Appendix B Arborist Survey Report

Appendices

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Arborist Survey Report
for the
Edward Kemble and Cesar Chavez Elementary Schools Project

City of Sacramento, California

Prepared For:

PlaceWorks, Inc.

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
DSH	Diameter at standard height
Park	Edward Kemble Park
Project	Edward Kemble and Cesar Chavez Elementary Schools Project
Study Area	Project
USGS	U.S. Geological Survey
Value	Transplant and Biological Value

1.0 INTRODUCTION

ECORP Consulting, Inc. conducted an arborist survey for the Edward Kemble and Cesar Chavez Elementary Schools Project (Project) and Edward Kemble Park (Park; collectively Study Area), located in the City of Sacramento, California. The purpose of this survey was to identify, map, and assess the general condition of all trees within the Study Area according to Article 12.56.050 of the City of Sacramento Tree Ordinance (City Ordinance). However, the City Ordinance does not apply to schools so they were only used to guide the survey. It is anticipated that all trees within the Study Area will either be removed, pruned, or have some ground-disturbing activity within their dripline radius.

2.0 SITE DESCRIPTION

The Study Area is located north of Loma Verde Way, east of 29th Street, south of Torrance Avenue, and west of 32nd Street, within the City of Sacramento, California. The approximately 11.8-acre Study Area corresponds to a portion of Section 6, Township 7 North, Range 5 East (Mount Diablo Base and Meridian) of the "Florin, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1968, photo revised 1980). The approximate center of the Study Area is located at 38.740137° North and -121.379076° West within the Lower Sacramento Watershed (Hydrologic Unit Code #18020163; Natural Resources Conservation Service et al. 2019). The Study Area is a school; therefore, the grounds are primarily composed of asphalt, mowed grass, and maintained beds planted with ornamental and native trees. The surrounding land use is heavily residential.

