typically the morning and afternoon commute period. Curb ramps leading to the crosswalk must be barricaded in a manner that allows walkways to remain accessible. Equipment may include concrete saw, skid steer, asphalt pavers, and dump truck.

#### **Street Tree Removal and Replacement**

This would be similar to work anticipated under Scenario 1, with the potential addition of required coordination between subcontractors because of substantial utility work under this scenario.

#### **Street Sign Relocation**

This would be similar to work anticipated under Scenario 1, with the potential addition of required coordination between subcontractors because of substantial utility work under this scenario.

#### Substantial Utility Work

Substantial utility relocation (e.g., overhead lines) could be possible at a site, from intersection to intersection. This is relevant when overhead poles are placed on or near a sidewalk that restricts the path of travel to less than the required width. Depending on the number of overhead lines,

relocation of an overhead line at one construction site could take approximately 1 to 2 weeks, while removal and replacement of several lines could take approximately 4 to 5 weeks. Utility relocations may require improvement plans from the utility owner for construction. These utility plans generally take about 6 to 12 months of design work prior to acceptance and approval from a utility company. Construction of the utility relocation may require a minimum of two trucks with bucket loaders for each pole installation, an auger for removal of soil for a new base, and a concrete truck for delivery of structural base concrete. This may require closing one lane of traffic, which could have the same traffic constraints as sidewalk construction. Coordination would be required with the utility company for disconnection and reconnection and recommissioning.

Depending on the type of utility being relocated, additional trucks and equipment could be needed, which would require more space for construction staging and parking. Traffic signals may be affected, and coordination will be required with the authorizing agencies, including LADOT for flagpersons. For underground utility relocation, excavation of up to approximately 30 feet with, approximately 36- to 76-inch-deep trenching and shoring, could be required in the relocation areas. The construction equipment may include mini-excavators, four-wheel-drive backhoes, shoring equipment, and compactors as well as a staging area for holding excavated soils. These utilities may require the same traffic control measures as needed for overhead power lines where power to those receivers will be interrupted. Plates would have to be placed over the trenching areas during non-working hours.

### **Catch Basin and Storm Drain Reconstruction**

Catch basin reconstruction typically involves reconstructing the lid only. Full catch basin and storm drain reconstruction may be necessary for sidewalk repairs in compliance with applicable accessibility requirements. Reconstruction of these structures would require excavation and trenching to a minimum depth of 15 feet and a maximum depth of 30 feet, depending on the elevation of the outflow pipes and whether full replacement of the structure, is required. Additional trucks and equipment, such as excavators, backhoes, shoring equipment, compactors, and additional concrete trucks, may be necessary, along with additional staging and parking areas. This work could require an additional 3 to 7 days for cast-in-place structures.

### Staging

This would be similar to work expected under Scenario 1, with the potential addition of required coordination between subcontractors because of substantial utility work under this scenario. As discussed, construction durations may be longer with the additional and more complex work related to this construction scenario.

### Scenario 3: Sidewalk Repair under Specific Environmental Conditions

In rare instances, environmental site conditions for sidewalk repairs may be such that construction activities similar to those encompassed within Scenarios 1 and 2 have the potential to result in additional potentially significant adverse impacts. This construction scenario is described as Construction Scenario 3. For purposes of this Draft EIR, analysis of Construction Scenario 3 is particularly relevant to the discussion in Chapter 4, *Alternatives*.

Construction Scenario 3 projects would include any combination of activities described for Construction Scenario 1 and Construction Scenario 2, however, Scenario 3 would also include one or more of the following conditions:

- A substantial adverse change to the significance of a historic, tribal, unique archeological or unique paleontological resource; or
- A substantial adverse change to the significance of a historic, tribal, unique archeological or unique paleontological resource resulting in a significant aesthetic impact.

# 2.5.4 Revised Street Tree Retention, Removal and Replacement Policy

### 2.5.4.1 Introduction

A street tree is a tree, typically planted by the City, usually in a parkway or within 5 feet of the back of the sidewalk, within the public ROW or a public easement. In some residential neighborhoods, the sidewalk is adjacent to the curb; the easement is situated in the area between the house and the sidewalk. Although it would be ideal to have all healthy, mature street trees preserved, this may not be possible where some sidewalk improvements are needed because of the small areas in which street trees exist and the potential for root or other damage.

