

DRAFT

**BROWN STREET PARK
MASTER PLAN PROJECT
INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION**

VACAVILLE, CALIFORNIA



September 2024

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**BROWN STREET PARK
MASTER PLAN PROJECT
INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION**

VACAVILLE, CALIFORNIA

Submitted to:

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Project No. COV2101



September 2024

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LIST OF ABBREVIATIONS AND ACRONYMS

2017 Ozone Plan	2017 Sacramento Regional 2008 8-Hour Ozone Attainment and Further Reasonable Progress Plan
2020 UWMP	City of Vacaville 2020 Amended Urban Water Management Plan
AB	Assembly Bill
ABAG	Association of Bay Area Governments
APE	area of potential effects
ATCM	Airborne Toxic Control Measure
BMPs	best management practices
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
CALGreen Code	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CASQA	California Stormwater Quality Association
CBC	California Building Code
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CGP	Construction General Permit
CH ₄	methane
City	City of Vacaville
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
County	Solano County
CPT	Cone Penetration Test
CRHR	California Register of Historical Resources

CWA	Clean Water Act
dB	decibel(s)
dBA	A-weighted decibel(s)
DMA	Drainage Management Area
DOC	California Department of Conservation
DOE	United States Department of Energy
DPM	diesel particulate matter
DU	dwelling unit
DWR	California Department of Water Resources
ECAS	Energy and Conservation Action Strategy
EIR	Environmental Impact Report
EMFAC	Emissions Factor 2021 Model
EO	Executive Order
ESA	Environmental Site Assessment
EV	Electric vehicle
EWTP	Easterly Wastewater Treatment Plant
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Federal Insurance Rate Map
FTA	Federal Transit Administration
GHG	greenhouse gas
GSA	Groundwater Sustainability Agency
GWh	gigawatt hours
GWP	global warming potential
H ₂ S	hydrogen sulfide
HCP	Habitat Conservation Plan
HFCs	hydrofluorocarbons
HQT	Habitat Quantification Tool
HVAC	heating ventilation and air conditioning
I-80	Interstate 80
I-505	Interstate 505

inch/sec	inch(es) per second
IS/MND	Initial Study/Mitigated Negative Declaration
kWh	kilowatt hours
L _{dn}	day-night average noise level
L _{eq}	equivalent continuous sound level
LID	Low Impact Development
LOS	level of service
LSA	LSA Associates, Inc.
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendant
MMBtu	metric million British thermal unit
MS4	Municipal Separate Storm Sewer System
MTC	Metropolitan Transportation Commission
MWh	megawatt hour
N ₂ O	nitrous oxide
NAHC	Native American Heritage Commission
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetlands Inventory
NWIC	Northwest Information Center
O ₃	ozone
OPR	(California) Governor's Office of Planning and Research
PFCs	perfluorocarbon
PG&E	Pacific Gas & Electric Company
PM	particulate matter
PM ₁₀	particulate matter less than 10 microns in diameter
PM _{2.5}	particulate matter less than 2.5 microns in diameter
Police Department	City of Vacaville Police Department

PPV	peak particle velocity
PRC	California Public Resources Code
PRD	Permit Registration Documents
project	Vanden Cove Subdivision Project
PT	post-tensioned
RL	Residential Low Density
RL-6	Residential Low Density Six Dwelling Units/Acre
ROG	reactive organic gases
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCOA	Standard Condition of Approval
SCS	Sustainable Communities Strategy
SCWA	Solano County Water Agency
SDMP	Storm Drainage Master Plan
SF ₆	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
SMARTS	Stormwater Multiple Application and Report Tracking System
SO ₂	sulfur dioxide
SRA	Source Receptor Area
SVAB	Sacramento Valley Air Basin
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TAZ	traffic analysis zone
TIA	Traffic Impact Analysis
VUSD	Vacaville Unified School District
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

UWMP	Urban Water Management Plan
VMT	vehicle miles traveled
WDID	Waste Discharge Identification Number
WDR	Waste Discharge Requirement
WQMP	Water Quality Management Plan
YSAQMD	Yolo-Solano Air Quality Management District

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1.0 PROJECT INFORMATION

1. **Project Title:**

Brown Street Park Master Plan Project

2. **Lead Agency Name and Address:**

City of Vacaville
650 Merchant Street
Vacaville, California 95688

3. **Contact Person and Phone Number:**

Albert Enault, Senior Planner
Community Development Department
Albert.Enault@cityofvacaville.com
(707) 449-5364

4. **Project Location:**

The 3.44-acre project site is on Assessor's Parcel Numbers 0129-320-020, -150, -170, -180, -190, -200, -250, -260 and -270, north of the Solano County Health and Social Services Department building in Vacaville, Solano County, California. The project site is currently undeveloped but is accessible from Brown Street to the west. Regional access to the project site is provided by Interstate 80, on- and off-ramps for which are 0.6 mile east of the project site along Allison Drive. East Monte Vista Avenue and Brown Street provide local access to the project site.

5. **Project Sponsor's Name and Address:**

City of Vacaville
650 Merchant Street
Vacaville, California 95688

6. **General Plan Designation:**

Commercial General

7. **Zoning:**

Commercial General (CG)/ Planned Development Overlay (PD)

8. **Description of Project:**

The City of Vacaville (City) proposes to develop a 3.44-acre site with (1) a new 2.63-acre Neighborhood Park comprising a variety of outdoor recreational amenities (e.g., playfield, multipurpose courts, stage, tot lot, playground, picnic areas, interactive water feature, walking trail drinking fountains, and a 26-foot diagonal width mobile TV screen with an associated sound system), (2) a 2,500-square-foot Recreation Center building, and (3) a 10,000-square-foot Vacaville Housing and Community Services Department office building.

9. Surrounding Land Uses and Setting:

The project site is bounded by Brown Street to the west, Paradise Cove Mobile Home Park to the east, single-family residential uses along Circle Drive to the north, and the Solano County Health and Social Services building directly south. Nearby land uses include a mix of single- and multi-family residential uses to the north and west. Public facility/institutional uses are located to the northwest and include a church, a Solano County Public Works maintenance yard, and the Golden Hills Private school. Commercial uses are located to the west of Brown Street and south of East Monte Vista Avenue and include small commercial complexes, quick service restaurants, and auto repair businesses. A mix of commercial and light industrial uses are located to the east of Callen Street which include auto repair and fabrication services, quick service restaurants and a shopping center further east.

10. Other Public Agencies Whose Approval is Required (e.g., permits, financial approval, or participation agreements):

- City of Vacaville – Discretionary Planning Entitlements and Ministerial Permits (e.g., Minor Design Review, Building Permit, Grading Permit, Issuance of Final Map)
- City of Vacaville Fire Department
- City of Vacaville Water District
- Pacific Gas & Electric (PG&E) Reconnection of electricity/natural gas service
- Solano County Airport Land Use Commission (ALUC) Airport consistency with standards from the Nut Tree Airport Compatibility Plan
- Solano County Habitat Conservation Program (HCP) HCP application and approval for coverage
- State Water Resources Control Board (SWRCB) Construction General Permit for Discharges of Stormwater Associated with Construction Activity
- Yolo-Solano Air Quality Management District (YSAQMD) Authority to Construct and Permit to Operate

Note: Other agencies to be determined depending on environmental requirements.

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resource Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

In 2022, the City of Vacaville initiated consultation with the Yocha Dehe Wintun Nation for the purpose of developing Cultural Resource Protocols for any project within a cultural sensitivity area in the City of Vacaville. On December 16, 2022, the Yocha Dehe Wintun Nation provided a formal response indicating their concurrence with the adoption and application of these protocols to projects located within the City of Vacaville. According to these protocols, the project would be located within an area of moderate sensitivity, and the specific protocols associated with this category have been incorporated into the **Project-Specific Conditions of**

Approval.

In addition, on March 1, 2024, the City provided formal notification to those California Native American tribes that are traditionally and culturally affiliated with the geographic area within which the proposed project is located pursuant to the consultation requirements of AB 52. On April 25, 2024, the City of Vacaville received a letter from Yvonne Perkins (Tribal Historic Preservation Officer for the Yocha Dehe Wintun Nation) stating that the tribe does have a cultural interest and formally requests consultation. To date, consultation is still ongoing.

2.0 PROJECT DESCRIPTION

The following describes the proposed Brown Street Master Plan Project (project) that is the subject of this Initial Study/Mitigated Negative Declaration (IS/MND) prepared pursuant to the California Environmental Quality Act (CEQA). The proposed project would result in the development of a new Neighborhood Park, Recreation Center building, and City Housing and Community Services Department office building, as described in more detail below. The City of Vacaville (City) is both the project proponent and the lead agency for review of the proposed project under CEQA.

2.1 PROJECT SITE

The following section describes the project site location, existing conditions, surrounding land uses, and regulatory setting.

2.1.1 Project Location

The 3.44-acre project site is on Assessor's Parcel Numbers 0129-320-020, -150, -170, -180, -190, -200, -250, -260 and -270, north of the Solano County Health and Social Services Department building in Vacaville, Solano County, California. The project site is in central Vacaville in an area consisting primarily of residential, commercial, and public uses.

Figure 2-1 shows the project location and vicinity. Figure 2-2 depicts an aerial photograph of the project site and surrounding land uses (see Section 2.1.3).

2.1.2 Existing Conditions

The project site is relatively flat with site elevations ranging from 143 to 150 feet above mean sea level. The project site consists primarily of vacant grassland with sparse trees including Valley Oaks and an Elm, in total 87 are present within the project site.¹ Sidewalks are present along the Brown Street frontage and existing chain link fencing separate the site from residential uses to the north and east.

2.1.3 Surrounding Land Uses

The project site is bounded by Brown Street to the west, Paradise Cove Mobile Home Park to the east, single-family residential uses along Circle Drive to the north, and the Solano County Health and Social Services building directly south. Nearby land uses include a mix of single and multi-family residential uses to the north and west. Public facility/institutional uses are located to the northwest and include a church, a Solano County Public Works maintenance yard, and the Golden Hills Private school. Commercial uses are located to the west of Brown Street and south of East Monte Vista

¹ According to the Arborists Report prepared by California Tree and Landscape Consulting, Inc., a total of 97 trees were assessed in the inspection on August 30, 2023. Two trees were located off-site on adjacent properties and their branches extended into the property and will likely not be impacted. Eight trees are located outside the fence along Brown Street, and it is uncertain if they are offsite or not.

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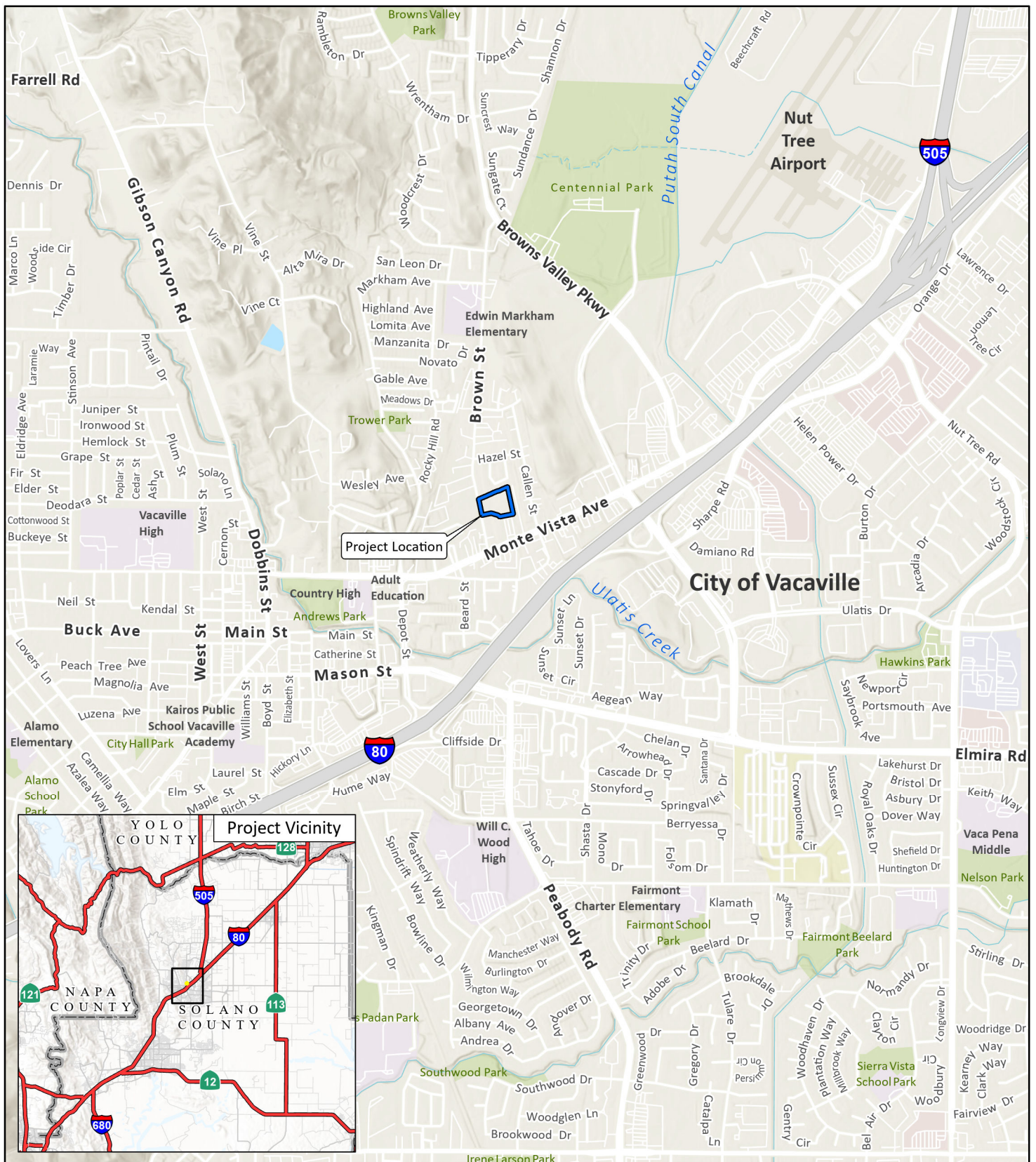
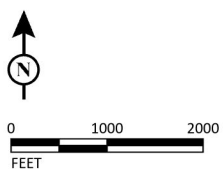


FIGURE 2-1

LSA



SOURCE: Esri Topographic Basemap

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Brown Street Park Master Plan Project
Project Location and Vicinity

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LSA


 Project Location

FIGURE 2-2



0 200 400
FEET

SOURCE: Nearmap (2023)

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Brown Street Park Master Plan Project
Aerial of the Project Site and Surrounding Land Uses

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Avenue and include small commercial complexes, quick service restaurants, and auto repair businesses. A mix of commercial and light industrial uses are located to the east of Callen Street which include auto repair and fabrication services, quick service restaurants and a shopping center farther east, as depicted on Figure 2-2.

2.1.4 Circulation and Access

Existing local access to the site is along Brown Street, west of the project site, and via East Monte Vista Avenue through the existing Solano County Health and Social Services Department building surface parking lot south of the project site.

Regional vehicular access to the project site is provided by Interstate 80 (I-80), on- and off-ramps for which are 0.6 mile east of the project site along Allison Drive.

Bus stops along Brown Street and East Monte Vista Avenue provide transit service to the project site. The Vacaville/Fairfield Amtrak train station is approximately 4.0 miles to the southwest, just outside Vacaville city limits and 5.2 miles from the project site.

2.1.5 Regulatory Setting

The City of Vacaville General Plan Land Use Map designates the project site as Commercial General (CG). The Commercial General designation is intended for a full range of commercial uses such as commercial entertainment and eating-and-drinking establishments. The City of Vacaville Zoning Map identifies the project site as Commercial General with a Planned Development Overlay (CG-PD). The CG-PD zoning district is intended to provide for a full range of commercial and supportive uses to meet local and regional demands.²

2.2 PROPOSED PROJECT

The proposed project involves a new infill development on a vacant, underutilized lot consisting of a Neighborhood Park, Recreation Center, and Vacaville Housing and Community Services Department office building, as well as associated site improvements. Individual project components are further described below.

2.2.1 Building Program

The proposed Neighborhood Park, Recreation Center, and Vacaville Housing and Community Services Department office building improvements are discussed below and shown in Figure 2-3, Conceptual Site Plan.