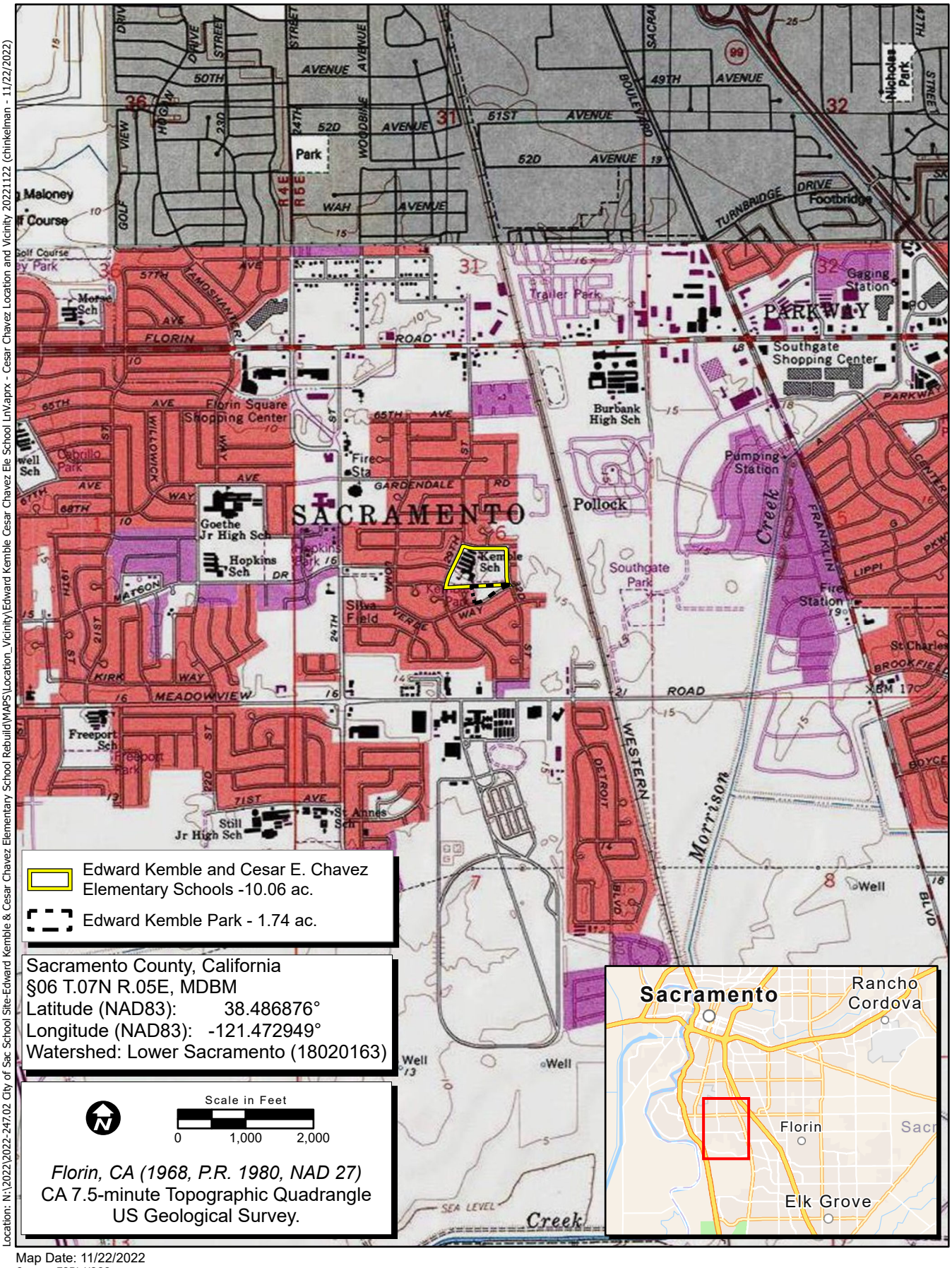
3.0 METHODS

ECORP arborist Krissy Walker-Berry (International Society of Arboriculture Certification #WE-11308A), with ECORP biologist Levon Bajakian, conducted the field survey on November 10, 2022. The Study Area was walked during the field survey, and data were recorded using a submeter capable Global Positioning System unit.

ECORP surveyed all trees with trunks or a portion of their dripline radius in the Study Area. Tree tags were not installed on trees that were inaccessible or too small to tag properly; they were assigned the numbers 1 to 14. The following terms are defined in the Tree Preservation Code (City of Sacramento 2022):

- **Arborist Report:** A report prepared by a qualified arborist that may include, as determined by the director, information concerning the location of, condition of, and potential impacts of proposed development on one or more City Trees or Private Protected Trees.

- **City Tree:** Any tree the trunk of which, when measured four and one-half feet above ground, is partially or completely located in a city park, on real property the city owns in fee, or on a public right-of-way, including any street, road, sidewalk, park strip, mow strip, or alley.



Location: N:\2022\2022-247.02 City of Sac School Site-Edward Kemble & Cesar Chavez Elementary School Rebuild\MAPS\Location_Vicinity\Edward Kemble Cesar Chavez Ele School LnV.aprx - Cesar Chavez Location and Vicinity 20221122 (chinkelman - 11/22/2022)

Map Date: 11/22/2022

Sources: ESRI, USGS