Development of the Project has been based on arboriculture best management practices (BMPs), City practices, and research. This uniform policy is necessary to streamline the current street tree permit and approval process.

In general, under the revised street tree policy, street trees will be replaced at a 2:1 ratio for the first 10 years (starting from July 2017), consistent with current City policy (i.e., Board of Public Works adopted Street Tree Removal Permit and Tree Replacement Condition Policies), at a 3:1 ratio for years 11 to 21, and at a 2:1 ratio for the last 9 years of the program. The revised street tree policy would also have the following new standards, as set forth below.

### 2.5.4.2 Purpose

The purpose of this Policy, in conjunction with the proposed ordinance is:

- 1. To set forth ministerial permit requirements for street trees retained, removed, or replaced as part of the Sidewalk Repair Program where street trees are the cause of sidewalk damage.
- 2. To provide objective standards, guidelines, and procedures for a more efficient approval process for Sidewalk Repair Program–related street trees.
- 3. To have a mixed-age tree population, adequate species diversity, and an appropriate mix of street tree types to provide a diverse urban forest ecosystem that is able to adapt to changing environmental pressures, such as disease, pest infestation, climate, etc.
- 4. To identify street trees that have varied forms, textures, structures, flowering characteristics, and other aesthetic benefits to enhance the types of street environments found in the City.

### 2.5.4.3 Responsible City Entities and Current Duties

**Department of Public Works (DPW)** – DPW is responsible for street trees in all public ROW as defined in LAMC Section 62.162.

**Board of Public Works (Board)** – The Board is responsible for approving street tree permits for three or more street tree removals.

**DPW, Bureau of Engineering (BOE) –** BOE is responsible for managing and implementing the Sidewalk Repair Program.

**DPW, Bureau of Street Services (BSS)** – BSS is the responsible agency for the initial sidewalk assessment, for performing sidewalk repairs, all ancillary tree work, inspection, and the issuance of the Sidewalk Certificate of Compliance for work BSS performs. BSS is typically responsible for performing work required under the Access Request Program

**DPW, BSS, Urban Forestry Division (UFD)** – UFD is the responsible agency for assessing the disposition of street trees causing damage to the sidewalk. UFD will determine if root pruning is allowed or if tree removal and replacement are necessary. UFD is responsible for issuing the proper street tree permits, for some street tree removal and planting work, including maintenance, and monitoring under the Sidewalk Repair Program.

**DPW, Bureau of Contract Administration (BCA)** – BCA is the responsible agency for the initial assessment of the locations included in the Rebate Program to determine the required scope of all concrete work (e.g., sidewalk, curb/gutter, driveway). BCA also performs the inspection for all private contract work, including City Facilities and Rebate, and is responsible for the issuance of the Sidewalk Certificate of Compliance.

### **Root Pruning**

The objective of the root-pruning program is to ensure that roots are pruned prior to a sidewalk becoming non-compliant with applicable accessibility requirements. City root-pruning standards are applicable to tree species that could be considered for root pruning, which <u>would-may</u> be limited to only one side of the planting area where the tree is planted. This practice would continue to be applied under the Project as a method of street tree retention.

Root pruning is a practice wherein street tree roots that create an off-grade sidewalk condition are cut, allowing the sidewalk to be reconstructed on grade in compliance with applicable accessibility requirements. Root pruning may be hazardous to both a street tree's structural stability and/or health. Although every individual tree of a particular species, as well as species within the global street tree population, grows at different rates, root-pruning guidelines consider the lowest common denominator for conflict recurrence. The selection of street trees that can be root-pruned considers street tree species, the distance from the trunk that the roots are pruned, the size of the pruned roots, and the volume of root plate affected by root pruning.

International Society of Arboriculture (ISA) BMP and arboriculture research generally agree that root pruning any closer than three to five times a tree's diameter is highly discouraged. Utilizing these limits even at the low end (three times the diameter) would nearly preclude all street trees from being root-pruned. For example, a 10-inch-diameter tree would not be able to be root-pruned any closer than 10 inches  $\times$  3 = 30 inches, or 2.5 feet. A 5-foot parkway or street tree well would preclude root pruning because the root pruning would occur too close to the trunk. This example is

extreme because most street trees that damage sidewalks are much larger than 10 inches in diameter. The size of the average open parkway is 5 to 6 feet. The average street tree well size would be 4 feet by 6 feet. In other words, the use of BMPs would preclude root pruning as a street tree retention method. UFD would prune street trees at 3-year intervals. All street-tree pruning under the Project would comply with the ISA *Tree Pruning Guidelines*; the American National Standards Institute (ANSI) *Trees, Shrubs, and Other Woody Plants Maintenance Standard Practices* (ANSI A300); and the City *Tree Trimming Standards* to ensure proper pruning practices.