2.2.1.1 Neighborhood Park

The proposed 2.63-acre Neighborhood Park would be on the northern portion of the project site. An approximately 21,000-square-foot playfield would be in the northwestern area of the park.

² Vacaville Municipal Code, Section 14.09.070 Commercial and Mixed-Use Zoning Districts. Website: <https://www.codepublishing.com> (accessed: April 7, 2023)

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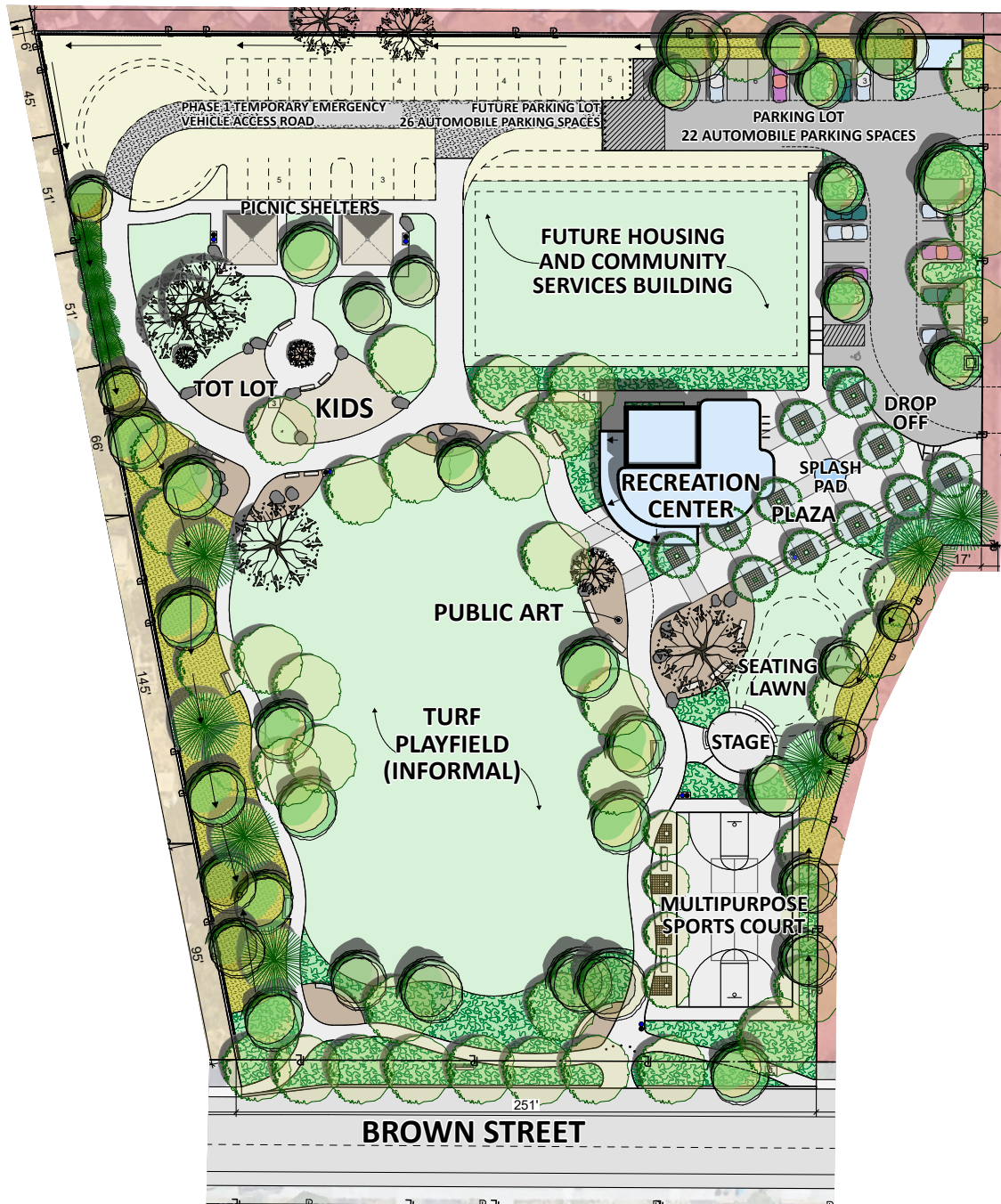
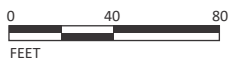


FIGURE 2-3

LSA



SOURCE: ndi o ammond Playle Arc itects

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Brown Street Park Master Plan Project
Conceptual Site Plan

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The playfield would be an irrigated, soil-based native grass field that would be sloped to the north to a planned stormwater retention bioswale. An additional berm would be provided west of the field between it and Brown Street. Adjacent to the playfield would be an approximately 5,422-square-foot outdoor multipurpose sports court.

A 900-square foot tot lot, 1,200-square foot kids' playground, and two shade structures (each of which would be approximately 500 square feet in size) would be in the northeastern portion of the park, adjacent to the proposed parking lot area. Both the tot lot and kids' playground would include play equipment for multiple age groups. An approximately 600 square-foot stage, seating area, public art installation, and an interactive water feature would be located between the Recreation Center and Multipurpose Sports Court on the southwestern portion of the park.

2.2.1.2 Recreation Center

The 2,500-square-foot, one-story, Recreation Center building, would be approximately 19 feet in height and be situated in the center of the project site, northeast of the playfield. Approximately 2,250 square feet (75 percent) of the Recreation Center would be dedicated for indoor recreational uses, and the building would include an 800-square-foot attached outdoor patio for seating.

2.2.1.3 Vacaville Housing and Community Services Department Office Building

The Vacaville Housing and Community Services Department office building would consist of an approximately 10,000-square-foot, one-story building that would be a maximum of 40 feet in height on the southeast end of the project site adjacent to the proposed parking lot. An approximately 5,000-square-foot portion of the building would include new offices for the Vacaville Housing and Community Services Department (VHCSD) with the remaining 5,000-square-foot portion of the building proposed to serve as office, classroom, and meeting space to be shared with VHCSD and community organizations that serve low- to moderate-income Vacaville households. The Vacaville Housing and Community Services Department office building would be designed to be zero net emissions.

2.2.1.4 Landscaping

Existing landscaping in the park includes scattered trees consisting of primarily valley oaks (*Quercus lobata*). As part of the proposed project, a total of 9 trees, 2 of which are valley oaks (7 of these trees would have a diameter at breast height of 6 inches or greater) would be removed to accommodate planned amenities, associated improvements, and the parking lot. However, the proposed project would include the installation of new landscaping, including 22 trees comprising of valley oaks, blue oaks, cottonwoods, California sycamores, and black walnuts. Additionally, shrubs, grasses, and groundcovers would be planted throughout the park. Landscaping would consist of native or drought-tolerant species for water conservation. The turf grass areas would require typical maintenance such as fertilizer and irrigation.

2.2.1.5 Pedestrian Trail

A paved pedestrian trail would provide external pedestrian access off Brown Street and internal pedestrian connections throughout the park, totaling approximately 19,800 square feet.

2.2.2 Operations

Operations for the Neighborhood Park and Recreation Center building would be independent of the Vacaville Housing and Community Services Department office building. Details for operations, including hours, lighting, and sound are included below.

- **Neighborhood Park and Recreation Center Building**

- The Neighborhood Park would feature a 21,000-square-foot informal play field, a multipurpose sports court, two playgrounds, two picnic shelters, and a paved pedestrian trail.
- The Recreation Center would feature a 488-square-foot community room for multi-functional uses as well as a 758-square-foot commercial teaching kitchen with storage. The building would be available to reserve for classes and events, with a maximum capacity of 48. The facility would accommodate 1 to 2 employees. Hours of operation would be from 8:00 a.m. to 5:00 p.m.
- Park hours would be from dawn to dusk, like other parks within Vacaville.
- No lighting would be installed on the play field; however, low-level safety lights would be installed in the park and along the park trail like other City parks.
- A 26-foot diagonal width mobile TV screen with an associated sound system would be used for outdoor events such as neighborhood theater productions.
- Amplified sound would be used for outdoor events such as neighborhood theater productions, live music, DJs, etc. Events hosted at the park would be limited to daylight hours.

- **Vacaville Housing and Community Services Department Office Building**

- The Vacaville Housing and Community Services Department office building would be approximately 10,000 square feet and would accommodate 21 full-time and 2 part-time employees. Hours of operation would be from 8:00 a.m. to 5:30 p.m.
- The shared community spaces would be available for community trainings and workshops. Hours of operation would be from 8:00 a.m. to 10:00 p.m.

2.2.3 Access, Circulation, and Parking

As shown on Figure 2-3, vehicular access to the project site would be provided at East Monte Vista Avenue south of the project site, via the existing surface parking lot for the current Solano County Health and Social Services building.

A 28,891 square foot parking lot would be provided along the eastern border of the project site. The proposed parking lot would be constructed in phases, with Phase 1 including 22 spaces and an additional 26 spaces during Phase 2. Upon completion, the proposed parking lot would provide 48 parking spaces along the eastern border of the project site. The parking lot would be accessed via two driveways from the existing parking lot for the Solano County Health and Social Services

building, which is located immediately south of the project site. The parking lot would include 2 Americans with Disabilities Act accessible spaces, 2 motorcycle spaces, and 13 electric vehicle-ready spaces. Directional lighting for the parking lot would conform to City standards.

Pedestrian and bicycle access to the project site would be provided via connections to the sidewalk along Brown Street and existing pedestrian paths adjacent to the Solano County Health and Social Services building. The proposed project would replace the existing sidewalk with a 6-foot separated sidewalk along the Brown Street frontage for improved pedestrian access along Brown Street.

2.2.4 Utilities and Infrastructure

The project site is located in an urban area that is currently served by existing utilities, including water, sanitary sewer, storm drainage, electricity, gas, and telecommunications infrastructure. Existing and proposed utility connections are discussed below.

2.2.4.1 Water

Under existing conditions, records do not show any existing water services provided to the site. Water service for the proposed project would be provided by the City of Vacaville. The proposed project would include the installation of up to seven new water service connections to the existing 24-inch water line on Brown Street with each service not exceeding 10 inches in diameter.

2.2.4.2 Wastewater

Under existing conditions, records do not show any existing sewer service provided at the site. The proposed project would include the installation of up to three new wastewater service connections to the existing 12-inch wastewater line on Brown Street with each service not exceeding 8 inches in diameter.

2.2.4.3 Stormwater

Under existing conditions water sheet-flows from the east to west direction into the City of Vacaville's 18-inch stormwater main drainage on Brown Street. The storm drain system in Brown Street would be extended onsite with a pipe not to exceed 18 inches and an onsite collection system of 4 to 18 inches would be installed with a likely maximum depth of five feet.

Upon construction of the proposed project, 1.25 acres (36 percent) of the project site would be covered by impervious surfaces and 2.19 acres (63 percent) would be covered by pervious surfaces, consisting of landscaped areas with lawns, shrubs, and trees. The proposed project would include approximately 2,200 square feet of bioswales for stormwater treatment expected along the north, south, and eastern project site boundaries. The proposed project would include the construction of 4- to 18-inch storm drainpipes, with associated catch basins and/or manholes, throughout the project area that would connect to the bioswales and existing stormwater facilities on Brown Street.

2.2.4.4 Electricity, Gas, and Telecommunications

Electricity and gas service is provided to the project site by Pacific Gas & Electric (PG&E). The proposed project would include connections to the existing electricity and natural gas lines that run

adjacent to the project site on Brown Street. Telecommunications would be provided by AT&T and Comcast.

2.2.5 Construction

Currently, the City anticipates that the project would be constructed in two phases, with the Neighborhood Park and Recreation Center building constructed in Phase 1 and the Vacaville Housing and Community Services Department office building constructed in Phase 2.

Construction would take place Monday through Friday, 7:00 a.m. to 6:00 p.m., with the potential for weekend work.

The proposed Vacaville Housing and Recreation Center building would be constructed on-slab on-grade foundations ranging from 4 to 6 inches thick with crushed rock or asphalt base ranging from 4 to 8 inches thick. Generally, only minor grading would be required for site preparation and ground disturbance associated with the new buildings and new park facilities, with excavation not likely to exceed a depth of four feet below ground surface. A maximum depth of 5 feet is anticipated for excavation on the site for the bio-retention facilities. The approximate depth of excavation for proposed joint utilities is expected to range from 3 to 5 feet beneath the present ground surface. Three acres of soil would be disturbed during site grading. It is anticipated that a total of 3,000 cubic yards would be cut and off hauled, and 3,000 cubic yards of soil would be imported and filled. Construction of the proposed project is anticipated to begin in 2026 for Phase 1 and would take place over an approximately 17-month period and is anticipated to be completed in 2027. Phase 2 of the proposed project currently has no timeline.

Typical construction equipment for the project includes but is not limited to excavators, graders, bobcats, compaction equipment, cranes, and other common construction equipment.

2.3 PROJECT APPROVALS

Although the City is the CEQA Lead Agency for the proposed project, other agencies also have discretionary authority related to the project and approvals or serve as a responsible and/or trustee agency in connection to the proposed project. A list of these agencies and potential permits and approvals that may be required is provided in Table 2.A.

Table 2.A: Potential Permits and Approvals

Lead Agency	Permits/Approvals
City of Vacaville	<ul style="list-style-type: none"> • Design Review • Building Permits • Grading Permits • Issuance of Final Map
Other Agencies	
City of Vacaville Fire Department	<ul style="list-style-type: none"> • Review/Approve fire truck access and site fire flow design
City of Vacaville Water District	<ul style="list-style-type: none"> • Connection to water system • Connection to wastewater system
Pacific Gas & Electric (PG&E)	<ul style="list-style-type: none"> • Reconnection of electricity/natural gas service
Solano County Airport Land Use Commission (ALUC)	<ul style="list-style-type: none"> • Confirm Airport consistency with standards from the Nut Tree Airport Compatibility Plan
Solano County Habitat Conservation Program (HCP)	<ul style="list-style-type: none"> • HCP application and approval for coverage
State Water Resources Control Board (SWRCB)	<ul style="list-style-type: none"> • Construction General Permit
Yolo-Solano Air Quality Management District (YSAQMD)	<ul style="list-style-type: none"> • Permit to Construct and Operate

Source: Compiled by LSA (April 2023).

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3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist in Chapter 3.0.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input type="checkbox"/> Geology/Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials |
| <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Wildfire | <input type="checkbox"/> Mandatory Findings of Significance |

3.1 DETERMINATION

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a “Potentially Significant Impact” or “Potentially Significant Unless Mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

9/4/2024

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4.0 CEQA ENVIRONMENTAL CHECKLIST

4.1 AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.1.1 Impact Analysis

a. Would the project have a substantial effect on a scenic vista? (Less Than Significant Impact)

The City of Vacaville General Plan does not officially designate any scenic vistas³; however, westward views of the Vaca Mountains and views of the Inner Coastal Ranges and hillsides are considered scenic within the City. Views of these hillsides are intermittent throughout the City, and in many areas are partially or fully blocked by existing buildings and trees. Within the city, uninterrupted scenic views of hillsides exist along many roadways in the Lagoon Valley area and along roadways near the English Hills, such as Dobbins Road, Gibson Canyon Road, Vine Street, Brown Street, and Browns Valley Road. These views are primarily available from agricultural areas, low-density developed hillsides, and undeveloped areas. Due to the project site's level topography and the presence of mature trees and existing buildings along Brown Street, views of the Inner Coastal Ranges and hillsides are obstructed. Therefore, the project site would not provide scenic views.

The proposed project would result in the development of a new Neighborhood Park, Recreation Center building, Vacaville Housing and Community Services Department office building, and associated site improvements. Physical improvements to the project site that would be visible from nearby public vantage points, such as Brown Street, would include the Recreation Center, the Vacaville Housing and Community Services Department office building, playfields, multipurpose

³ City of Vacaville. 2021. *General Plan Conservation and Open Space Element*. Website: <https://www.cityofvacaville.gov/home/showpublisheddocument/5414/638371466917070000> (accessed February 21, 2024).

courts, stage, public art installation, an interactive water feature, lighting, and associated landscaping.