Figure 1. Project Location and Vicinity

- **Diameter at Standard Height (DSH):** The diameter of a tree measured at four and one-half feet above ground level on the high side of the tree. For a tree that branches at or below four and one-half feet, DSH means the diameter at the narrowest point between the grade and the branching point. For a tree with a common root system that branches at the ground, DSH means the sum of the diameter of the largest trunk and one-half the cumulative diameter of the remaining trunks at 4.5 feet above natural grade. *For multi-trunked trees, this report lists total aggregate diameter along with each trunk's diameter*.

- **Private Protected Tree:**

  1, A tree that is designated by city council resolution to have special historical value, special environmental value, or significant community benefit, and is located on private property;

  2. Any native Valley Oak (*Quercus lobata*), Blue Oak (*Quercus douglasii*), Interior Live Oak (*Quercus wislizenii*), Coast Live Oak (*Quercus agrifolia*), California Buckeye (*Aesculus californica*), or California Sycamore (*Platanus racemosa*), that has a DSH of twelve (12) inches or more, and is located on private property;

  3. A tree that has a DSH of twenty-four (24) inches or more located on private property that:

     i. Is an undeveloped lot; or

     ii. Does not include any single unit or duplex dwellings; or

     iii. A tree that has a DSH of thirty-two (32) inches or more located on private property that includes any single unit or duplex dwellings.