Prior to root pruning, City arborists and engineers shall make a determination as to whether root pruning will affect the structural integrity and health that may cause a tree to become unstable and therefore a public safety hazard. This determination will be performed in accordance with criteria presented in ANSI A300 Standards, Part 8, on root management (2013), that take into consideration factors such as species tolerance, the immediate environment, timing, age, health, lean, structural condition of the tree, and potential for tree decline or increasing destabilization.

If a determination is made that tree mortality and instability such that a public safety hazard would occur, then the City shall proceed to tree removal.

### **Canopy Pruning**

Canopy pruning may be necessary to comply with accessibility requirements if the street tree canopy is obstructing the pedestrian access route. Minimum clearance of 80" is required above the sidewalk. The following would be the procedures for street tree canopy pruning:

1. Certified UFD Street Tree Supervisor

<u>A Certified UFD Street Tree Supervisor shall hold the credential of Certified Arborist by ISA.</u> Street tree canopy pruning shall be performed or as directed by a Certified UFD Street Tree Supervisor.

The arborist <u>responsible for the street tree canopy pruning</u> shall hold a valid C61/D49 state contractor's license<u>or the credential of Certified Arborist by ISA</u>.

- Ask for local references.
- 2. Proper cuts
  - Pruning cuts shall be made in branch tissue just outside the branch bark ridge and collar, without causing injury to the street tree.
  - No flush-cuts shall be made.
  - No stubs shall be left in the street tree.
  - Cuts shall have no ripping or tearing of the bark.
- 3. Proper thinning
  - Seldom should more than 25 percent of the street tree's foliage shall be removed.
  - DSufficient branch structure should remain in the interior of the street tree.

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<sup>&</sup>lt;sup>10</sup> The ANSI A300 Standards include Standards 84.1.2, 84.1.3, and 84.2.4. The City also relies on companion publications to the ANSI standards that detail best management practices for implementing these standards. These publications include *Root Management* (2017) by Larry Costello, PhD, et al.; *Managing Trees During Construction*, *Second Edition* (2016) by Kely Fite, PhD, and E. Thomas Smiley, PhD; and *Reducing Infrastructure Damage by Tree Roots, A Compendium of Strategies* (2003) by L.R. Costello and K.S. Jones.

- Foliage shall be removed in a manner that leaves the street tree in symmetrical balance.
- 4. Proper crown raising

Street trees shall be <del>raised <u>maintained</u> to conform to LAMC Section <u>62.16356.08</u>, <u>Sidewalks-Streets-Obstructions</u>.</del>

- 5. Correcting defects
  - Remove dead, diseased, damaged, or crossing limbs.
  - Remove any broken hanging limbs.
  - Perform crown restoration on previously topped or severely pruned street trees.
- 6. No topping cuts shall be made
  - Topping cuts invite insects and decay.
  - New growth is weak and promotes profuse water sprout growth.
  - D Topping cuts deplete trees' energy stores, reduce photosynthesis, and prohibit trees' ability to gather and process sunlight, reducing survivability.
- 7. Inspection

 All street tree inspections shall be conducted <u>as directed</u> by a Certified UFD Street Tree Supervisor. All pre- and post-pruning street tree inspections would be performed <u>as directed</u> by a Certified UFD Street Tree Supervisor. It should be noted that a root-pruning permit would not be necessary for street tree pruning and root pruning under the Project. Furthermore, street tree canopy pruning and root pruning would occur in compliance with the *Migratory Bird Treaty Act* (MBTA) and California Fish and Wildlife Code, as discussed in detail in Chapter 3.3, *Biological Resources*.