The proposed Neighborhood Park and associated landscaping would be generally low profile and would not reduce, obstruct, or degrade existing scenic vistas. Existing landscaping on the project site includes scattered trees consisting of primarily valley oaks. As part of the proposed project, a total of 9 trees would be removed to accommodate planned amenities, associated improvements, and the parking lot. However, the proposed project would include the installation of new landscaping, including 22 trees, shrubs, grasses, and groundcovers, which would be planted throughout the Neighborhood Park. The addition of 22 trees would further obscure views of the project site. Therefore, the proposed project would not be readily visible from any scenic vista, nor would the project block existing public views of a scenic vista.

The most visible improvements within the viewshed would be the new Recreation Center building and Vacaville Housing and Community Services Department office building. The Recreation Center would consist of a one-story, 2,500-square-foot building in the center of the project site east of the playfield; the Vacaville Housing and Community Services Department building would consist of an approximately 10,000-square-foot, one-story building that would be a maximum of 40 feet in height on the east end of the project site adjacent to the proposed parking lot. These buildings would be consistent with the maximum height limits established in the City of Vacaville Municipal Code and would be generally consistent with surrounding urban development, which includes 1-story single-family residential homes to the north and west, multifamily residential housing to the east, and 1–2 story institutional buildings to the south. Given that public views of scenic vistas are not currently available from the site or its immediate surroundings, the addition of the new buildings and other proposed improvements on the site would not reduce, obstruct, or degrade views of existing scenic vistas.

Construction activities would be visible from adjacent uses and public roadways. However, the equipment required for construction would only be visible temporarily. As described above, upon completion, project elements would not block any scenic vistas or significant views. The maximum building height would be 40 feet, which is consistent with the City of Vacaville’s maximum height requirement of 40 feet for commercial and mixed-use zoning districts⁴. Therefore, the proposed project would not obscure any views of scenic vistas from surrounding public vantage points and this impact would be less than significant.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? (No Impact)

No officially designated State scenic highways are within Vacaville. The nearest eligible State scenic highway to the project site is State Route 160, which is near Rio Vista, approximately 30 miles

⁴ City of Vacaville. Vacaville Municipal. Title 14 *LAND USE AND DEVELOPMENT CODE*. Section 14.09.070 Commercial and Mixed-Use Zoning Districts Website: <https://www.codepublishing.com/CA/Vacaville/#!/Vacaville14/Vacaville1409070.html> (accessed June 13, 2023)

southeast⁵ of the project site. Given this distance, the project site is not visible from this scenic roadway. As described above in Section 4.1.1(a), the project site is not adjacent to any locally designated scenic roadways. Therefore, the proposed project would not affect scenic resources within view of a State or local scenic highway, and there would be no impact.

c. In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? (Less Than Significant Impact)

The project site is in an urbanized area in central Vacaville and is bounded by Brown Street to the west, Paradise Cove mobile home park to the east, single-family residential homes along Circle Drive to the north, and the Solano County Health and Social Services building directly south. Nearby land uses include a mix of residential and public facility/institutional uses to the north, east and commercial uses to the south.

As described in Section 2.1.5 of the Project Description, the City of Vacaville General Plan Land Use Map designates the project site as Commercial General (CG) and the City of Vacaville Zoning Map identifies the project site as Commercial General with the Planned Development Overlay (CG-PD). The CG district is intended to provide for a full range of commercial and supportive uses to meet local and regional demand. Permitted uses include Public and Semi-Public uses such as Park and Recreation Facilities, Community Assembly uses, and Government Offices. The height of the buildings, as well as the proposed colors and materials of the buildings, would comply with applicable City policies and zoning regulations. The maximum height of the buildings would be 40 feet, which would comply with the maximum allowable building height of 40 feet for CG-PD zoning districts. Furthermore, the proposed project would comply with the City's Development Standards listed in Section 14.09 .070.050, *Design Requirements for Commercial and Mixed-Use Development*, of the Vacaville Municipal Code, including compliance with exterior elevations and design guidelines. Therefore, the proposed project would not conflict with applicable zoning or other regulations governing scenic quality, and this impact would be less than significant.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? (Less than Significant Impact)

The project site is within a developed area and is adjacent to the Solano County Health and Services building, residential uses, and commercial uses. Streetlights, security lighting, vehicle head- and taillights on area roadways, and lighting associated with adjacent development are existing sources of light and glare in the vicinity of the project site. The proposed project would include the construction of the Neighborhood Park, Recreation Center, Vacaville Housing and Community Services Department office building, and associated site improvements. No lights would be installed on the play field; however, there would be lights installed in the Neighborhood Park like other City of Vacaville parks. Similar to other parks within Vacaville, park hours would be dawn until dusk and

⁵ California Department of Transportation. 2021. *California State Scenic Highway System Map Website*: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways> (accessed May 20, 2023).

the Recreation Center would be available for events from 8:00 a.m. to 5:00 p.m. The Vacaville Housing and Community Services Department office building would be open from 8:00 a.m. to 5:30 p.m. for normal office activities and shared spaces designated in the building for training and workshops would be open from 8:00 a.m. to 10:00 p.m. A total of 22 light-emitting diode (LED) lights with decorative top-mount fixtures would be installed throughout the park. Park lights would be mounted on 12-foot light poles, while the parking lot lights would be mounted on 16-foot light poles. All lights would be directed down towards the pedestrian paths. Lighting associated with the proposed parking lot would be located near the rear of the project site and would be directed away from single-family residences along Brown Street and set back on the west from other residential uses.

Section 14.09.230.G, *lighting*, of the Vacaville Municipal Code establishes standards for sufficient illumination for security and safety, in accordance with Section 14.09.240 as follows:

- Parking areas designed to accommodate 10 or more vehicles shall be provided with a minimum of one-half foot-candle and a maximum of 3.0 foot-candles of light over the parking surface during the hours of use from one-half hour before dusk until one hour till dawn.
- Lighting shall be designed to direct light and glare away from any adjoining lots, residential areas, and public streets.
- Lighting design shall be coordinated with the landscape plan to ensure that vegetation growth will not substantially impair the intended illumination.

Additionally, the proposed project would comply with the following Standard Conditions of Approval (SCOAs) required for all Planning Entitlements such as Design Reviews and Use permits, that address potential light and glare impacts:

SCOA 208: Plans submitted for Building, Grading, or Underground Permits shall indicate the exact location and design of all exterior lighting fixtures and shall include a photometric plan. All lighting shall be shielded or placed such that it does not shine directly on any adjoining properties or impact traffic on adjacent streets. Lighting shall be subject to the approval of the Director of Community Development.

SCOA 209: A photometric plan shall be required for the proposed lighting. Minimum lighting of one-half foot-candle(0.5) and a maximum of three (3) foot candles shall be provided on the site.

Development of the proposed project would increase overall nighttime glare; however, with implementation of **SCOAs 208 through 209** impacts would be less than significant.

4.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.2.1 Impact Analysis

- a. *Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? (No Impact)*

The vacant project site is within an urbanized area of Vacaville and is surrounded by a mix of residential and public facility/institutional uses to the north, east and west, and commercial uses to the south. The proposed project would develop a new infill development consisting of a new Neighborhood Park, Recreation Center, and Vacaville Housing and Community Services Department office building, and associated site improvements. No agricultural uses are within or adjacent to the project site. Additionally, the project site is classified as "Urban and Built-Up Land" by the State

Department of Conservation;⁶ therefore, the proposed project would not involve the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use and there would be no impact.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? (No Impact)

The project site is zoned CG-PD on the City's zoning map.⁷ The project site is not located within a locally designated agricultural preserve, and therefore is not eligible for enrollment in a Williamson Act contract.⁸ Therefore, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and the proposed project would have no impact.

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? (No Impact)

The project site is located within an existing urban area and is zoned CG-PD on the City of Vacaville's zoning map. The proposed project would not conflict with the existing zoning for, or cause rezoning of, forest land or conversion of forest land to non-forest uses. Therefore, the proposed project would have no impact related to forest land, timberland, or timberland zoned Timberland Production.

d. Would the project result in the loss of forest land or conversion of forestland to non-forest use? (No Impact)

Refer to Section 4.2.1(c). The proposed project would not result in the loss of forest land or conversion of forest land to non-forest uses. Therefore, the proposed project would have no impact related to loss of forest land or conversion of forest land.

e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? (No Impact)

Refer to Sections 4.2.1(a) and 4.2.1 (c). The project area is within an existing urban environment and would not result in physical changes that would result in the conversion of farmland to non-agricultural uses or forest land to non-forest uses. The proposed project would not adversely affect agricultural or forestry resources or physical changes that would result in the conversion of farmland to non-agricultural uses or forest land to non-forest uses, and there would be no impact.

⁶ State of California. 2016. Department of Conservation. California Important Farmland Finder. Website: maps.conservation.ca.gov/dlrp/ciff (accessed April 12, 2023).

⁷ City of Vacaville. City of Vacaville Zoning Map. Website: <https://cov.maps.arcgis.com/apps/webappviewer/index.html?id=0e7eec0cd681438fb0aeb4e7ea8c83eb> (accessed April 12, 2023).

⁸ California Department of Conservation. 2019. Williamson Act Contracts. Website: <https://www.conservation.ca.gov/dlrp/wa/Pages/contracts.aspx> (accessed April 12, 2023).

4.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.3.1 Impact Analysis

a. *Would the project conflict with or obstruct implementation of the applicable air quality plan? (Less Than Significant Impact)*

The project site is in Vacaville, which is within the Sacramento Valley Air Basin (SVAB). Mountains surrounding the SVAB create a barrier to air flow, which can trap air pollutants under certain meteorological conditions. These stagnant conditions generally occur with the highest frequency during autumn and early winter. Air quality in a majority of Vacaville, including the area in and in the vicinity of the project site, is monitored and managed by the Yolo-Solano Air Quality Management District (YSAQMD). The YSAQMD is responsible for establishing programs, plans, and regulations enforcing air pollution controls in order to attain all State and federal ambient air quality standards.

Air pollutants of concern in Vacaville include ozone (O₃), carbon monoxide (CO), nitrogen oxides (NO₂ and NO_x), sulfur dioxide (SO₂), and particulate matter (PM_{2.5/10}). Vehicle use is the primary source of pollutants in the city, which contributes both directly and indirectly to air pollution. Additional sources of air pollutants include wood smoke from residential fireplaces, construction activities, consumer productions, architectural coatings, fertilizers, asphalt paving, and agriculture operations.

The applicable air quality plan is the 2017 Sacramento Regional 2008 8-Hour Ozone and Further Reasonable Progress Plan (2017 Ozone Plan).⁹ Consistency with the 2017 Ozone Plan can be determined if the proposed project supports the goals of the plan, includes applicable control measures from the plan, and would not disrupt or hinder implementation of any control measures

⁹ California Air Resources Board. 2017. *Sacramento Regional 2008 8-Hour Ozone Attainment and Further Reasonable Progress Plan*. July

from the plan. Consistency with the 2017 Ozone Plan is the basis for determining whether the proposed project would conflict with or obstruct implementation of an applicable air quality plan.

In compliance with the *State CEQA Guidelines*, the analysis below evaluates whether implementation of the proposed project would conflict with or otherwise obstruct implementation of regional air quality plans. For air quality planning purposes, the 2017 Ozone Plan contains emissions inventories based on existing and foreseeable future land uses within its jurisdiction. If a new project is consistent with the planned land use designation that was considered in the development of an air quality management plan, the proposed project would not conflict and would not obstruct implementation of the applicable air quality management plan. Generally, a project's conformance with a local general plan that was considered in the preparation of an air quality management plan would demonstrate that the project would not conflict with or obstruct implementation of the air quality management plan.

The proposed project would include the construction of a new Neighborhood Park with a variety of outdoor recreational amenities, including passive and active open space, a Recreation Center building, and a Vacaville Housing and Community Services Department office building. The proposed project would be consistent with the City's General Plan land use plan designations and zoning and therefore would be consistent with the land use assumptions of the 2017 Ozone Plan. In addition, as discussed below, the proposed project would not generate emissions that would exceed YSAQMD thresholds. As such, the project would not conflict with or obstruct implementation of the applicable air quality plan, and this impact would be less than significant.

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? (Less Than Significant with Mitigation Incorporated)

The YSAQMD is currently designated as a non-attainment area for State and national PM_{2.5} and O₃ standards. The YSAQMD non-attainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in non-attainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, the YSAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. The following analysis assesses the potential construction- and operation-related air quality impacts and carbon monoxide (CO) impacts of the proposed project.

Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by demolition, grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would

include CO, nitrogen oxide (NO_x), reactive organic gases (ROG), directly-emitted particulate matter (PM_{2.5} and PM₁₀), and toxic air contaminants (TACs) such as diesel exhaust particulate matter. Site preparation and project construction would involve grading, paving, and other activities.

Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM₁₀ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. In addition to dust-related PM₁₀ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, sulfur dioxide (SO₂), NO_x, ROG, and some soot particulate (PM_{2.5} and PM₁₀) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the project using the California Emissions Estimator Model version 2022.1 (CalEEMod) as detailed in Appendix A, consistent with YSAQMD recommendations. Construction of the proposed project is anticipated to take place over two phases, with the Neighborhood Park and Recreation Center building constructed in Phase 1 and the Vacaville Housing and Community Services Department office building constructed in Phase 2. Construction of Phase 1 is anticipated to begin in 2026 and to be completed by 2027. Phase 2 currently has no timeline. Therefore, to be conservative, this analysis assumes that construction would occur in one phase, which was included in CalEEMod. As part of the proposed project, a total of 3,000 cubic yards of soil would be cut and off-hauled, and an additional 3,000 cubic yards of soil would be imported and filled, as documented in CalEEMod. In addition, this analysis assumes use of Tier 2 construction equipment. Other construction details are not yet known (construction equipment, worker trips, construction trip lengths); therefore, default assumptions were used. Construction-related emissions are presented in Table 4.3.A, below.

As shown in Table 4.3.A, the maximum annual emissions from project construction would be 0.1 tons/year for ROG and 2.8 tons/year for NO_x, which is below the threshold of 10 tons/year for ROG and NO_x. Additionally, as shown in Table 4.3.A, maximum daily emissions from project construction would be 111.9 pounds/day for PM₁₀, which is above the threshold of 80 pounds/day for PM₁₀. As such, the proposed project would result in a potentially significant impact for criteria pollutants during construction. The proposed project is required to comply with regional rules that assist in reducing short-term air pollutant emissions. The YSAQMD requires the implementation of best management practices to reduce construction fugitive dust impacts to a less than significant level, and these are required to be implemented as **Mitigation Measure AIR-1**, as follows:

Table 4.3.A: Unmitigated Project Construction Emissions

Year	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Maximum Daily Emissions (lbs/day)					
2026	1.1	39.9	28.9	112.7	14.8
2027	4.4	19.0	14.5	21.3	2.6
Maximum Daily	4.4	39.9	28.9	112.7	14.8
YSAQMD Significance Threshold	N/A	N/A	N/A	80	N/A
Above Threshold?	N/A	N/A	N/A	Yes	N/A
Annual Emissions (tons/yr)					
2026	0.1	2.8	2.1	1.9	0.4
2027	<0.1	0.3	0.2	0.2	<0.1
Maximum	0.1	2.8	2.1	1.9	0.4
YSAQMD Significance Threshold	10	10	N/A	N/A	N/A
Above Threshold?	No	No	N/A	N/A	N/A

Source: Compiled by LSA (February 2024).

CalEEMod = California Emissions Estimator Model

CO = carbon monoxide

lbs/day = pounds per day

N/A = not applicable

NO_x = nitrogen oxide

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

ROG = reactive organic gases

tons/yr = tons per year

Mitigation Measure AIR-1

Air Quality Dust Control Measures. The following construction dust control measures shall be implemented by the City, or their designee, during construction activities:

- Water all active construction sites at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
- Haul trucks shall maintain at least 2 feet of freeboard.
- Cover all trucks hauling dirt, sand, or loose materials.
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations and hydroseed area.
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).
- Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land.
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Sweep streets if visible soil material is carried out from the construction site.

- Treat all site access to a distance of 100 feet from the paved road with 6 to 12-inch layer of wood chips or mulch.
- Treat all site access to a distance of 100 feet from the paved road with 6-inch layer of gravel.