- **Tree Protection Zone:** The area around a tree within the outermost circumference of the canopy or as set forth in a tree protection plan.

Data collected included species, tree tag number, DSH, dripline radius, and condition. The survey results are intended for general Project planning purposes only; therefore, these results should not be considered a detailed tree analysis (i.e., results do not include hazard assessment, tree health diagnosis, preservation/removal recommendations, or pruning advisement). DSH is defined above. The remaining terms are defined below:

- **Condition:** An estimate of the tree's overall health. This includes evaluation of foliage, evidence of wound healing, evidence of fungal attack, density of insect galls, and the amount and condition of attached deadwood. Condition was rated on a five-point scale (i.e., poor, fair to poor, fair, fair to good, good).

- **Dripline Radius:** A perfect circle around the tree with the radius being equal to the longest branch of the tree.

- **Structure:** An estimate of the tree's structural soundness, based on obvious external evidence. This evaluates the obvious potential for structural failure of one or more major branches or trunks, the environment and condition of the root crown, symmetry of the canopy, and any noticeable effects of crowding caused by adjacent trees. Structure was rated on a five-point scale (i.e., poor, fair to poor, fair, fair to good, good).

Additionally, the trees proposed for removal were evaluated for their Transplant and Biological Value (Value). This Value is based on the following data:

1. Overall Tree Condition – better health was given a higher Value;
2. Species – invasive species were given a lower Value;
3. Location – trees that would be difficult to transplant were given a lower Value;
4. Size – large, otherwise health trees were given a moderate Value due to increased complications with transplanting and lower chances of survivability.

4.0 RESULTS

A total of 77 trees were inventoried in the Study Area. This includes 22 California redwood (*Sequoia sempervirens*), seven California sycamore, six valley oak, five crepe myrtle (*Lagerstroemia indica*), five willow oak (*Quercus phellos*), five Chinese elm (*Ulmus parvifolia*), four amur maple (*Acer ginnala*), four velvet ash (*Fraxinus velutina*), four zelkova (*Zelkova* sp.), three knobcone pine (*Pinus attenuata*), two Chinese privet (*Ligustrum sinense*), two liquidambar (*Liquidambar* sp.), one silver maple (*Acer saccharinum*), one deodar cedar (*Cedrus deodara*), one eucalyptus (*Eucalyptus* sp.), one Oregon ash (*Fraxinus latifolia*), one honey locust (*Gleditsia triacanthos*), one Callery pear (*Pyrus calleryana*), one red oak (*Quercus rubra*), and one pepper tree (*Shinus molle*). Additionally, one dead tree was inventoried. A map depicting the locations of the inventoried trees is included as Appendix A. Detailed tree survey data for each tree are included as Appendix B. Representative site photographs are included as Appendix C.

Ten inventoried trees are considered City Trees because they are located within the Park. These include trees with tag numbers 945 through 954. Eleven trees are considered Private Protected Trees because they are located on the school property (private property) and have a DSH larger than 24.

5.0 IMPACTS AND CONCLUSIONS

Based on the limits of work provided by Kitchell CEM, Inc, 73 of 77 trees found during the inventory are proposed for removal. The remaining four trees, tag numbers 8, 12, 13, and 14, have trunks located on private property and will have indirect impacts. Indirect impacts means that there will be impacts at the soil level within the Tree Protection Zone of the tree through some form of ground disturbance.

Of the 73 trees proposed for removal, 21 have a high Value, 37 have a moderate Value, and 16 have a low Value. It is recommended that trees with a high Value be transplanted and trees with a moderate Value be transplanted or replaced at a 2:1 ratio or higher.

The recommendations in Section 6.0 apply to the four indirectly impacted trees.