### 2.5.4.4 Street Tree Removal Criteria

For the removal and replacement of street trees, the UFD Chief Forester has been designated as the officer with the authority to ensure future sidewalk repair projects falling under the proposed ordinance comply with the Revised Street Tree Retention, Removal and Replacement Policy. A thorough inspection and review would be undertaken for each street tree removal and replacement using the aforementioned practices, in accordance with the ANSI A300 Standards.<sup>11</sup>

Prior to a street tree removal, each removal would be evaluated by the UFD per the criteria below.

- Street trees that are dead, diseased, or unable to be retained by root pruning alone <u>due to</u> <u>concern of tree condition and in the interest of public safety (see also Section 2.5.4.3, root</u> <u>pruning), canopy pruning, and/or the criteria below</u> would be removed.
- Street trees exhibiting crown dieback in excess of 50 percent would be removed.
- Street trees with a 50 percent or greater <u>de</u>foliated crown would be removed.
- Street trees exhibiting signs of *Xylella* or other severe pest infestations (e.g., crown dieback, cankers, exudates) would be removed.

**Street Tree Well** – Street tree wells would be enlarged to 4 feet by 6 feet <u>or as needed</u> and roots would be pruned as necessary, while still maintaining applicable accessibility requirements.

**Sidewalk Ramping –** In public ROW types where continuous planting strips (parkways) exist with street trees, the reconstructed sidewalk may be placed on top of the root plate (ramped). Ramping requires enough linear space on each side of the highest point of the ramp to allow for a slope of no more than 5% and cross-slopes of 2%. Utilization of ramping may void the sidewalk warranty.

**Sidewalk Minimizing –** In public ROW types where continuous planting strips (parkways) exist with street trees, sidewalks may be reduced in width to allow more root growth area and root pruning, as necessary, if the remaining sidewalk width still maintains ADA accessibility requirements.

**Meandering Sidewalk** - In some locations it may be possible to meander the sidewalk around existing trees to allow additional room for root growth. Meandering may require an additional sidewalk dedication or easement.

**Private Property Trees** - Private Property trees are required to be maintained by the property owner. The Project will not perform any root pruning or removal of private property trees causing damage to the sidewalk or direction on measures to be taken.

### **Native Trees**

<sup>&</sup>lt;sup>11</sup> The ANSI A300 Standards include ANSI A300 Part 9 Tree Risk Assessment a. Tree Failure (2017) regarding evaluation of factors relevant to assessments as a result of crown dieback, defoliation, and disease or other pest infestations.

The City is home to several native tree species. The native tree population is a significant part of the City's urban forest. In recognition of native trees' contribution to the natural environment, the citizens and government of the City enacted an ordinance to protect certain non-planted native trees against removal or damage. By their very nature, native tree species have unique environmental and

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growth needs that are often not present in a street tree environment. Generally, because of native trees' growth needs and habits, the planting of native tree species requires larger planting areas. Additionally, the two most prevalent native tree species in the Los Angeles area, coast live oak (*Quercus agrifolia*) and western or California sycamore (*Platanus racemosa*), are both considered high biogenic emitters. Therefore, widespread use of native tree species must be thoroughly evaluated before being implemented. All efforts would be made to plant native trees; however, if the existing street tree well location or size is not suitable for a native tree, a UFD acceptable street tree species would be planted. (See Appendix <u>DB4</u>.)

### 2.5.4.5 Historical Cultural Monuments

The City has recognized and designated several street tree locations as worthy of Historic-Cultural Monument status. These include:

- Monument #148.0 Coral (*Erythrina caffra*) street trees on San Vicente Boulevard between Bringham Avenue and 26<sup>th</sup> Street
- Monument #465.0 Sycamore (*Platanus racemosa*) street trees on Bienvenida Avenue between Sunset Boulevard and the dead-end south of Sunset Boulevard
- Monument #93.0 California pepper (*Schinus molle*) street trees on Canoga Avenue between Ventura Boulevard and Saltillo Street
- Monument #49.0 Olive (*Olea europea*) street trees on Lassen Street between Topanga Canyon Boulevard and Farralone Avenue
- Monument #24.0 Coast live oak (*Quercus agrifolia*) (deceased) in median island on Louise Avenue 210 feet south of Ventura Boulevard
- Monument #41.0 Deodar cedar (*Cedrus deodar*) street trees on White Oak Avenue between Devonshire Street and Ronald Reagan Freeway (State Route 118)
- Monument #94.0 Median island Queen Palm (*Syagrus romanzoffianum*) and Mexican Fan Palm (*Washingtonia robusta*) street trees on Highland Avenue
- Monument #509.0 Camphor (*Cinnamomum camphora*) street trees in the 1200 block of Lakme Avenue
- Monument #67.0 Deodar cedar (*Cedrus deodar*) street trees on Los Feliz Boulevard between Riverside Drive and Western Avenue

The City Cultural Heritage Ordinance, LAAC Section 22.171, would still apply to Historic Cultural Monuments under the Project.