Consistent with YSAQMD requirements, **Mitigation Measure AIR-1** requires implementation of best management practices during construction to control fugitive dust emissions. This analysis assumes a reduction of approximately 64 percent of PM₁₀ and PM_{2.5} fugitive dust emissions, consistent with CalEEMod's control efficiency reductions for dust movement during construction. As shown in Table 4.3.B, with implementation of **Mitigation Measure AIR-1**, the maximum daily emissions from project construction would be 72.7 pounds/day for PM₁₀, which is below the threshold of 80 pounds/day for PM₁₀. Therefore, with implementation of this measure, construction of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard, and impacts would be less than significant with mitigation incorporated.

Table 4.3.B: Mitigated Project Construction Emissions

Year	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Maximum Daily Emissions (lbs/day)					
2026	1.1	39.9	28.9	72.7	10.0
2027	4.4	19.0	14.5	14.3	2.0
Maximum Daily	4.4	39.9	28.9	72.7	10.0
YSAQMD Significance Threshold	N/A	N/A	N/A	80	N/A
Above Threshold?	N/A	N/A	N/A	No	N/A
Annual Emissions (tons/yr)					
2026	0.1	2.8	2.1	1.3	0.3
2027	<0.1	0.3	0.2	0.2	<0.1
Maximum	0.1	2.8	2.1	1.8	0.3
YSAQMD Significance Threshold	10	10	N/A	N/A	N/A
Above Threshold?	No	No	N/A	N/A	N/A

Source: Compiled by LSA (February 2024).

CalEEMod = California Emissions Estimator Model

CO = carbon monoxide

lbs/day = pounds per day

N/A = not applicable

NO_x = nitrogen oxide

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

ROG = reactive organic gases

tons/yr = tons per year

Operational Emissions. Long-term air pollutant emission impacts are those associated with mobile sources (e.g., vehicle trips), energy sources (e.g., electricity and natural gas), and area sources (e.g., architectural coatings and the use of landscape maintenance equipment) related to the proposed project.

Mobile source emissions include ROG and NO_x emissions that contribute to the formation of ozone. Additionally, PM₁₀ emissions result from running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways.

Energy source emissions result from activities in buildings for which electricity and natural gas are used. The quantity of emissions is the product of usage intensity (i.e., the amount of electricity or natural gas) and the emission factor of the fuel source. Typically, area source emissions consist of direct sources of air emissions located at the project site, including architectural coatings and the use of landscape maintenance equipment. Area source emissions associated with the project would include emissions from the use of landscaping equipment.

Emission estimates for operation of the project were calculated using CalEEMod. Trip generation rates for the project were based on the project's trip generation estimates as identified in Section 3.17.1, Transportation. Based on the trip generation estimates, the proposed project would generate 193 average daily trips.

The primary emissions associated with the project are regional in nature, meaning that air pollutants are rapidly dispersed on release or, in the case of vehicle emissions associated with the project, emissions are released in other areas of the Air Basin. The daily and annual emissions associated with project operational trip generation, energy, and area sources are identified in Table 4.3.C for ROG, NO_x, PM₁₀, and PM_{2.5}.

Table 4.3.C: Project Operational Emissions

Year	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Maximum Daily Emissions (lbs/day)					
Mobile Sources	0.7	0.5	3.8	43.8	4.5
Area Sources	0.4	<0.1	0.5	<0.1	<0.1
Energy Sources	<0.1	0.1	0.1	<0.1	<0.1
Total Daily Emissions (lbs/day)	1.1	0.6	4.4	43.8	4.5
Daily Significance Threshold (lbs/day)	N/A	N/A	N/A	80	N/A
Above Threshold?	N/A	N/A	N/A	No	N/A
Annual Emissions (tons/yr)					
Mobile Sources	0.1	<0.1	0.6	7.2	0.7
Area Sources	0.1	<0.1	<0.1	<0.1	<0.1
Energy Sources	<0.1	<0.1	<0.1	<0.1	<0.1
Total Annual Emissions (tons/day)	0.2	<0.1	0.6	7.2	0.7
Annual Significance Threshold (tons/yr)	10	10	N/A	N/A	N/A
Above Threshold?	No	No	N/A	N/A	N/A

Source: Compiled by LSA (February 2024).

CalEEMod = California Emissions Estimator Model

CO = carbon monoxide

lbs/day = pounds per day

N/A = not applicable

NO_x = nitrogen oxide

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

ROG = reactive organic gases

tons/yr = tons per year

As shown in Table 4.3.C, emissions are well below the respective YSAQMD's significance thresholds of 80 pounds/day for PM₁₀ and 10 tons/year for ROG and NO_x. Therefore, operation of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standards. Impacts would be less than significant.

Localized CO Impacts. CO concentration is a direct function of motor vehicle activity (particularly during peak commuting hours) and meteorological conditions. Under specific meteorological conditions combined with high motor vehicle activity, CO concentrations may reach unhealthy levels for local sensitive land uses, such as residential areas and daycare centers. As a result, the YSAQMD recommends analysis of CO emissions at a local rather than a regional level.

As part of its CEQA Air Quality Guidelines, the YSAQMD provides a screening methodology based on peak hourly traffic volumes to evaluate potential impacts of CO emissions from mobile sources. The proposed project would result in a less than significant impact for local CO if the following criteria are met:

- A traffic study for the project indicates that the peak-hour level of service (LOS) on one or more streets in the project vicinity would be reduced to an unacceptable LOS (typically LOS E or F).
- A traffic study indicates that the project would substantially worsen an already existing peak-hour LOS F on one or more streets (delay would increase by 10 seconds or more when project-generated traffic is included).

The proposed project would only add an additional 198 trips per day. As described in Section 3.17, Transportation, a Traffic Impact Analysis (TIA) is not required based on the low trip generation of the project (a maximum of 23 peak-hour trips). As such, the project is not anticipated to result in any LOS or operational deficiencies to the surrounding circulation system. Furthermore, the City of Vacaville's 2021 General Plan and Energy and Conservation Action Strategy (ECAS) EIR¹⁰ demonstrated that peak CO concentrations in 2035 would be substantially less than the State and federal ambient air quality standards at all analyzed intersections and regional growth would not impede continued attainment of the CO standards.¹¹ Therefore, the proposed project would have a less than significant impact on CO hotspots.

c. Would the project expose sensitive receptors to substantial pollutant concentrations? (Less Than Significant Impact)

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to diesel particulate matter (DPM) are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to diesel particulate matter. Exposure from diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks.

Construction activities, such as site preparation, grading, building construction, paving, and architectural coating, would affect localized air quality during the construction phases of the proposed project. Short-term emissions from construction equipment during these site preparation

¹⁰ City of Vacaville. 2021. *General Plan Transportation Element and Energy Conservation Action Strategy Update -Final Supplemental Environmental Impact Report*. July. Website: <https://www.cityofvacaville.gov/home/showpublisheddocument/19100/637685179483230000> (accessed February 2024)

¹¹ City of Vacaville, Vacaville General Plan and Energy and Conservation Action Strategy (ECAS) Draft EIR, Chapter 4.3, Air Quality. Website: <https://www.ci.vacaville.ca.us/home/showpublisheddocument/5508/636234161698230000> (accessed September 2022).

activities would include directly emitted particulate matter (PM_{2.5} and PM₁₀) and toxic air contaminants (TACs) such as diesel particulate matter (DPM). Generation of these short-term emissions could potentially expose sensitive receptors to substantial pollutant concentrations of TACs, resulting in a localized health risk. However, construction contractors would be required to implement construction fugitive dust impacts, as required by **Mitigation Measure AIR-1** above. With implementation of **Mitigation Measure AIR-1**, project construction emissions would be below YSAQMD significance thresholds. Additionally, because of the size of the construction project, DPM emissions would be spread over a large area. Therefore, impacts to sensitive receptors from project construction would be less than significant.

Additionally, long-term emissions associated with operation of the proposed project such as mobile sources, would include PM_{2.5} and TACs, such as DPM and ROG. The proposed project does not include stationary sources that would emit air pollutants or TACs, such as large boilers, emergency generators, or manufacturing facilities or result in a substantial increase in diesel vehicles (i.e., delivery trucks). As such, project operations would not result in TAC generation from on-site sources during long-term operations and would not result in the creation of a significant health risk at nearby sensitive receptors. Therefore, this impact would continue to be less than significant.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? (Less Than Significant)

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source, the wind speeds and direction, and the sensitivity of the receiving location each contribute to the intensity of the impact. While offensive odors rarely cause any physical harm, they can be unpleasant and cause distress among the public and generate citizen complaints.

During construction, diesel exhaust from construction equipment would generate some odors. However, construction-related odors would be temporary and would not persist upon construction completion. Once operational, odor sources of concern would include wastewater treatment facilities, chemical manufacturing, sanitary landfills, fiberglass manufacturing, transfer stations, painting/coating operations, composting facilities, food processing facilities, petroleum refineries, feed lots/dairies, asphalt batch plants, and rendering plants. None of these source types are proposed as part of the proposed project; therefore, operation of the proposed project would not generate any odor impacts. The proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. Therefore, odor impacts from construction and operation would be less than significant.

4.4 BIOLOGICAL RESOURCES

This section describes existing biological resources in the Project area, including potentially occurring special-status species, sensitive natural communities, and jurisdictional features; identifying potential impacts to biological resources associated with implementation of the proposed Project; and recommended mitigation measures, where required, to reduce potential impacts to a less-than-significant level.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.4.1 Impact Analysis

The following discussion of the biological resources within the project site and vicinity is based on a reconnaissance-level field survey, review of relevant documents prepared for the project, and review of online biological resources databases. Appendix B contains supporting documentation including the Arborist Report and Record Searches.

The project site is composed of vacant grasslands with scattered trees consisting of mainly valley oaks (*Quercus lobata*). What appears to be remnant landscape trees are also present and are mainly concentrated in the northwest corner of the site.

The annual grassland community on the site is dominated by a variety of introduced grasses including ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), wild oat (*Avena fatua*), Italian rye grass (*Festuca perennis*), and Bermuda grass (*Cynodon dactylon*). This community also contains a small number of native forbs such as alkali mallow (*Malvalla leprosa*) and turkey tangle frogfruit (*Phyla nodiflora*). Vegetation appears to be regularly maintained via mowing and disking for fire safety purposes for surrounding development.

The project site is located within the Plan Area of the proposed Solano Multispecies Habitat Conservation Plan (Draft Solano HCP)¹². Though still in draft form and not currently adopted, some participating cities and agencies, including the City of Vacaville, generally follow the proposed mitigation guidelines set forth in the Draft Solano HCP. Implementation of the project would be required to comply with the applicable components of the Draft Solano HCP.

Methods. A list of sensitive wildlife and plant species potentially occurring within the project site was compiled to evaluate the potential impacts associated with development of the proposed project. Sources used to compile the list include the California Natural Diversity Database (CNDDB),¹³ California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California,¹⁴ and the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation list¹⁵. Records were reviewed for the following United States Geological Survey 7.5-minute quadrangles: *Mt. Vaca*, *Allendale*, *Dixon*, *Fairfield North*, *Elmira*, *Dozier*, *Fairfield South*, *Denverton*, and *Birds Landing*. Appendix B provides the individual lists. The determination of whether a species could potentially occur within the project site was based on the availability of suitable habitat within the species' known range, as well as known occurrences of the species in or adjacent to the project site according to the CNDDB.

LSA's biologist conducted a reconnaissance-level survey of the project site on June 15, 2021, to identify plant and wildlife species, assess habitat for special-status species, and identify other sensitive biological resources such as jurisdictional waters or wetlands, sensitive natural communities, and/or nest sites for raptors and other native birds. Plant species names are consistent with *The Jepson Manual: Vascular Plants of California*, Second Edition.¹⁶

Results. As noted above, the project site is composed entirely of annual grassland habitat with valley oaks and ornamental trees; no aquatic resources occur in the project site. Additionally, no special-status plants or suitable habitat for special-status plants were observed in the project site

¹² LSA Associates, Inc. 2012. Solano Multispecies Habitat Conservation Plan. October.

¹³ California Department of Fish and Wildlife (CDFW). 2024. California Natural Diversity Database, commercial version dated January 23, 2024. Biogeographic Data Branch, California Department of Fish and Wildlife, Sacramento.

¹⁴ California Native Plant Society (CNPS). 2024. Inventory of Rare and Endangered Plants (online edition). California Native Plant Society, Sacramento. Website: www.cnps.org/inventory (accessed January 23, 2024).

¹⁵ United States Fish and Wildlife Service (USFWS). 2024. Information for Planning and Consultation. January 23, 2024.

¹⁶ Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley.

during the reconnaissance survey. As a result, special-status plant species are considered absent from the project site.

No special-status wildlife species were observed during the site visit. However, based on a review of the resource databases and LSA's in-house knowledge of the surrounding areas, the following two special-status wildlife species have the potential to occur on the project site or vicinity: Swainson's hawk (*Buteo swainsoni*), which is listed as threatened under the California Endangered Species Act, and western burrowing owl (*Athene cunicularia*), a California Species of Special Concern. Both species are covered under the Draft Solano HCP. All other species that were identified based on database searches are unlikely or have no potential to occur on the project site because of one or more of the following reasons: the project site is outside of the known or historical range of the species; the project site lacks suitable habitat (e.g., marsh, estuarine, perennial stream, seasonal wetlands/vernal pools with sufficient hydrology, chaparral, open forest, sufficient nesting/roosting substrates, etc.); and the project site lacks connectivity with suitable habitat in the region.

- a. *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (Less than Signification with Mitigation Incorporated)*

Swainson's hawk and burrowing owl have the potential to occur on the project site or vicinity, as described below.

Swainson's Hawk. Although there are no known Swainson's hawk nest sites within 0.25 mile of the project site, the site serves as suitable foraging habitat and hawks could nest in the existing trees on the project site. Potential audio and visual disturbances associated with construction and operation of the proposed project could indirectly impact active nests within the vicinity of the project site. Documented nesting activity within the project vicinity indicates that the species could establish nests in the existing trees on the project site. The closest known occurrence per CNDDDB records is approximately 1 mile northeast of the project site in the vicinity of the Nut Tree Airport. The closest active nest to the site is 2.6 miles to the northeast in a eucalyptus tree adjacent to a gas station. Construction-related disturbance (e.g., noise, vehicle traffic) during the nesting season for Swainson's hawk (March 1 to September 15) could indirectly impact this species by causing adults to abandon nests in nearby trees, resulting in nest failure and reduced reproductive potential. Development of the project site with buildings and paved surfaces would remove approximately 3.44 acres of marginal Swainson's hawk foraging habitat. Consistent with the Draft Solano HCP, compensatory mitigation for the loss of foraging habitat is not specified for infill developments with less than 5 acres of contiguous habitat on and off the parcel, that are surrounded by urban development on at least three sides, and where the project is likely to have no more than a minimal individual effect on the extent and quality of Swainson's hawk foraging habitat. Thus, compensatory mitigation for the loss of foraging habitat shall be implemented consistent with CDFW's 1994 *Staff Report Regarding Mitigation for Impacts to Swainson's Hawk in the Central Valley of California*.

Implementation of the proposed project may have a direct or indirect adverse effect on Swainson's hawk. Permanent impacts could occur as a result of project construction activities associated with tree removal and development of the annual grassland habitat. Consistent with the Draft Solano

HCP, **Mitigation Measure BIO-1** and **Mitigation Measure BIO-2** below would be implemented to ensure that potential effects to Swainson's hawk would be reduced to less than significant.

Mitigation Measure BIO-1

Swainson's Hawk Pre-Construction Survey. If project construction activities are scheduled during the nesting season for Swainson's hawks (March 1 to September 15), prior to commencement of construction, a qualified biologist shall conduct surveys according to the recommended timing and methodology for Swainson's Hawk Nesting Surveys in California's Central Valley, as defined by the Swainson's Hawk Technical Advisory Committee. Survey methods should be closely followed by starting early in the nesting season (late March to early April) to maximize the likelihood of detecting an active nest. Surveys shall be conducted: (1) within a minimum 0.25-mile radius of the project site or a larger area if needed to identify potentially impacted active nests, and (2) for at least the two survey periods immediately prior to initiating project-related construction activities. Consistent with the Technical Advisory Committee Guidance, the recommended survey periods are March 20 to April 5, April 5 to April 20, and June 10 to July 30 (post-fledging). Surveys shall occur annually for the duration of the project. The qualified biologist shall have a minimum of 2 years of experience implementing the survey methodology resulting in detections. If active Swainson's hawk nests are detected, the project shall implement a 0.25-mile construction avoidance buffer around the nest until the nest is no longer active as determined by a qualified biologist. If take of Swainson's hawk cannot be avoided, the City shall consult with the California Department of Fish and Wildlife (CDFW) pursuant to the California Endangered Species Act (CESA) and obtain an Incidental Take Permit (ITP).