6.0 TREE PRESERVATION RECOMMENDATIONS

ECORP recommends that all tree transplanting occur during the dormant season (November to February).

6.1 Development Recommendations

The following recommendations will help mitigate damage to preserved trees caused by land development:

a. Avoid grade cuts greater than 1 foot within the driplines of preserved trees and within 5 feet of their trunks.

b. Avoid fill greater than 1 foot within the driplines of preserved trees and any placement of fill within 5 feet of their trunks.

c. Avoid trenching within the driplines of preserved trees. If it is absolutely necessary to install underground utilities within the driplines of a preserved tree, it is recommended that the trench be either bored or drilled.

d. Avoid installing irrigation systems within the driplines of preserved tree(s) as it may be detrimental to the long-term survival of the preserved tree(s).

e. Limit landscaping beneath preserved trees be limited to nonplant materials such as boulders, cobbles, wood chips, etc., or plant species tolerant of the natural semi-arid environs of the trees. Drip irrigation should be limited to approximately twice per summer for the understory plants.

6.2 Grading Beneath Tree Driplines

Grading beneath trees to be saved should be given special attention to avoid creating conditions adverse to the tree's health. The natural ground within the driplines of protected trees should remain as undisturbed as possible. Specific recommendations for work within the dripline are as follows:

a. Major roots 2 inches or greater in diameter encountered within the tree's dripline in the course of excavation from beneath trees that are not to be removed should be kept moist and covered with earth as soon as feasible. Roots 1 inch to 2 inches in diameter that are severed should be trimmed, treated with pruning compound, and covered with earth as soon as possible.

b. Support roots that are inside the dripline of the tree should be protected to the extent feasible. Hand-digging is recommended in the vicinity of major trees to prevent root cutting and mangling by heavy equipment.

7.0 REFERENCES

City of Sacramento. 2022. Tree Planting, Maintenance, and Conservation- Chapter 12.56. Available online at: https://www.cityofsacramento.org/-/media/Corporate/Files/Public-Works/Maintenance-Services/SCC-1256.pdf?la=en. Accessed online November 20, 2022.

Natural Resources Conservation Service, U.S. Geological Survey (USGS), and U.S. Environmental Protection Agency. 2019. Watershed Boundary Dataset for California. Available online: https://datagateway.nrcs.usda.gov.

U.S. Geological Survey (USGS). 1968, P.R. 1980. "Florin, California" 7.5-minute Quadrangle.

LIST OF APPENDICES

APPENDIX A

Arborist Survey Results

Location: N:\2022\2022-247.02 City of Sac School Site-Edward Kemble & Cesar Chavez Elementary School Rebuild\MAPS\Biological_Resources\Cesar Chavez Elementary Biological Resources.aprx - Cesar Chavez Elementary Arborist 20221129 (jwelsh - 11/30/2022)

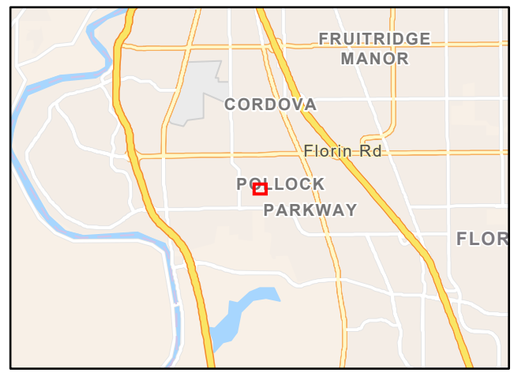
Map Contents

- Cesar E. Chavez Elementary School - 10.06 ac.
- Edward Kemble Park - 1.74 ac.