### 2.5.4.6 Public Notification Criteria

Under the Project, the current practice of street tree removal notification would continue with a few modifications. For individual projects involving the proposed removal of two or fewer street trees, aA 7-day notice would be posted on the street tree to be removed. The An informational notice would be given to the respective City Council Office where the street tree to be remove resides, Department of Neighborhood Empowerment (DONE), and Community Forest Advisory Committee (CFAC). The informational notice would include, but not be limited to, the date and reason for the removal, location and species of the planted or replanted street tree(s), location and species of the replacement street tree to be planted, and a contact name with associated phone number and email.

For individual projects involving the proposed removal of three or more street trees, a 30-day notice shall be posted on the street tree to be removed. An informational notice shall also be given to the respective City Council Office where the street tree to be removed resides, DONE, and CFAC. The informational notice shall include the date and reason for the removal, location and species of the street tree(s), and a contact name with associated phone number and email. The address and project name involved in the proposed removal of trees shall also be placed on the Bureau of Street Services Street Tree Removal Notification System.

### 2.5.4.7 Street Tree Bird/Bat/Raptor Nesting Survey Criteria

Street trees that require pruning or relocation/removal under the Project would be subject to compliance with the MBTA Compliance and California Fish and Game Code sections. The MBTA protects migratory birds and their parts (including eggs, nests, and feathers). The MBTA prohibits killing, possessing, or trading migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior.

In compliance with the MBTA and California Fish and Game Code Sections 3503 and 3503.5, street tree removal activities would take place outside of the nesting bird season (February 1 to September 1) to the extent feasible. In accordance with these regulatory requirements, efforts would be made to schedule removal of mature street trees between September 2 and January 31 to avoid the nesting bird season.

Prior to being removed, all street trees would be thoroughly surveyed for the presence of nesting birds/bats/raptors by a Certified UFD Street Tree Supervisor <u>or qualified biologist or qualified</u> <u>arborist</u> within 3 days prior to any street tree removal. If any active nests are detected, the area would be flagged, and a minimum 250-foot (500- foot for raptors) non-disturbance buffer would be established for at least 30 days until the nesting cycle has been completed or the <u>UFD tree</u>supervisormonitoring biologist determines that the nest has failed.<sup>1412</sup> If nesting birds are found, an avoidance area would be established around the nest until a qualified avian biologist has determined that young have fledged or nesting activities have ceased. The Project site would be resurveyed if there is a lapse in construction activities for more than 7 days during the bird breeding season.

A pre-construction nesting bird survey would be submitted at the conclusion of the site survey.

All street tree removal work would be performed under the <u>management direction</u> of a UFD tree supervisor, including any pre- and post-pruning street tree inspection.

### 2.5.4.8 Street Tree Planting Specifications

Starting from July 2017, a 2:1 replacement to removal ratio would be followed for years 1-10 (starting July 2017), 3:1 for years 11-21, and 2:1 for years 22-30.

**Climate** – Southern California is known for its Mediterranean climate, which, for the most part, is conducive to the growth of most of the world's tree species. Because of its large geographic size, the City has several micro-climates and varying soil types within its boundaries. Therefore, determining the correct species for a specific location would address these considerations.

**Site Selection –** The location would be determined by a UFD tree supervisor. Street tree design is unique because of the relationship between public and private infrastructure and the linear orientation. Species selection should be based on "right tree, right place" considerations. Because street trees are generally planted along street sides, species selection should consider uniformity along blocks and street segments. Uniformity would allow for similar street tree maintenance and would provide design continuity. Generally, street tree species selection at a given location is determined by the predominant street tree species on a block.

<sup>&</sup>lt;sup>11</sup>2-U.S. Fish and Wildlife Service. 2018. Threatened & Endangered Species Active Critical Habitat Report. July. Available: https://ecos.fws.gov/ecp/report/table/critical-habitat.html.