Mitigation Measure BIO-2

Swainson's Hawk Foraging Habitat. To mitigate for the loss of Swainson's hawk foraging habitat, the City shall: (1) acquire suitable habitat land and permanently preserve foraging habitat through recording a conservation easement and implementing and funding a long-term management plan in perpetuity, or (2) acquire Swainson's hawk foraging habitat mitigation credits from a mitigation bank approved by the CDFW prior to building permit issuance. Either mitigation option shall be consistent with CDFW's 1994 *Staff Report Regarding Mitigation for Impacts to Swainson's Hawk in the Central Valley of California*, which specifies that projects within 5 miles of an active nest tree but greater than 1 mile from the nest tree shall provide 0.75 acre of foraging habitat for each acre of urban development authorized (i.e., 0.75:1 ratio).

Western Burrowing Owl. There were no observations of western burrowing owl or indication of burrowing owls being present, such as tracks, whitewash, pellets, feathers, or carrion. However, small mammal burrows were observed within the project site which provide potential habitat for western burrowing owl. Similar to the Swainson's hawk described above, the closest known occurrence per CNDDB records is located approximately 1-mile northeast of the project site in the vicinity of the Nut Tree Airport. Construction of the proposed project would result in the loss of approximately 3.44 acres of suitable foraging habitat for this species. However, consistent with the Draft Solano HCP, compensatory mitigation for the loss of foraging habitat is not specified for infill developments with less than 5 acres of contiguous habitat on and off the parcel, that are surrounded by urban development on at least three sides, and where the project would have negligible effects on the extent and quality of burrowing owl habitat.

Implementation of the proposed project may have direct or indirect adverse effect on western burrowing owl. Permanent impacts could occur as a result of project construction activities associated with development of the annual grassland habitat. While the proposed project would be considered exempt from burrowing owl foraging habitat mitigation requirements under the Draft HCP, compensating for the loss of Swainson's hawk foraging habitat, as specified by **Mitigation Measure BIO-2** (set forth above), would also mitigate for the loss of burrowing owl foraging habitat. Consistent with the Draft Solano HCP, implementation of **Mitigation Measure BIO-2 and Mitigation Measure BIO-3** below would ensure that potential effects to burrowing owls would be reduced to less than significant.

Mitigation Measure BIO-3

Burrowing Owl Habitat Assessment. Prior to project activities, a habitat assessment shall be performed following 'Habitat Assessment and Reporting Details' of the CDFW 2012 Staff Report on Burrowing Owl Mitigation. The habitat assessment shall extend at least 492 feet from the project site boundary or more where direct or indirect effects could potentially extend off site (up to 1,640 feet) and include burrows and burrow surrogates. If the habitat assessment identifies potentially suitable burrowing owl habitat, then a qualified biologist shall conduct surveys following the CDFW 2012 Staff Report survey methodology. Surveys shall encompass the project site and a sufficient buffer zone to detect owls nearby that may be impacted commensurate with the type of disturbance anticipated, as outlined in the CDFW 2012 Staff Report, and include burrow surrogates such as culverts, piles of concrete or rubble, and other non-natural features, in addition to burrows and mounds. Time lapses between surveys or project activities shall trigger subsequent surveys, as determined by a qualified biologist, including but not limited to a final survey within 24 hours prior to ground disturbance. The qualified biologist shall have a minimum of 2 years of experience implementing the CDFW 2012 Staff Report survey methodology resulting in detections. Detected nesting burrowing owls shall be avoided pursuant to the buffer zone prescribed in the CDFW 2012 Staff Report and any passive

relocation plan for non-nesting owls shall be subject to CDFW review.

Mitigation Measure BIO-1 would identify and avoid impacts to nesting Swainson's hawk while **Mitigation Measure BIO-2** would mitigate for Swainson's hawk foraging habitat through the purchase of off-site mitigation bank credits. **Mitigation Measure BIO-3** would determine the presence of western burrowing owls and, if present, ensure construction buffers avoid impacts. Therefore, implementation of **Mitigation Measure BIO-1 through Mitigation Measure BIO-3** would reduce potential impacts to special-status species and construction-related impacts, both temporary and permanent in nature, to a less than significant level with mitigation incorporated.

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (No Impact)

The field survey did not identify any riparian or other sensitive natural communities within the project site. The project site is characterized by managed annual grasslands with valley oaks and other ornamental trees. As such, implementation of the proposed project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS, and no impact would occur.

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? (No Impact)

The field survey did not identify any State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.). The project site is characterized by managed annual grasslands with valley oaks and other ornamental trees. As such, implementation of the proposed project, directly or indirectly, would not adversely affect any on-site State or federally protected wetlands, and no impact would occur.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? (Less than Significant with Mitigation Incorporated)

While the project site is composed of annual grasslands with scattered trees, the site is surrounded by urban development on all sides. However, the site may support wildlife species typically associated with urban areas. Because the project site is surrounded by residential, commercial, and industrial uses, there are no major wildlife movement corridors that pass through the project site. Project implementation would not interfere with wildlife movement.

In addition to the Swainson's hawk described above, the oak and ornamental trees on the site have the potential to support nests for other common native bird species. Additionally, the annual grasslands provide potential nesting habitat for ground nesting species such as killdeer and western burrowing owl. Removal of or disturbance to active nests during the nesting season (February 1 to

August 31) could result in “take” and is prohibited under the Migratory Bird Treaty Act and the California Fish and Game Code.

Based on the intensity of background noise and human activity in the area, the potential for nesting bird activity is limited. No active/occupied nests were detected within the project site during the biological field survey. However, the survey consisted of a single site visit and the chance of finding nesting birds on the project site prior to construction cannot be discounted. As such, **Mitigation Measure BIO-4** would be required to reduce impacts to nesting birds prior to commencement of construction.

Mitigation Measure BIO-4

Nesting Bird Surveys. If construction activities are scheduled during the nesting season (February 1 through August 31), the City shall retain a qualified biologist to conduct a pre-construction survey of all suitable nesting habitat (i.e., field, trees) within 250 feet of the project site (where accessible). The pre-construction survey shall be conducted no more than 7 days prior to the start of work. If the survey indicates the presence of nesting birds, protective buffer zones should be established around the nests as follows: for raptor nests, the size of the buffer zone should be a 250-foot radius centered on the nest; for other birds, the size of the buffer zone should be a 50- to 100-foot radius centered on the nest. In some cases, these buffers may be increased or decreased depending on the bird species and the level of disturbance that will occur near the nest.

If there is a pause in construction activities of 7 days or more during the nesting season, an additional nesting bird survey shall be conducted to ensure that there are no new nests that require buffering.

Implementation of **Mitigation Measure BIO-4** requires preconstruction surveys for migratory birds prior to any work during the nesting season. Implementation of **Mitigation Measure BIO-4** would reduce potential construction-related impacts, both permanent and temporary in nature, on nesting migratory birds to a less than significant level with mitigation incorporated.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (Less than Significant Impact)

The Vacaville Municipal Code Supplemental Standards for Tree Preservation (14.09.250.060) (Tree Preservation Ordinance) establishes regulations controlling the preservation and removal of trees on private and public property within city limits. The purpose of the Tree Preservation Ordinance is, in part, to provide for the preservation and maintenance of established trees and to establish a process to protect established trees from arbitrary removal, while allowing for the removal of certain trees when deemed necessary.

The project would result in the removal of a total of 9 trees, 2 of which are valley oaks (*Quercus lobata*), 7 of which have a diameter at breast height of 6 inches or greater. The Tree Preservation Ordinance requires acquisition of a Tree Removal Permit for any tree (with the exception of commercial fruit, almond, or walnut trees) with a diameter at breast height of 6 inches or greater. The project proposes to plant 22 new trees comprised of valley oaks, blue oaks, cottonwoods, California sycamores, and black walnuts. The City would comply with the Tree Preservation Ordinance for the removal and replanting of trees from the project site. Therefore, the proposed project would not conflict with the City's tree preservation policy, nor would it conflict with any local policies or ordinance protecting biological resources. This impact would be less than significant.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? (No Impact)

The project site is located within the Plan Area of the Draft Solano HCP. The Draft Solano HCP is designed to establish a framework for complying with State and federal endangered species regulations while accommodating future urban growth, development of infrastructure, and ongoing operations and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure undertaken by or under the permitting authority/control of the Plan Participants within Solano County and a small portion of Yolo County over a 30-year permit term. The administrative draft was finalized in 2012, but the Draft Solano HCP is currently being revised and has not been adopted. However, some participating cities and agencies, including the City of Vacaville, are generally following the proposed mitigation guidelines set forth in the Draft Solano HCP. Plan adoption is not anticipated until 2025 at the earliest. With respect to lands zoned for residential, industrial, commercial, active recreation, or similar designations, the Plan identifies those lands as planned for development. Implementation of the project will comply with the applicable components of the Draft Solano HCP. Therefore, the project would not conflict with the Draft Solano HCP or any other conservations plans. No impact will occur.

4.5 CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.5.1 Impact Analysis

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? (Less Than Significant with Mitigation Incorporated)

For a cultural resource to be considered a historical resource (i.e., eligible for listing in the California Register of Historical Resources [CRHR]), it generally must be 50 years or older. Under CEQA, historical resources can include precontact (i.e., Native American) archaeological deposits, historic-period archaeological deposits, historic buildings, and historic districts.

To identify historical resources on the project site, the following tasks were completed: (1) a records search was conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System;¹⁷ (2) relevant literature and historical maps were reviewed to assess the potential for buried historic-period and precontact Native American archaeological deposits; and (3) an archaeologist surveyed the project site to identify evidence of archaeological deposits. The results of these tasks are described in greater detail below.

A record search of the project site and 0.5-mile radius was conducted on February 8, 2024, at the NWIC of the California Historical Resources Information System, Sonoma State University. The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official State repository of cultural resource records and reports for Solano County. The records did not identify cultural resources within the project site; however, 19 resources were identified within the 0.5-mile radius of the Area of potential affects (APE). Most of the recorded resources are clustered at least 0.3 mile southwest of the APE, in the historical center of Vacaville and along Ulatis Creek. These resources consist of a pre-contact archaeological site and 14 historic-period resources (archaeological sites, structures or buildings, and a row of palm trees). Three other historic-period buildings and structures are more than 0.3 mile northwest and south of the APE. Additionally, the historic Vaca Valley Railroad Route District sits 0.13 mile west of the APE.

LSA submitted a request to the NAHC to search the Sacred Lands File (SLF) for Native American cultural resources that may be impacted by the proposed project. The NAHC maintains the SLF

¹⁷ The NWIC is an affiliate of the State of California Office of Historic Preservation and is the official State repository of cultural resources records and reports for Solano County.

database and is the official State repository of Native American sacred-site location records in California. Pricilla Torres-Fuentes, NAHC Cultural Resources Analyst, responded to the SLF search request on February 7, 2024, stating that the results were negative and that there were no known Native American cultural resources in the project site.

LSA conducted a pedestrian survey of the project site on February 26, 2024. No archaeological evidence was observed during the field survey.

No archaeological resources were identified within the project site during the course of the Cultural Resources Study. Although the Cultural Resources Study did not yield historically significant resources, there is a possibility that construction of the proposed project could impact as-yet-unrecorded subsurface deposits on the project site. Should archaeological deposits be encountered during project ground disturbance, a substantial adverse change in the significance of a historical resource would occur from its demolition, destruction, relocation, or alteration such that the significance of the resource would be materially impaired (*CEQA Guidelines* Section 15064.5(b)(1)). Implementation of **Mitigation Measure CULT-1** and **Mitigation Measure CULT-2** would reduce potential impacts to historical resources to a less than significant level.

Mitigation Measure CULT-1 **Archaeological Alert Sheet and Crew Training.** The City, or designee, shall implement an Archaeological Alert Sheet and Crew Training Program to mitigate the impacts to archaeological resources. The Archaeological Alert Sheet and Crew Training should be prepared and performed prior to any ground-disturbing work at all locations within the project site. This Alert Sheet shall be distributed to all project personnel, including construction – crew and their supervisory personnel, the Project Design Team and the future contractor(s). The Alert Sheet shall contain information regarding potential archaeological resources and the actions to take in the case of inadvertent discovery of cultural resources, including contact protocol and avoidance and minimization measures.

Mitigation Measure CULT-2 **Archaeological Discovery Protocol.** Consistent with Standard Condition of Approval (SCOA) 12, should an archaeological deposit be encountered during project subsurface construction activities, all ground-disturbing activities within 25 feet shall be redirected and a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology contacted to assess the situation, determine if the deposit qualifies as a historical resource, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. If the deposit is found to be significant (i.e., eligible for listing in the California Register of Historical Resources), the City shall be responsible for funding and implementing appropriate mitigation measures. Mitigation measures may include recordation of the archaeological deposit, data recovery and analysis, and public outreach regarding the scientific and cultural importance of the discovery. Upon

completion of the selected mitigations, a report documenting methods and findings shall be prepared and submitted to the City's Community Development Director for review and approval, and the final report shall be submitted to the Northwest Information Center at Sonoma State University. Significant archaeological materials shall be submitted to an appropriate curation facility and used for public interpretive displays, as appropriate and in coordination with a local Native American tribal representative.

With implementation of **Mitigation Measure CULT-1** and **Mitigation Measure CULT-2**, which requires construction crew training in the identification of potential subsurface cultural resources, and work stoppage in the event of an archaeological discovery, potential impacts to archaeological historical resources would be reduced to a less than significant level with mitigation incorporated. **Mitigation Measure CULT-2** supplements and expands the City's **SCOA 12**, which addresses the treatment of archaeological remains and artifacts encountered during construction activities.

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? (Less Than Significant with Mitigation Incorporated)

Pursuant to *State CEQA Guidelines* Section 15064.5(c)(1), "When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource." Those archaeological sites that do not qualify as historical resources shall be assessed to determine if they qualify as "unique archaeological resources" pursuant to California Public Resources Code (PRC) Section 21083.2. **Mitigation Measure CULT-1** requires construction crew education and training in the identification of potential cultural resources that may be encountered during construction activities, and the completion of archaeological monitoring on a portion of the site that is deemed potentially sensitive for such resources. Archaeological deposits identified during project construction would be treated by the City—in consultation with a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology—in accordance with **Mitigation Measure CULT-2**. With implementation of these mitigation measures, the project's potential impacts on archaeological resources would be less than significant.

c. Would the project disturb any humans remains, including those interred outside of formal cemeteries? (No Impact)

There are no known human remains at the project site. In the event that human remains are identified during project construction, these remains would be treated in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the PRC, as appropriate.

Section 7050.5 of the California Health and Safety Code states that, in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the California Native American Heritage Commission (NAHC) within 24 hours of this identification. The NAHC will identify a Native American

Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

Section 5097.98 of the PRC states that the NAHC, upon notification of the discovery of Native American human remains pursuant to Health and Safety Code Section 7050.5, shall immediately notify those persons (i.e., the MLD) it believes to be descended from the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site. With these regulations in place, no impact on human remains is anticipated, and no mitigation is necessary.

4.6 ENERGY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.6.1 Impact Analysis

- a. *Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation? (Less Than Significant Impact)*

The proposed project would increase the demand for energy through day-to-day operations and fuel consumption associated with project construction. This section discusses energy use resulting from implementation of the proposed project and evaluates whether the proposed project would result in the wasteful, inefficient, or unnecessary consumption of energy resources or conflict with any applicable plans for renewable energy and energy efficiency.

Construction Energy Use. The proposed project would require site preparation, grading, building construction, paving, and architectural coating activities during construction. Construction of the proposed project would require energy for the manufacture and transportation of construction materials, preparation of the site for grading activities, and construction of the proposed park improvements and Recreation Center. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. In order to increase energy efficiency on the site during project construction, equipment idling times would be restricted to 5 minutes or less and construction workers would be required to shut off idle equipment, consistent with State requirements, and as required by **Mitigation Measure AIR-1**. In addition, construction activities are not anticipated to result in an inefficient use of energy as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project. Energy usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. Furthermore, as required by the City of Vacaville, construction contractors shall provide the necessary documentation to demonstrate a 20 percent reduction of conventional fuel use during construction of the project. Therefore, construction energy impacts would be less than significant.