Tree Species (78)

- Amur Maple (4)
- California Redwood (22)
- California Sycamore (7)
- Callery Pear (1)
- Chinese Elm (5)
- Chinese Privet (2)
- Crepe Myrtle (5)
- DEAD (1)
- Deodar Cedar (1)
- Eucalyptus (1)
- Honey Locust (1)
- Knobcone Pine (3)
- Liquidambar (2)
- Oregon Ash (1)
- Pepper Tree (1)
- Red Oak (1)
- Silver Maple (1)
- Valley Oak (6)
- Velvet Ash (4)
- Willow Oak (5)
- Zelkova (4)

Sources: Maxar (4/12/2022), ESRI, Sacramento County



Map Date: 11/30/2022

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 50 100

Appendix A. Arborist Survey Results

2022-247.02 City of Sac School Site-Cesar E. Chavez Elementary School Rebuild Project

APPENDIX B

Tree Survey Data (November 10, 2022)

Edward Kemble/Cesar Chavez Elementary Schools
Tree Data (November 10, 2022)

Tree Tag #	Common Name	*Latin Name*	DBH (inches)	Dripline (feet)	Structure	Health	Individual Stem Sizes (if multiple)	Field Note	Proposed for Removal?	City Tree?	Private Protected Tree?	Transplant and Biological Value
1	-	-	-	-	-	Dead			Yes	No	No	-
2	Chinese Privet	*Ligustrum sinense*	1	2	Poor	Poor		No healthy bark around base, likely impacted by mowing	Yes	No	No	Low
3	Chinese Elm	*Ulmus parvifolia*	1.2	2	Good to Fair	Fair			Yes	No	No	Moderate
4	Valley Oak	*Quercus lobata*	1.7	4	Good to Fair	Good to Fair			Yes	No	No	High
5	Amur Maple	*Acer ginnala*	2	4	Fair	Fair			Yes	No	No	Moderate
6	Amur Maple	*Acer ginnala*	2.2	4	Fair	Fair		Stems growing into each other	Yes	No	No	Low
7	Amur Maple	*Acer ginnala*	2	4	Fair	Fair		Trunk damage	Yes	No	No	Low
8	Oregon Ash	*Fraxinus laifolia*	14	16	Fair	Fair			No	No	No	-
9	Crepe Myrtle	*Lagerstroemia indica*	1.2	2	Good to Fair	Good to Fair			Yes	No	No	High
10	Crepe Myrtle	*Lagerstroemia indica*	2.2	5	Good to Fair	Good to Fair			Yes	No	No	High
11	Crepe Myrtle	*Lagerstroemia indica*	1	1	Good to Fair	Fair			Yes	No	No	Moderate
12	Pepper Tree	*Schinus molle*	15	20	Poor	Fair to Poor		Topped at 10 feet	No	No	No	-
13	Chinese Privet	*Ligustrum sinense*	-	23	Fair	Fair		Unable to see tree trunk to assess DSH	No	No	No	-
14	California Redwood	*Sequoia sempervirens*	36	25	Good to Fair	Good to Fair			No	No	Yes	Moderate
868	California Sycamore	*Platanus racemosa*	9.6	12	Good	Good			Yes	No	No	High
869	Willow Oak	*Quercia phellos*	12.8	18	Good to Fair	Good to Fair			Yes	No	No	Moderate
870	Willow Oak	*Quercia phellos*	11.8	14	Good to Fair	Good to Fair			Yes	No	No	High
871	California Sycamore	*Platanus racemosa*	5.8	12	Fair	Fair		Odd branching and leader	Yes	No	No	Low
872	Willow Oak	*Quercia phellos*	14.2	16	Good to Fair	Good			Yes	No	No	Moderate
873	California Sycamore	*Platanus racemosa*	8.7	12	Good to Fair	Good to Fair			Yes	No	No	High
874	California Redwood	*Sequoia sempervirens*	11.9	10	Good to Fair	Good			Yes	No	No	High
875	Willow Oak	*Quercia phellos*	24.6	20	Good to Fair	Good to Fair			Yes	No	Yes	Moderate
876	Chinese Elm	*Ulmus parvifolia*	4.1	8	Good to Fair	Good to Fair			Yes	No	No	High
877	California Redwood	*Sequoia sempervirens*	24.4	13	Good to Fair	Good to Fair			Yes	No	Yes	Moderate
878	Red Oak	*Quercus rubra*	7.7	8	Good to Fair	Good to Fair			Yes	No	No	High
879	California Sycamore	*Platanus racemosa*	11	12	Good to Fair	Good to Fair			Yes	No	No	High
880	California Sycamore	*Platanus racemosa*	10.6	13	Fair	Good to Fair		Sucker sprouts	Yes	No	No	Moderate
881	California Sycamore	*Platanus racemosa*	8	10	Good to Fair	Good to Fair			Yes	No	No	High
882	Willow Oak	*Quercia phellos*	19.8	20	Good to Fair	Good to Fair			Yes	No	No	Moderate
883	Liquidambar	*Liquidambar styraciflua*	10.4	14	Fair	Good to Fair			Yes	No	No	Moderate
884	Liquidambar	*Liquidambar styraciflua*	12.5	14	Fair	Good to Fair		One girdling root	Yes	No	No	Low
885	Amur Maple	*Acer ginnala*	6.8	10	Fair	Good to Fair			Yes	No	No	Moderate
886	California Redwood	*Sequoia sempervirens*	34.7	18	Good to Fair	Good to Fair			Yes	No	Yes	Moderate
887	California Redwood	*Sequoia sempervirens*	36	18	Good to Fair	Good			Yes	No	Yes	Moderate
888	California Redwood	*Sequoia sempervirens*	24.1	14	Good to Fair	Good to Fair			Yes	No	Yes	Moderate
889	California Redwood	*Sequoia sempervirens*	21.7	12	Good to Fair	Good to Fair			Yes	No	No	Moderate
890	California Redwood	*Sequoia sempervirens*	24.1	12	Good to Fair	Good to Fair		Sucker sprouts	Yes	No	Yes	Moderate
891	California Redwood	*Sequoia sempervirens*	19.6	9	Good to Fair	Good to Fair		Sucker sprouts	Yes	No	No	Moderate
892	California Redwood	*Sequoia sempervirens*	26.7	13	Good to Fair	Good to Fair			Yes	No	Yes	Moderate
893	Velvet Ash	*Fraxinus velutina*	22.8	28	Good to Fair	Fair			Yes	No	No	Low
894	Velvet Ash	*Fraxinus velutina*	20.2	24	Fair	Good to Fair			Yes	No	No	Moderate