The following areas would be considered for street tree planting, in order of priority:

- 1. If space exists for a new street tree planting at the location of the removed street tree, a street tree would always be planted back in that location.
- 2. Planting would take place on either side of the same street/block.
- 3. All new street trees would be planted on the immediate street to the north, south, east, or west of the removed street tree location.
- 4. All new street tree would be planted in the neighborhood/community in which the street tree removal(s) occurred (within 0.25 mile).
- 5. All new street trees would be planted in historically low-canopy areas or in areas with a high index rating of "heat island" or in areas of the City with poor air quality as determined by the South Coast Air Quality Management District, the California Office of Environmental Health Hazard Assessment, or the California EPA.<sup>1213</sup>

**Street Tree Selection Guide** – The current guide lists 150 street tree species that can be planted in the City. These species can be grown and survive in the City because of the City's Mediterranean climate (see Appendix  $\underline{DB4}$ ).

**Street Tree Planting Standards –** Street trees would be planted according to the specifications put forth in BOE Standard Plan(s) S-450-3, S-455-2, and S-456-2.

**Street Tree Size** – The standard street tree stock replacement size would be a 24-inch box. The 24-inch box size realizes a compromise between street tree establishment ability and a street tree's resistance to vandalism while providing a reasonable length of time for canopy replacement (7 to 10 years).

**Street Tree Root Control Barriers (RCB)** – Much arboriculture research on the use of RCBs has been conducted, often with various and sometimes conflicting outcomes. However, most research has shown that the use of RCBs can increase the time in which conflict with the infrastructure the barrier is meant to protect may occur. Therefore, RCBs are required to be installed on street tree plantings per Standard Plan S-456-2.

### 2.5.4.9 Street Tree Maintenance and Monitoring Requirements

Any person in charge of repair, alteration, or removal of any sidewalk or ancillary structure in any street, sidewalk, parkway, alley, or other public ROW would protect any street tree, shrub, or plant in the vicinity of such repair work with sufficient guards or protectors as to prevent injury to said street tree, shrub, or plant arising out of or by reason of said repair alteration or removal. All green waste generated by the repair of sidewalks or retention, removal, and replacement of street tree(s) as part of the Sidewalk Repair Program would be composted, mulched or disposed of in accordance with title 14 of the California Code of Regulations governing compost quality, as applicable.

<sup>&</sup>lt;sup>1213</sup>-Urban heat island maps can be accessed at https://calepa.ca.gov/climate/urban-heat-island-index-forcalifornia/urban-heat-island-interactive-maps/. Current air quality data can be accessed at http://www.aqmd.gov/home/air-quality/current-air-quality-data. Communities most affected by poor air quality can be identified at https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30.

For the first three years of planting, <u>UFD-replacement street trees</u> would <u>be</u> maintain<u>ed</u> and monitor<u>ed for</u> growth<u>under the direction of UFD</u> through visual inspections at the time when street trees are manually watered <u>every three weeks33 times per year for three years</u>. Young street trees that do not survive in the first 3 years would be replaced at a 1:1 ratio.

The young street trees must be able to withstand slight to moderate drought or other stress. The street trees will continue to be maintained by UFD and, as such, the current practice of watering a planted street tree 33 times a year would continue. Mandatory Project Design Features

As part of Chapter 3, *Environmental Impact Analysis*, each environmental resource area analysis provides, as applicable, PDFs consisting of regulatory compliance measures and other standard conditions for sidewalk repair projects under the Project. These PDFs are summarized in *Executive Summary*, Section ES.3. Each individual sidewalk repair project under the Project would comply with all applicable PDFs.

## 2.5.5 Illustrative Examples of Application of Proposed Project/Ordinance

For illustrative purposes only, below are hypothetical future individual project characteristics and how they would be treated under the proposed Project/ordinance. All these hypothetical future individual sidewalk repair projects are assumed to: (a) be implemented under the *Willits* settlement; (b) comply with the Revised Street Tree Retention, Removal and Replacement Policy; and (c) comply with the PDFs as summarized in *Executive Summary*, Section ES.3.

<u>Hypothetical Future Individual Project #1:</u>

- Lasts no more than 30 non-consecutive days and requires excavation depth of no greater than 30 feet; and
- Would not cause a substantial adverse change to the significance of a known historic, tribal cultural, unique archaeological, or unique paleontological resource<u>; and</u>
- Involves the proposed removal of two or fewer street trees,

Project #1 would be subject to ministerial approval by the City Engineer or designee, with no further CEQA environmental review necessary.