Operational Energy Use. Operational energy usage is typically associated with natural gas use, electricity consumption, and fuel used for vehicle trips. Electricity consumption was estimated for the project using default energy intensities by land use type in CalEEMod and are shown in Table 4.6.A.

Table 4.6.A: Proposed Project Operational Energy Usage

Gasoline (gallons)	Diesel (gallons)	Natural Gas (Therms)	Electricity (kWh)
12,328	8,755	3,923	253,930

Source: Compiled by LSA (February 2024)

kWh = kilowatt-hours

In addition, the proposed project would result in energy usage associated with gasoline to fuel project-related trips. Based on the CalEEMod analysis, the proposed project would result in approximately 352,584 VMT per year. The average fuel economy for light-duty vehicles (autos, pickups, vans, and SUVs) in the United States has steadily increased from about 14.9 miles per gallon (mpg) in 1980 to 22.9 mpg in 2021.¹⁸ The average fuel economy for heavy-duty trucks in the United States has also steadily increased, from 5.7 mpg in 2013 to a projected 8.0 mpg in 2021¹⁹. Therefore, using the USEPA fuel economy estimates for 2021, the proposed project would result in the consumption of approximately 12,328 gallons of gasoline per year and 8,755 gallons of diesel fuel per year.

Table 4.6.A shows the estimated potential increased energy usage associated with the proposed project.

As shown in Table 4.6.A, the estimated potential increased electricity demand associated with the proposed project is 253,930 kilowatt-hours (kWh) per year. In 2022, California consumed approximately 287,826 gigawatt-hours (GWh) or 287,826,110,475 kWh.²⁰ Of this total, Solano County consumed 3,255 GWh or 3,255,398,734 kWh.²¹ Therefore, electricity demand associated with the proposed project would be less than 0.1 percent of Solano County's total electricity demand.

As shown in Table 4.6.A, the estimated potential increased natural gas demand associated with the proposed project is 3,923 therms per year. In 2022, Solano County consumed 248 million therms or 248,386,169 therms.²² Therefore, electricity demand associated with the proposed project would be less than 0.1 percent of Solano County's total natural gas demand.

In addition, the proposed project would result in energy usage associated with gasoline and diesel to fuel project-related trips. As shown above in Table 4.6.A, vehicle trips associated with the proposed project would consume approximately 12,328 gallons of gasoline per year and 8,755 gallons of diesel fuel per year. Based on fuel consumption obtained from EMFAC2021, approximately 176.9

¹⁸ U.S. Department of Transportation (USDOT). 2017. "Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles." <https://www.bts.gov/content/average-fuel-efficiency-us-light-duty-vehicles> (accessed February 2024).

¹⁹ California Energy Commission (CEC). 2015. Medium and Heavy-Duty Truck Prices and Fuel Economy 2013–2026. Website: efiling.energy.ca.gov/getdocument.aspx?tn=206180 (accessed February 2024)

²⁰ CEC. 2023. Energy Consumption Data Management Service. Electricity Consumption by County. Website: www.ecdms.energy.ca.gov/elecbycounty.aspx (accessed February 2024).

²¹ Ibid.

²² Ibid.

million gallons of gasoline and approximately 55.5 million gallons of diesel fuel will be consumed from vehicle trips in Solano County in 2024. Therefore, fuel demand generated by vehicle trips associated with the proposed project would increase the annual fuel use in Solano County by less than 0.1 percent for gasoline fuel usage and by less than 0.1 percent for diesel fuel usage. Therefore, the proposed project would result in fuel usage that is a minimal fraction of current annual fuel consumption in Solano County. Fuel consumption associated with vehicle trips generated by project operations would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

In addition, proposed new development would be constructed using energy efficient modern building materials and construction practices, and the proposed project also would use new modern appliances and equipment, in accordance with the Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608). The expected energy consumption during construction and operation of the proposed project would be consistent with typical usage rates for residential uses.

PG&E is the private utility that would supply the proposed project's electricity and natural gas services. In 2022, approximately 40 percent of PG&E's delivered electricity came from renewable sources, including solar, wind, geothermal, small hydroelectric and various forms of bioenergy.²³ PG&E reached California's 2020 renewable energy goal in 2017, and is positioned to meet the State's 60 percent by 2030 renewable energy mandate set forth in Senate Bill (SB) 100. In addition, PG&E plans to continue to provide reliable service to their customers and upgrade their distribution systems as necessary to meet future demand.

Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building design, equipment use, and transportation. Construction and operation period impacts related to consumption of energy resources would be less than significant.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? (Less Than Significant Impact)

In 2002, the State Legislature passed Senate Bill (SB) 1389, which required the California Energy Commission (CEC) to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission vehicles and their infrastructure needs, and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

The most recently adopted CEC energy report is the 2023 Integrated Energy Policy Report. The 2023 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy

²³ PG&E. 2023. *Exploring Clean Energy Solutions*. <https://www.pge.com/en/about/corporate-responsibility-and-sustainability/taking-responsibility/clean-energy-solutions.html> (accessed February 2024).

issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The 2023 Integrated Energy Policy Report covers a broad range of topics, including implementation of Senate Bill 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to Senate Bill 1383), updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency.

As indicated above, energy usage on the project site during construction would be temporary in nature. In addition, energy usage associated with operation of the proposed project would be relatively small in comparison to the State's available energy sources and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level, and because the project's total impact to regional energy supplies would be minor, the proposed project would not conflict with California's energy conservation plans as described in the CEC 2023 Integrated Energy Policy Report. Therefore, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and this impact would be less than significant.

4.7 GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.7.1 Impact Analysis

a. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*

i. *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. (Less Than Significant Impact)*

The San Francisco Bay Area is one of the most seismically active regions in the United States. The significant earthquakes that occur in the Bay Area are generally associated with crustal movement along well-defined active fault zones of the San Andreas fault system, which regionally trend in a northwesterly direction. Fault rupture is generally expected to occur along active fault traces that have exhibited signs of recent geological movement (i.e., within the last 11,000 years).

Alquist-Priolo Earthquake Fault Zones delineate areas around active faults with potential surface fault rupture hazards that would require specific geological investigations prior to approval of certain kinds of development within the delineated area. The site is not located within a

currently designated Alquist-Priolo Earthquake Fault Zone. The nearest known active fault is the Rio Vista fault, which is 0.65 mile west of the project site. The potentially active Great Valley Thrust fault is about 0.5 mile west of the site. Other faults with potential to cause seismic ground shaking include the Lagoon Valley fault, approximately 2.5 miles west; the Kirby Hills Fault, approximately 9.5 miles south; the Cordelia Fault, 9.8 miles west; and the Midland Fault, approximately 10 miles east of the project site. Therefore, fault rupture through the site is not anticipated and the proposed project would not directly or indirectly cause substantial adverse effects related to fault rupture, and this impact would be less than significant.

ii. Strong seismic ground shaking? (Less Than Significant Impact)

Due to the location of the project site in a seismically active area, strong seismic ground shaking at the site is highly probable during the life of the project. The intensity of ground shaking would depend on the characteristics of the fault, distance from the fault, the earthquake magnitude and duration, and site-specific geologic conditions. Conformance with the California Building Code (CBC) would ensure potential impacts associated with strong seismic ground shaking would be reduced to a less than significant level. Additionally, the proposed project would be required to comply with the following Standard Conditions of Approval (SCOAs) required for all design permits, use permits, and planned developments that address geotechnical and seismic concerns:

SCOA 104: Developer shall prepare and submit to the City Engineer a Geotechnical Investigation Report prepared by a Civil Engineer or Geotechnical Engineer, licensed in the State of California, to be used in the preparation of the grading plan. The Geotechnical Investigation Report shall provide recommendations for all grading and remediation work. The Developer shall comply with the recommendations of the Geotechnical Investigation Report and any additional requirements deemed necessary by the City Engineer and Chief Building Official.

SCOA 105: A grading, geotechnical, and erosion control plan shall be submitted concurrently with the Final Map and Improvement Plans. Plans shall show any effect on adjacent properties.

SCOA 106: For projects with greater than 5,000 cubic yards of grading, grading plans shall be prepared by a Civil Engineer licensed by the State of California in accordance with Appendix Chapter 33 of the California Building Standards Code and Section 11 of the Standard Specifications. The plans shall be accompanied by a Soils Report prepared, signed, and wet-stamped by a geotechnical engineer licensed by the State of California, and shall be submitted to the City Engineer for concurrent review with the Improvement Plans and Final Map.

With implementation of these SCOAs and conformance with the CBC, impacts related to seismic ground shaking would be less than significant.

iii. Seismic-related ground failure, including liquefaction? (Less Than Significant Impact)

Soil liquefaction is a phenomenon primarily associated with saturated soil layers located close to the ground surface. During ground shaking, these soils lose strength and acquire “mobility”

sufficient to permit both horizontal and vertical movements. Soils most susceptible to liquefaction are loose to moderately dense, saturated, non-cohesive soils with poor drainage, such as sands and silts with interbedded or capping layers of relatively low permeability soil. However, loose sands that contain significant fines (i.e., silt and clay) may also liquefy.

Lateral spreading typically occurs as a form of horizontal displacement of relatively flat-lying alluvial material toward an open or “free” face such as an open body of water, channel, or excavation. In soils this movement is generally due to failure along a weak plane and may often be associated with liquefaction. As cracks develop within the weakened material, blocks of soil displace laterally towards the open face. Cracking and lateral movement may gradually propagate away from the face as blocks continue to break free. Generally, failure in this mode is analytically unpredictable since it is difficult to evaluate where the first tension crack will occur.

Vacaville is generally characterized by areas of very low, low, and moderate risk of liquefaction. The project site is mapped in an area of low liquefaction potential.²⁴ The project site is relatively flat, and development of the proposed project would not exacerbate lateral spreading. Additionally, the proposed project would be required to conform with the CBC and the actions and policies set forth in the General Plan (discussed in Section 4.7.a.(ii)). With implementation of **SCOAs 104 through 106**, conformance with the CBC, impacts related to seismic-related ground failure and liquefaction would be less than significant. Therefore, the proposed project would have a less than significant impact related to seismic-related ground failure, including liquefaction and lateral spreading.

iv. Landslides? (Less Than Significant Impact)

The project site is in an area described as flatland by the United States Geological Survey (USGS) with no steeply sloped areas in the nearby vicinity of the project site that are susceptible to landslides.²⁵ Therefore, the potential of the proposed project to exposure people or structures to risk as a result of landslides would be less than significant.

b. Would the project result in substantial soil erosion or the loss of topsoil? (Less than Significant Impact)

Topsoil is defined as the upper part of the soil profile that is relatively rich in humus and is technically known as the A-horizon of the soil profile.²⁶ Grading and earthmoving during project construction has the potential to result in erosion and loss of topsoil. Exposed soils could be contained in stormwater runoff and transported off the project site. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may spill or leak, and they have the potential to be transported via stormwater runoff into receiving waters.

²⁴ Solano County, 2008, U.S. and California Geological Surveys and City of Vacaville, 2010.

²⁵ City of Vacaville. 2015. *Vacaville General Plan – Safety Element*.

²⁶ California State Mining and Geology Board. 2014. Surface Mining Reclamation Act Regulations. California Code of Regulations, Title 14, Division 2, Chapter 8, Subchapter 1.

Construction of the proposed project would disturb greater than 1 acre of soil and is subject to the requirements of the Construction General Permit (CGP). The proposed project would also be required to comply with the Vacaville Municipal Code,²⁷ which specifies provisions for urban stormwater quality, management and discharge control during project construction, including the preparation of a construction erosion and sediment control plan, as described in the City's Grading, Erosion, and Sediment Control Ordinance, Division 14.19.

Operation of the proposed project would increase the amount of impervious surface area. The increase in impervious surface area could result in increased stormwater runoff (both flow rate and volume) from the project site relative to pre-project conditions, which may result in hydromodification impacts (i.e., increased potential for erosion of creek beds and banks, silt pollution generation, or other adverse impacts on beneficial uses due to increased erosive force).

With implementation **SCOAs 104 through 105 and Mitigation Measure HYD-1**, which includes preparation of a Stormwater Pollution Prevention Plan (SWPPP) (refer to Section 4.10.1, Hydrology and Water Quality), this impact would be reduced to a less than significant level. Although designed primarily to protect stormwater quality, the SWPPP would incorporate best management practices (BMPs) to minimize erosion. Additional details regarding the SWPPP are provided in Section 4.10.1 of this Initial Study. With incorporation of **Mitigation Measure HYD-1**, impacts from the project would result in a less than significant impact.

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? (Less Than Significant Impact)

As described in Section 4.7.1.a (iii), the proposed project would be designed and constructed in accordance with standard engineering practices and the CBC and site soils would not likely be subject to lateral spreading or landslides but could be subject to liquefaction. However, implementation of **SCOAs 104 through 106** (identified in Section 4.7.1.a(ii)), and conformance with the CBC would ensure that potential risks to people and structures as a result of liquefaction would be reduced to a less than significant level.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? (Less Than Significant Impact)

Expansive soils are characterized by the potential for shrinking and swelling as the moisture content of the soil decreases and increases, respectively. Shrink-swell potential is influenced by the amount and type of clay minerals present and can be measured by the percent change of the soil volume.²⁸ Soils underlying the project site are composed primarily of Rincon clay loam and Corning gravelly loam, 0 to 12 percent slopes. A small area on the southwestern portion of the project site is

²⁷ City of Vacaville Municipal Code. 2022. Codified through Ordinance 1796. *Title 14.26 Urban Stormwater Quality Management*. Website: <https://www.codepublishing.com/CA/Vacaville/#!/Vacaville14/Vacaville1426.html> (accessed January 25, 2024).

²⁸ Natural Resources Conservation Service, 2017. *Web Soil Survey*. Website: <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx> (accessed February 14, 2024).

underlain by Brentwood clay loam, 0 to 2percent slopes; according to the United States Department of Agriculture (USDA) Natural Resources Conservation Service Web Soil Survey.²⁹

Rincon clay loam is a deep, well-drained soil type formed in alluvium from sedimentary rocks with a low shrink potential; Corning gravelly loam is a moderate to deep well drained soil type, with low shrink potential; and Brentwood clay loam is a moderate to deep well drained soil type, with moderate to high shrink-swell potential.³⁰ Additionally, the proposed project would be required to conform with the CBC and **SCOAs 104 through 106** (discussed in Section 4.7.a.(ii)). With implementation of these SCOAs, and conformance with the CBC, impacts related to expansive soils would be less than significant.

- e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? (No Impact)*

The proposed project would connect to the City's wastewater conveyance system. On-site treatment and disposal of wastewater is not proposed for the project; therefore, the proposed project would have no impacts associated with soils incapable of supporting alternative wastewater disposal systems.

- f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (Less than Significant with Mitigation Incorporated)*

Although no paleontological resources or unique geological features are known to exist within or near the project site, the proposed project would require ground disturbance to a depth of up to 8 feet below the ground surface for excavation of the bio-retention facilities. The proposed new buildings and new park facilities would only require minor grading for site preparation and ground disturbance; excavation for building foundations would not exceed a depth of 4 feet below ground surface. The approximate depth of excavation for proposed joint utilities is expected to range from 3 to 5 feet beneath the existing ground surface. The possibility of accidental discovery of paleontological resources during project construction cannot be discounted and the following mitigation measure shall be incorporated.

Mitigation Measure GEO-1

Identification of Paleontological Resources. Should paleontological resources be encountered during project subsurface construction activities, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. For purposes of this mitigation, a "qualified paleontologist" shall be an individual with the following qualifications: (1) a graduate degree in paleontology or geology and/or a person with a demonstrated publication record in peer-reviewed paleontological journals; (2) at

²⁹ United States Department of Agriculture. Natural Resources Conservation Service. Web Soil Survey. Website: websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (accessed April 6, 2023).

³⁰ Ibid.

least two years of professional experience related to paleontology; (3) proficiency in recognizing fossils in the field and determining their significance; (4) expertise in local geology, stratigraphy, and biostratigraphy; and (5) experience collecting vertebrate fossils in the field. If the paleontological resources are found to be significant and project activities cannot avoid them, measures shall be implemented to ensure that the project does not cause a substantial adverse change in the significance of the paleontological resource. Measures may include monitoring, recording the fossil locality, data recovery and analysis, a final report, and accessioning the fossil material and technical report to a paleontological repository. Upon completion of the assessment, a report documenting methods, findings, and recommendations shall be prepared and submitted to the City for review. If paleontological materials are recovered, this report also shall be submitted to a paleontological repository such as the University of California Museum of Paleontology, along with significant paleontological materials. Public educational outreach may also be appropriate.