Edward Kemble/Cesar Chavez Elementary Schools
Tree Data (November 10, 2022)

Tree Tag #	Common Name	*Latin Name*	DBH (inches)	Dripline (feet)	Structure	Health	Individual Stem Sizes (if multiple)	Field Note	Proposed for Removal?	City Tree?	Private Protected Tree?	Transplant and Biological Value
895	Crepe Myrtle	*Lagerstroemia indica*	4.5	8	Good to Fair	Good to Fair		Some sucker sprouts	Yes	No	No	High
896	Callery Pear	*Pyrus calleryana*	13	16	Fair to Poor	Fair to Poor		Some trunk damage, codominant stems, tips of most branches dead	Yes	No	No	Low
897	California Sycamore	*Platanus racemosa*	4.2	4	Fair	Good to Fair			Yes	No	No	Moderate
898	Silver Maple	*Acer saccharinum*	19.8	22	Good to Fair	Good			Yes	No	No	Moderate
899	Velvet Ash	*Fraxinus velutina*	22.2	22	Good to Fair	Good to Fair			Yes	No	No	Moderate
900	Velvet Ash	*Fraxinus velutina*	22.4	18	Good to Fair	Good to Fair			Yes	No	No	Moderate
924	Crepe Myrtle	*Lagerstroemia indica*	11.6	8	Good to Fair	Good to Fair	4.6,7		Yes	No	No	High
925	Knobcone Pine	*Pinus attenuata*	22.9	24	Fair	Good to Fair			Yes	No	No	Low
926	Knobcone Pine	*Pinus attenuata*	19.2	22	Good to Fair	Good to Fair			Yes	No	No	Moderate
927	Zelkova	*Zelkova serrata*	19.2	18	Fair	Fair		Some girdling roots, ends of some branches dead	Yes	No	No	Low
928	Zelkova	*Zelkova serrata*	17.5	20	Fair	Fair		Girdling roots, some dead limbs	Yes	No	No	Low
929	Zelkova	*Zelkova serrata*	16.3	16	Fair	Fair		Some dead limbs, girdling roots	Yes	No	No	Low
930	Zelkova	*Zelkova serrata*	23.3	20	Fair	Fair		Girdling roots, some dead limbs	Yes	No	No	Low
931	Valley Oak	*Quercus lobata*	5.5	7	Good to Fair	Good			Yes	No	No	High
932	Chinese Elm	*Ulmus parvifolia*	7.1	13	Good to Fair	Good			Yes	No	No	High
933	California Redwood	*Sequoia sempervirens*	21.8	13	Fair	Good to Fair		Sucker sprouts, dead top	Yes	No	No	Moderate
934	California Redwood	*Sequoia sempervirens*	23.9	13	Good	Good			Yes	No	No	Moderate
935	Chinese Elm	*Ulmus parvifolia*	5.6	10	Good to Fair	Good to Fair			Yes	No	No	High
936	Valley Oak	*Quercus lobata*	3.4	6	Good to Fair	Good to Fair			Yes	No	No	High
937	Chinese Elm	*Ulmus parvifolia*	6.8	14	Good to Fair	Good to Fair			Yes	No	No	High
938	Valley Oak	*Quercus lobata*	3.7	8	Good to Fair	Good to Fair			Yes	No	No	High
939	Valley Oak	*Quercus lobata*	3	5	Good to Fair	Good			Yes	No	No	High
940	Valley Oak	*Quercus lobata*	4.2	6	Good to Fair	Good			Yes	No	No	High
941	California Redwood	*Sequoia sempervirens*	26.8	12	Good to Fair	Good			Yes	No	Yes	Moderate
942	California Redwood	*Sequoia sempervirens*	24.5	12	Good to Fair	Good			Yes	No	Yes	Moderate
943	California Redwood	*Sequoia sempervirens*	23.7	12	Good to Fair	Good to Fair			Yes	No	No	Moderate
944	California Redwood	*Sequoia sempervirens*	24.5	13	Good to Fair	Good			Yes	No	Yes	Moderate
945	California Redwood	*Sequoia sempervirens*	20.9	13	Good to Fair	Good			Yes	Yes	No	Moderate
946	Knobcone Pine	*Pinus attenuata*	19.4	30	Good to Fair	Fair			Yes	Yes	No	Low
947	California Redwood	*Sequoia sempervirens*	21.7	12	Good to Fair	Good			Yes	Yes	No	Moderate
948	California Redwood	*Sequoia sempervirens*	21.7	14	Fair	Fair		Sucker sprouts, dead top, some dead branches	Yes	Yes	No	Low
949	California Redwood	*Sequoia sempervirens*	12.8	9	Fair	Good to Fair		Sucker sprouts, codominant top	Yes	Yes	No	Moderate
950	California Redwood	*Sequoia sempervirens*	18.7	12	Good to Fair	Good to Fair			Yes	Yes	No	Moderate
951	California Redwood	*Sequoia sempervirens*	20.7	12	Good to Fair	Good			Yes	Yes	No	Moderate
952	Deodar Cedar	*Cedrus deodara*	34.4	36	Good to Fair	Good to Fair			Yes	Yes	No	Moderate
953	Eucalyptus	*Eucalyptus* sp.	38.6	44	Fair	Fair to Poor		Previous branch failures, dead tips of branches	Yes	Yes	No	Low
954	Honey Locust	*Gleditsia triacanthos*	14.7	16	Poor	Poor		Trunk abnormalities, dead ends on branches	Yes	Yes	No	Low

APPENDIX C

Representative Site Photographs

Photo 1. Overview of trees along western boundary, looking northeast. Photo taken November 10, 2022.

Photo 2. Overview of park along southern boundary, looking west. Photo taken November 10, 2022.

Photo 3. View of trees between buildings, looking west. Photo taken November 10, 2022.

Photo 4. View of California redwoods adjacent to a building, looking northeast. Photo taken November 10, 2022.