<u>Hypothetical Future Individual Project #2:</u>

- Lasts no more than 30 non-consecutive days and requires excavation depth of no greater than 30 feet;
- Involves a known historic resource but determined through pre-screening not to cause a substantial adverse change to the known historic resource; and
- Would not cause a substantial adverse change to the significance of a known historic, tribal cultural, unique archaeological, or unique paleontological resource<u>s; and</u>
- Involves the proposed removal of two or fewer street trees,

Project #2 would be subject to ministerial approval by the City Engineer or designee, with no further CEQA environmental review necessary.

Hypothetical Future Individual Project #3:

• Lasts no more than 30 non-consecutive days and requires excavation depth of no greater than 30 feet;

- Construction is less than 10 feet from a commercial sensitive use and therefore results in a significant noise impact per the analysis in Chapter 3.10, *Noise*; and
- Would not cause a substantial adverse change to the significance of a known historic, tribal cultural, unique archaeological, or unique paleontological resource<u>: and</u>
- <u>Involves the proposed removal of two or fewer street trees</u>.

Project #3 would be subject to ministerial approval by the City Engineer or designee, with no further CEQA environmental review necessary.

### Hypothetical Future Individual Project #4:

- Lasts <u>more</u> than 30 non-consecutive days and/or requires excavation depth of <u>greater</u> than 30 feet; <del>and</del>
- Would not cause a substantial adverse change to the significance of a known historic, tribal cultural, unique archaeological, or unique paleontological resource<u>: and</u>
- Involves the proposed removal of two or fewer street trees.

Project #4 would be subject to discretionary approval by the City Engineer or designee, with further project-level CEQA environmental review performed as necessary.

### Hypothetical Future Individual Project #5:

- Lasts no more than 30 non-consecutive days and requires excavation depth of no greater than 30 feet; and
- Would cause a substantial adverse change to the significance of a known historic, tribal cultural, unique archaeological, or unique paleontological resource, based on pre-approval screening.

Project #5 would be subject to discretionary approval by the City Engineer or designee, with further project-level CEQA environmental review performed as necessary.

#### <u>Hypothetical Future Individual Project #6:</u>

- Lasts no more than 30 non-consecutive days and requires excavation depth of no greater than 30 feet; and
- Would cause a substantial adverse change to the significance of a City Historical Cultural Monument:
- <u>Involves the proposed removal of two or fewer street trees</u>.

Project #6 would be subject to discretionary approval by the City Engineer or designee, with further project-level CEQA environmental review performed as necessary. In addition, Project #6 would be subject to the Cultural Heritage Ordinance, LAAC 22.171.

### <u>Hypothetical Future Individual Project #7:</u>

- Lasts no more than 30 non-consecutive days and requires excavation depth of no greater than 30 feet;
- Would not cause a substantial adverse change to the significance of a known historic, tribal cultural, unique archaeological, or unique paleontological resource; and

• Involves the proposed removal of three or more street trees.

<u>Project #7 would be subject to discretionary approval by the Board of Public Works, with</u> <u>further project-level CEQA environmental review performed as necessary.</u>

Hypothetical Future Individual Project #8:

- Lasts more than 30 non-consecutive days and/or requires excavation depth of greater than 30 feet;
- Would not cause a substantial adverse change to the significance of a known historic, tribal cultural, unique archaeological, or unique paleontological resource; and
- Involves the proposed removal of three or more street trees.

<u>Project #8 would be subject to discretionary approval by the Board of Public Works, with</u> <u>further project-level CEQA environmental review performed as necessary.</u>

<u>Hypothetical Future Individual Project #9:</u>

- Lasts no more than 30 non-consecutive days and requires excavation depth of no greater than 30 feet;
- Would cause a substantial adverse change to the significance of a City Historical Cultural Monument; and
- Involves the proposed removal of three or more street trees.

<u>Project #9 would be subject to discretionary approval by the Board of Public Works, with</u> <u>further project-level CEQA environmental review performed as necessary. In addition, Project</u> <u>#9 would be subject to the Cultural Heritage Ordinance, LAAC 22.171.</u>