The City shall inform its contractor(s) of the sensitivity of the project site for paleontological resources and shall verify that the following directive has been included in the appropriate contract documents:

“The subsurface of the construction site may be sensitive for fossils. If fossils are encountered during project subsurface construction, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel shall not collect or move any paleontological materials. Fossils can include plants and animals, and such trace fossil evidence of past life as tracks or plant imprints. Ancient marine sediments may contain invertebrate fossils such as snails, clam and oyster shells, sponges, and protozoa; and vertebrate fossils such as fish, whale, and sea lion bones. Contractor acknowledges and understands that excavation or removal of paleontological material is prohibited by law and constitutes a misdemeanor under California Public Resources Code, Section 5097.5.”

Implementation of **Mitigation Measure GEO-1** would reduce the level of the potential impact through the identification of paleontological resources during construction; the evaluation of unanticipated discoveries; and the recovery of significant paleontological data from those resources that warrant such investigation. This process would recover scientifically consequential information from at-risk resources to offset their potential loss. Therefore, with implementation of **Mitigation Measure GEO-1**, this impact would be less than significant with mitigation incorporated.

4.8 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.8.1 Impact Analysis

Greenhouse gases (GHGs) are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO₂)
- Methane (CH₄)
- Nitrous oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF₆)

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, believed to be causing global warming. While manmade GHGs include naturally occurring GHGs such as CO₂, methane, and N₂O, some gases, like HFCs, PFCs, and SF₆ are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO₂, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO₂ over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO₂ equivalents" (CO₂e).

a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? (Less Than Significant Impact)

Section 15064.4 of the *State CEQA Guidelines* states, “A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project.” In performing that analysis, the lead agency has discretion to determine whether to use a model or methodology to quantify GHG emissions, or to rely on a qualitative analysis or performance-based standards. In making a determination as to the significance of potential impacts, the lead agency then considers the extent to which the project may increase or reduce GHG emissions compared to the existing environmental setting, whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project, and the extent to which the project complies with regulations or requirements adopted to implement a Statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The YSAQMD has not addressed emission thresholds for construction in its CEQA Guidelines; however, the YSAQMD encourages quantification and disclosure. Thus, construction emissions are discussed below.

Construction Activities. Construction activities, such as site preparation, site grading, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting the construction crew would produce combustion emissions from various sources. During construction activities, GHGs would be emitted through the operation of construction equipment and from worker vehicles, which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO₂, CH₄, and N₂O. Furthermore, CH₄ is emitted during the fueling of heavy equipment.

As mentioned above, emissions that would occur during construction were quantified and are disclosed for informational purposes. Using CalEEMod, it is estimated that construction of the proposed project would generate approximately 391.9 metric tons of CO₂e. Although the YSAQMD does not have any adopted GHG emission thresholds, the emission results would be temporary in nature, and would only continue for the duration of construction. Details are provided in the CalEEMod output in Appendix A. Therefore, project construction impacts associated with GHG emissions would be considered less than significant.

Operational Emissions. Long-term GHG emission impacts are associated with stationary sources and mobile sources. Stationary source emissions result from the consumption of natural gas and electricity. Mobile source emissions result from vehicle trips and result in air pollutant emissions affecting the entire air basin.

As discussed above, consistent with the *State CEQA Guidelines*, Section 15183.5, if a project is consistent with an adopted qualified Greenhouse Gas Reduction Strategy that meets the standards, it can be presumed that the project would not have significant GHG emission impacts. The City of Vacaville Energy and Conservation Action Strategy (ECAS), adopted in 2021, meets the requirements of *State CEQA Guidelines*, Section 15183.5; therefore, the proposed project is evaluated for consistency with the City’s ECAS. The ECAS includes a range of GHG reduction measures, implementation of which would enable the City to meet its 2035 GHG emissions reduction target. The project’s consistency with the ECAS is evaluated in Table 4.8.A.

Table 4.8.A: Proposed Project Consistency with the ECAS

ECAS Action	Descriptions	Consistency
Transportation and Land Use		
LU-1	Continue Telecommuting. Encourage telecommuting. The City's goal is to have half of eligible employees telecommuting three days a week.	Consistent. The Recreation Center building and a Vacaville Housing and Community Services Department office building proposed by the project would include telecommunications infrastructure. The City would implement its own telecommuting policies as it applies to staff and employees at the new City office building.
LU-2	Improve Capacity for Electric Vehicles. The City requires that all new multifamily, retail, and office developments provide 15% of required parking spaces as EV ready and 15% of required parking spaces with EV chargers. The cost of charging must be priced to provide energy and maintain the chargers. These standards will also be required for new City managed parking lots and may be adjusted if demand for EV charging increases.	Consistent. The proposed project would include 48 total parking spaces, including approximately 13 EV spaces and EV chargers, which is consistent with the City's 15 percent required EV spaces.
LU-3	Implement Transportation Demand Management for New Development. New projects subject to CEQA review must develop and implement transportation demand management programs. Residential developments will separate parking from leases and charge for off-street parking. Lease holders will also provide transit subsidies and carpool incentives to employees. The City will establish paid on-street and permit parking. Retail, office, and industrial projects will also offer employees cash out programs, where they can receive the cost of their parking spot in cash if they choose not to use it; a 50% transit subsidy; and a \$100 per month carpool incentive.	Consistent. The project would develop recreational and office uses. As a City project, the City will determine the appropriate cash out program based on the number of employees and other transportation demand management programs once occupied.
LU-4	Implement Transportation Demand Management for Existing Development. Businesses in Vacaville with more than 15 employees are required to offer cash out and commute market reductions.	Not Applicable. The project does not include existing development; however, the City will determine appropriate programs based on employee occupancy of the new office building.
LU-5	Improve Bus Electrification. All urban buses should be replaced by electric buses by 2035.	Not Applicable. This measure does not apply to individual projects.
LU-6	Improve City Fleet. The City will inventory publicly owned vehicles and equipment and identify vehicles that will be phased out before 2030 and can be replaced with more fuel-efficient models. City will develop fuel economy standards for each type of vehicle.	Not Applicable. This measure does not apply to individual projects.
LU-7	Increase Land Use Diversification. Reducing car trips by creating mixed neighborhoods where daily activities are within a quarter mile of residences. Increasing density to maximize the number of people who have access to these uses.	Consistent. Residential uses are located immediately adjacent to and within a quarter mile from the project site. Therefore, the project would provide the nearby community with new recreational and office uses, increasing the diversification of these opportunities in the community.
LU-8	Transit Oriented Development. Implement traffic calming and discourage excessive parking. Provide affordable housing near transit. The city will explore increasing the number of homes and jobs within a quarter mile of high-quality transit.	Not Applicable. The proposed project would provide recreational and office uses and would not include housing. However, the proposed project is located near existing bus stops along Brown Street and E Monte Vista Avenue.
Energy		
E-1	Become a Marine Clean Energy (MCE) Member Community. Join a community choice energy provider to provide cleaner energy. MCE is an option that offers customers 60% and 100% renewable options for energy consumption.	Not Applicable. PG&E would provide natural gas and electricity for the project.

Table 4.8.A: Proposed Project Consistency with the ECAS

ECAS Action	Descriptions	Consistency
E-2	Require Energy Audits for Sales of Existing Residential Units. All residential units are required to provide an energy audit as part of their closing documents and to advertise the benefits of energy audits to all residents. Exemptions can be made for homes built within the last 10 years in order to reduce unnecessary costs.	Not Applicable. This measure applies to existing residential units, not new construction.
E-3	Adopt an All-Electric New Construction Preferred Ordinance. The City will adopt an all-electric ordinance and enforce it through building inspections. Special exceptions will be made for industrial, hospital, and similar uses that demonstrate there is no viable electrification option for important equipment due to technological constraints.	Not Applicable. To date, the City has not adopted an all-electric ordinance.
E-4	Develop an Existing Building Electrification Plan. Phase out natural gas in existing buildings by incentivizing residents to replace existing natural gas appliances, such as stoves and water heaters, with efficient electric options.	Not Applicable. No existing buildings are included as part of the project.
Solid Waste		
S-1	Implement Organic Waste Reduction Requirements. Reduce organics to 50% below 2014 levels by 2020 and 75% below 2014 levels by 2025 through organics collection programs, contamination monitoring, education and outreach, enforcement and penalties, edible food recovery programs, organics self-haul programs, ordinances and policy changes, procurement of recovered organic materials and more.	Not Applicable. This measure does not apply to individual projects. However, the proposed project would be consistent with County Solid Waste and State waste reduction requirements for the construction of the proposed project. In addition, the proposed project would include green bins and trash enclosures for operational waste activities.
Off Road Equipment		
O-1	Increase Renewable and Alternative Fuel for Construction. Holistically reduce the emissions from construction equipment in Vacaville. The City will revise its construction bid process so that to be eligible for City construction contracts, a bidder must submit documentation that their fleet will reduce conventional fuel use by 20% by 2035.	Consistent. The project would use renewable diesel to the extent feasible. In addition, as discussed in Section 4.6, Energy, gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project. Contractors shall provide the necessary documentation to demonstrate a 20 percent reduction in conventional fuel use.
Carbon Sequestration		
C-1	Plant Trees. Create a more all-encompassing push to add to both City-owned trees and trees on private property. Strategically place trees in line with buildings and sunlight so as to shade buildings and reduce the need to heat and cool buildings. The City's goal is to plant at least 10,000 trees through initiatives such as street tree planting programs on major streets where there are major gaps, shading requirements for commercial and residential projects, and providing trees to residents.	Consistent. Existing landscaping on the project site includes existing ornamental trees. As part of the proposed project, approximately 9 trees would be removed to accommodate planned amenities, associated improvements, and the parking lot. However, the proposed project would include installation of new landscaping, including 22 trees, shrubs, grasses, and groundcovers throughout the park.
C-2	Farm Carbon. Apply compost to public greenspaces to allow more carbon to be held by the soil. 4.57MT CO ₂ e is anticipated to be reduced by 2035 for every acre of land spread with compost.	Not Applicable. This measure does not apply to individual projects.

Source: Compiled by LSA (February 2024)

Note: Not applicable refers to measures that are not relevant to new development and measures not within the project applicant's control.

ECAS = City of Vacaville General Plan and Energy and Conservation Action Strategy

As shown in Table 4.8.A, the proposed project is consistent with applicable City of Vacaville ECAS measures. Therefore, the proposed project would be consistent with the City's ECAS and would not generate GHG emissions that may have a significant effect on the environment. Therefore, impacts would be less than significant.

b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? (Less Than Significant Impact)

The following discussion evaluates the proposed project according to the goals of the Scoping Plan, Executive Order B-30-15, SB 32, and Assembly Bill (AB) 197.

Executive Order B-30-15 added the immediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030. SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in Executive Order B-30-15. CARB released the 2017 Scoping Plan,³¹ to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. SB 32 builds on AB 32 and keeps us on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels. The companion bill to SB 32, AB 197, provides additional direction to the CARB related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 intended to provide easier public access to air emissions data that are collected by CARB was posted in December 2016.

The 2022 Scoping Plan³² assesses progress toward the statutory 2030 target, while laying out a path to achieving carbon neutrality no later than 2045. The 2022 Scoping Plan Update focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

The 2022 Scoping Plan focuses on building clean energy production and distribution infrastructure for a carbon-neutral future, including transitioning existing energy production and transmission infrastructure to produce zero-carbon electricity and hydrogen, and utilizing biogas resulting from wildfire management or landfill and dairy operations, among other substitutes. The 2022 Scoping Plan states that in almost all sectors, electrification will play an important role. The 2022 Scoping Plan evaluates clean energy and technology options and the transition away from fossil fuels, including adding four times the solar and wind capacity by 2045 and about 1,700 times the amount of current hydrogen supply. As discussed in the 2022 Scoping Plan, EO N-79-20 requires all new passenger vehicles sold in California will be zero-emission by 2035, and all other fleets will have transitioned to zero-emission as fully possible by 2045, which will reduce the percentage of fossil fuel combustion vehicles.

Energy efficient measures are intended to maximize energy efficiency building and appliance standards, pursue additional efficiency efforts including new technologies and new policy and

³¹ California Air Resources Board. 2017. *California's 2017 Climate Change Scoping Plan*. November.

³² California Air Resources Board. 2022. *The 2022 Scoping Plan for Achieving Carbon Neutrality*. November

implementation mechanisms, and pursue comparable investment in energy efficiency from all retail providers of electricity in California. In addition, these measures are designed to expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings. The proposed project would comply with the latest California Green Building Standards Code (CALGreen Code), regarding energy conservation and green building standards. In addition, the proposed project would be consistent with State building code requirements as Title 24 advances to implement the building decarbonization goals from the 2022 Scoping Plan. As such, the proposed project would be consistent with this key project attribute.

Water conservation and efficiency measures are intended to continue efficiency programs and use cleaner energy sources to move and treat water. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions. As identified above, the proposed project would be required to comply with the latest CALGreen standards, which include a variety of different measures, including reduction of wastewater and water use. In addition, the proposed project would be required to comply with the California Model Water Efficient Landscape Ordinance. Therefore, the proposed project would not conflict with any of the water conservation and efficiency measures.

The goal of transportation and motor vehicle measures is to increase zero emission vehicles and decrease vehicle miles traveled. As described above, the proposed project is not expected to result in a significant increase in the generation of vehicle trips or VMT. In addition, the project site is located within walking or bicycling distance from the surrounding residential areas, and it would support the ability of visitors to use alternative modes of transportation. As such, the proposed project would not conflict with the transportation and motor vehicle measures.

As demonstrated above, the proposed project would comply with existing State regulations adopted to achieve the overall GHG emissions reduction goals identified in Executive Order B-30-15, SB 32, and AB 197 and would be consistent with applicable plans and programs designed to reduce GHG emissions. Therefore, the proposed project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. This impact would be less than significant.

4.9 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.9.1 Impact Analysis

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? (Less Than Significant Impact)

The proposed project involves the development of a new Neighborhood Park, Recreation Center building, Vacaville Housing and Community Services Department office building, and associated site improvements. Project construction activities could result in the transport, use, and disposal of hazardous materials such as fuels, asphalt, lubricants, toxic solvents, pesticides, and herbicides. Although care would be used to transport, use, and dispose of these materials, there is a possibility that upset or accidental conditions may arise which could release hazardous materials into the environment. Accidental releases of hazardous materials are those releases that are unforeseen or that result from unforeseen circumstances, while reasonably foreseeable upset conditions are those release or exposure events that can be anticipated and planned for. After project construction, small quantities of commercially available hazardous materials (e.g., paint, cleaning supplies) would be used at the project site during operation. However, the City would be required to comply with

existing government regulations³³ in its use and disposal of these materials, and such materials would not be used in sufficient strength or quantity to create a substantial risk to human or environmental health. Therefore, the proposed project would have a less than significant impact related to the routine transport, use, or disposal of hazardous materials.

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? (Less Than Significant Impact)

As described above in Section 4.9.1(a), small quantities of common hazardous materials would be used at the project site during construction and operation of the proposed project. Improper use, storage, or handling could result in a release of hazardous materials into the environment that could pose a risk to construction workers and the public. However, the City would be required to comply with existing government regulations regarding the use and disposal of those materials, and such materials would not be used in sufficient strength or quantity to create a substantial risk to human or environmental health.

Construction of the proposed project would involve the transport, use, and disposal of chemical agents, solvents, paints, fuel and oil for construction equipment, and other hazardous materials that are commonly associated with construction activities. The routine handling and use of hazardous materials by construction workers would be performed in accordance with Occupational Safety and Health Administration (OSHA) regulations, which include training requirements for construction workers and a requirement that hazardous materials be accompanied by manufacturers' Safety Data Sheets (SDSs). California Occupational Safety and Health Administration (Cal/OSHA) regulations include requirements for protective clothing, training, and limits on exposure to hazardous materials. Compliance with these existing regulations would ensure that construction workers are protected from exposure to hazardous materials that may be used on site.

Because the proposed project would result in soil disturbance greater than 1 acre, management of hazardous materials during construction activities would be subject to the requirements of the California State Water Resources Control Board (SWRCB) National Pollution Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit [CGP]), which requires preparation and implementation of an Stormwater Pollution Prevention Plan (SWPPP) that includes hazardous materials storage requirements. For example, construction site operators must store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed that is completely enclosed.

The proposed project would comply with existing government regulations (federal, State, regional, and local) regarding the transport, use, and disposal of hazardous materials. Therefore, the

³³ The United States Environmental Protection Agency regulates "small-quantity generators" (SQGs) of hazardous wastes, which are defined as facilities that generate more than 100 kg (approximately 220 lbs), but less than 1,000 kg (2,200 lbs), of hazardous waste per month.

proposed project would have a less than significant impact related to the potential release of hazardous materials commonly associated with construction activities into the environment.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? (Less Than Significant Impact)

One school, Golden Hills School is 0.2 mile northwest of the project site. The proposed project would not include any land uses that would generate hazardous emissions or handle significant quantities of hazardous or acutely hazardous materials beyond existing conditions.

The City would be required to comply with all applicable local, State, and federal regulations and standards related to hazardous emissions and materials. As noted above, in Sections 4.9.1(a) and 4.9.1(b) compliance with all applicable regulations would reduce any significant hazards to the public or the environment related to hazardous materials, and the proposed project would have a less than significant impact.

d. Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? (Less Than Significant Impact)

The project site does not include any active storage sites listed on the State Water Resources Control Board (SWRCB) Leaking Underground Storage Tanks database or the SWRCB's site cleanup program database,³⁴ which are two of the component databases that comprise the Cal/EPA Hazardous Waste and Substances Sites List (Cortese List) of known hazardous materials compiled pursuant to Government Code Section 65962.5. Active sites are not listed for the project on other components of the Cortese List, including the DTSC hazardous waste and substance list.³⁵ Therefore, no impacts associated with locating a project on a site included on a list of hazardous materials is expected to occur.

The project site and a 0.5-mile radius around the project site were reviewed via the State Water Resources Control Board (SWRCB) GeoTracker database,³⁶ the DTSC EnviroStor database,³⁷ and the Cortese List³⁸ for the purposes of identifying recognized environmental conditions or historical recognized environmental conditions. A total of 11 properties with recognized environmental conditions or historical recognized environmental conditions were identified within 0.5 miles of the project site, as detailed in Table 4.9.A.

³⁴ State Water Resources Control Board (SWRCB). 2023. GeoTracker. Website: <https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=301+Brown+Street+Vacaville> (accessed January 15, 2024).

³⁵ State of California, Department of Toxic Substances Control (DTSC). 2023a. Hazardous Waste and Substances Site List (Cortese). Website: https://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=CORTESE&site_type=CSITES,FUDS&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29 (accessed January 15, 2024).

³⁶ State Water Resources Control Board (SWRCB). 2023. op. cit.

³⁷ State of California, Department of Toxic Substances Control (DTSC). 2023b. EnviroStar Database. Website: <https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=301+Brown+Street+Road%2C+Vacaville%2C+CA> (accessed January 24, 2024).

³⁸ State of California, Department of Toxic Substances Control (DTSC). 2023a. op. cit.

Table 4.9.A: Hazardous Materials Database Search

Property	Historical Recognized Environmental Condition	Location Relative to the Project Site	Status of the Property
1119 East Monte Vista Avenue	LUST – Other groundwater (uses other than drinking water).	Approximately 70 feet south	Completed – Case closed as of 12/8/2009
Kmart 130 Brown Valley Parkway	LUST – Contamination of soil	Approximately 250 feet south	Completed – Case closed as of 9/19/1995
Dependable Sheet Metal 1330 Callen Street	LUST – Contamination of soil	Approximately 410 feet east	Completed – Case closed as of 11/7/1994
Food and Liquor 1193 East Monte Vista Avenue	LUST – Contamination of Groundwater used for drinking water supply	Approximately 415 feet south	Completed – Case closed as of 4/1/2014
The Goodyear Tire and Rubber Company 1146 East Monte Vista	LUST – Other groundwater (uses other than drinking water).	Approximately 420 feet south	Completed – Case closed as of 10/8/2013
7-11 Store 1091-1097 East Monte Vista Avenue East	LUST – Contamination of groundwater used for drinking water supply	Approximately 550 feet southwest	Completed – Case closed as of 1/5/2016
Kelly Company 1076 East Monet Vista Ave	LUST – Contamination of groundwater used for drinking water supply	Approximately 650 feet southwest	Completed – Case closed as of 3/18/2011
Firestone Store # 3680 East Monte Vista Avenue	LUST – Contamination of soil	Approximately 750 feet southeast	Completed – Case closed as of 10/9/1996
Former Chevrolet Dealership 1250 East Monte Vista Ave	LUST – Contamination of soil	Approximately 850 feet south	Completed – Case closed as 8/29/1994.
Autocrat Collision 1275 Callen Street	LUST – Other groundwater uses other than drinking water. Soil under investigation	Approximately 900 feet southeast	Completed – Case closed as of 10/14/2014
Darpetro (Morre's) 937 East Monte Vista Avenue	LUST – Contamination of soil	Approximately 1474 feet southwest	Completed – Case closed as of 10/16/1992

Source 1: State Water Resources Control Board, 2023. op. cit.

Source 2: California Department of Toxic Substances Control, 2023a. op. cit.

Source 3: California Department of Toxic Substances, 2023b. op. cit.

LUST = Leaking Underground Storage Tank

REC = Recognized Environmental Condition

As shown in Table 4.9.A, the status of listed sites within 0.5 miles of the project site is closed. A closed site indicates that regulatory requirements for response actions (e.g., site assessment and remediation) have either been completed or were not necessary; therefore, potential migration of residual contaminants in groundwater beneath the project site does not likely pose a risk to human health and the environment. This impact would be less than significant.

e. Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? (Less Than Significant Impact)

The Nut Tree Airport is the closest airport to the project site and is located approximately 1.3 miles northeast of the project site. The project site is located within Zone F as specified in the Nut Tree Airport Master Plan³⁹. There are no intensity limits on new uses in Compatibility Zone F. The project

³⁹ Nut Tree Airport Master Plan. Figure B7, Airport Land Use Combability Zone. Website: <https://www.solanocounty.com/civicax/filebank/blobdload.aspx?blobid=9315> (accessed February 14, 2024)

site is not located within the vicinity of a private airstrip, but is within Compatibility Zone D, Other Airport Environs, of the Travis Air Force Base Land Use Compatibility Plan. Compatibility Zone D does not place any restrictions on the types of land uses allowed, with the exception of land uses that could cause hazard to flight, such as physical, visual, and electric forms of interference and land uses that attract birds. Additionally, any object over 200 feet tall requires airspace review. Therefore, the proposed project would be consistent with the land use compatibility zone of the Travis Air Force Base Land Use Compatibility Plan and would not result in a safety hazard or excessive noise for people residing or working in the project area. The project would not result in a safety hazard or excessive noise for people residing or working in the project area; therefore, impacts would be less than significant.

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (Less Than Significant Impact)

The City of Vacaville adopted the Association of Bay Area Governments' (ABAG) Taming Natural Disasters report⁴⁰ as its official Local Hazard Mitigation Plan. The Local Hazard Mitigation Plan offers methods to mitigate natural hazards and enhance disaster resistance. The Plan focuses on natural disasters, including earthquake hazards (surface faulting, ground shaking, liquefaction, landslides, and tsunamis), and weather-related hazards (flooding, landslides, wildfires, drought, and climate change).⁴¹

The proposed project would not alter or block adjacent roadways and implementation of the proposed project would not be expected to impair the function of nearby emergency evacuation routes. Additionally, the proposed project would be required to comply with the following Standard Conditions of Approval (SCOAs) required for all design permits, use permits, and planned developments that addresses access roads and emergency vehicle access:

SCOA 262: Access roads with a minimum unobstructed width of 20 feet shall be provided to the front and rear of structures. A minimum vertical clearance of 13 feet 6 inches shall be provided. Access roads shall be engineered to support the imposed load of the apparatus which is typically 25 tons and shall be designed per the City Public Work's Department Standards. An access road shall be provided to within 150 feet of all exterior walls of the first floor of the buildings. The route of the access road shall be approved by the Fire Marshal. Dead-end access roads in excess of 150 feet in length shall be provided with an approved means for turning around the apparatus. The final design of the turnaround shall be reviewed and approved by the Fire Marshal prior to installation.

SCOA 263: Every building shall be accessible to Fire Department apparatus by way of all-weather access roadways during the time of construction. These roads shall have a minimum unobstructed width of 20 feet and shall be required to have a minimum 'first lift' of pavement applied which shall support the imposed load of a fire apparatus which is typically 25 tons. The developer shall be required to provide the Fire Marshal with a site plan showing the location, width, grades, and cross section of the proposed access roads to be used during

⁴⁰ Association of Bay Area Governments (ABAG). 2010. Taming Natural Disasters Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area. 2010 Update of 2005 Plan. Website: <https://abag.ca.gov/sites/default/files/theplan-chapters-intro.pdf> (accessed February 14, 2024).

⁴¹ City of Vacaville. 2021. *Vacaville General Plan and ECAS EIR*.

construction. Permits shall not be issued and combustible construction shall not be allowed on the site until this site plan is reviewed and approved and stamped by the Fire Department.

SCOA 265: Prior to the issuance of any grading or building permits, the Fire Marshal shall approve the location of all Emergency Vehicle Access Roads within the project site. Unless otherwise approved, the access points to any Emergency Vehicle Access Roads shall be located at the end of cul-de-sacs and across utility easements and shall be kept locked at all times with a City 1C04 lock.

SCOA 266: Prior to the issuance of any grading or building permits, the Fire Marshal shall approve the location of all Emergency Vehicle Access Roads around the perimeter of the site. Such Emergency Vehicle Access roads shall have average grades of not more than 20% with no section greater than 25%. The minimum width of such roads shall be 20 feet. Side slopes shall not exceed 4%. These roads shall be engineered to withstand a minimum load of 12 tons. At a minimum, this road shall be graded and compacted with decomposed granite or equivalent and shall be kept clear of all flammable vegetation at all times. The Fire Marshal may require the road to be surfaced with pavement if it is determined the road will not be or is not being properly maintained in accordance with these standards.

SCOA 267: The Fire Marshal shall identify on the final site development plans where metal grates shall be provided for emergency fire apparatus cross V-ditches in the event of a fire or emergency. These grates shall have a minimum width of 10 feet and be designed and engineered to accommodate a minimum load of 12 tons.

With implementation of these SCOA's, the proposed project would have a less than significant impact on the implementation of an adopted emergency response plan or emergency evacuation plan.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? (No Impact)

The project site is in an urban area and is not within or adjacent to a wildland fire hazard area.⁴² Therefore, the proposed project would not expose people or structures to a significant loss, injury or death involving wildland fires.

⁴² CAL FIRE. 2007. *Draft Solano County Very High Fire Hazard Severity Zones in LRA*. October 3.

4.10 HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.10.1 Impact Analysis

- a. *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? (Less Than Significant Impact)*

The State Water Resources Control Board (State Water Board) and nine Regional Water Quality Control Boards regulate water quality of surface water and ground waterbodies throughout California. In Solano County, the Central Valley RWQCB is responsible for implementation of the Water Quality Control Plan (Basin Plan). The Basin Plan establishes beneficial water uses for waterways and waterbodies in the region. Section 303(d) of the federal Clean Water Act (CWA) requires that states identify waterbodies including bays, rivers, streams, creeks, and coastal areas that do not meet water quality standards and the pollutants that are causing the impairment. Total maximum daily loads (TMDLs) describe the maximum amount of a pollutant that a waterbody can receive while still meeting established water quality standards. A TMDL establishes limits for pollutant discharges into impaired waterbodies.

According to the City's General Plan EIR,⁴³ existing drainage systems in the City include creeks, constructed channels, and an extensive network of storm drain pipes that collect and convey runoff from the streets and adjacent land. The storm drain system is made up of series of pipes under City streets that convey stormwater runoff to the various creeks. In general, creeks in the City flow in an east-south easterly direction and ultimately drain into the Sacramento River via Cache Slough. The project site is currently undeveloped and relatively flat with site elevations ranging from approximately 143 to 150 feet above mean sea level. The project site primarily consists of non-native grassland with sparse trees including Valley Oaks and an Elm. Under existing conditions, stormwater from the project site sheet flows in an east to west direction into an existing 18-inch storm drain located in Brown Street⁴⁴ (i.e., the western project site boundary) which directs flows into Ulatis Creek.⁴⁵ Ulatis Creek ultimately discharges to the Sacramento River via Cache Slough.⁴⁶ The SWRCB Surface Water Quality Assessment 2020-2022 Integrated Report for Clean Water Act Sections 303(d) and 305(b)⁴⁷ lists Ulatis Creek as an impaired waterbody for pesticides (bifenthrin, chlorpyrifos, diuron, imidacloprid, indicator bacteria, and metolachlor), specific conductivity, and toxicity. Cache Slough is listed as impaired for pesticides (bifenthrin, cyhalothrin, lambda, permethrin, and pyrethroids) and metals (mercury). Downstream of the project site, the Sacramento River (Sacramento City Marina to Suisun Marsh Wetlands) is listed as impaired for pesticides (fipronil and pyrethroids), water temperature, and toxicity. At this time, no TMDLs have been adopted for any of the receiving waters.

Runoff water quality is regulated by the NPDES Program (established through the federal Clean Water Act). The NPDES program objective is to control and reduce pollutant discharges to surface waterbodies. Compliance with NPDES permits is mandated by State and federal statutes and regulations. Locally, the NPDES Program is administered by the Central Valley RWQCB.

Construction activities are subject to the SWRCB NPDES CGP, Order No. 2022-0057-DWQ, NPDES No. CAS000002.⁴⁸ Any construction activity, including grading, that would result in the disturbance of 1 acre or more would require compliance with SWRCB's CGP, which requires preparation of SWPPP and implementation of Construction BMPs during construction activities. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters.

⁴³ City of Vacaville. 2015. *Draft General Plan and ECAS Environmental Impact Report, Section 4.9: Hydrology and Water Quality*. February 27. Website: <https://www.cityofvacaville.gov/home/showpublisheddocument/5502/636234161698230000> (accessed January 25, 2024).

⁴⁴ Personal communication with Sharon Chan, Assistant Engineer, City of Vacaville, on January 8, 2024

⁴⁵ City of Vacaville. 2015. *Op. Cit.*

⁴⁶ City of Vacaville. 2015. *Op. Cit.*

⁴⁷ State Water Resources Control Board (SWRCB). 2023. *2020-2022 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report)*. Website: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.waterboards.ca.gov%2Fwater_issues%2Fprograms%2Ftmdl%2F2020_2022state_ir_reports_revised_final%2Fapx-a-303d-list.xlsx&wdOrigin=BROWSELINK (accessed January 25, 2024).

⁴⁸ NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order No. 2022-0057-DWQ, NPDES No. CAS000002)

Project operations are subject to the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit for Waste Discharge Requirements (WDRs) for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) RWQCB Order No. 2013-001-DWQ, NPDES No. CAS000004, as amended by Order 2015-0133-EXEC, Order WQ 2016-0069-EXEC, Order 2017-XXXX-DWQ, Order 2018-0001-EXEC, and Order 2018-0007-EXEC (Small Phase II MS4)⁴⁹. This permit is for small community operators to efficiently regulate stormwater discharges under a single permit. Permittees must develop and implement a Stormwater Management Plan (SWMP) with the goal of addressing the rate and volume of runoff as well as reducing the discharge of pollutants to the maximum extent practicable. Permittees shall regulate development through the following: site design measures, source control measures, Low Impact Development (LID) Design Standards, Hydromodification Measures, Operation and Maintenance of Storm Water Control Measures, and Post-Construction BMPs. Additionally, the MS4 requires ongoing water quality monitoring and corrective actions if water quality thresholds are not maintained.

Construction. The proposed project involves development of a new Neighborhood Park, Recreation Center building, and Vacaville Housing and Community Services Department office building, as well as associated site improvements. The project site is currently undeveloped and construction activities would result in the disturbance of the entire 3.44-acre project site. Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked, and they have the potential to be transported via stormwater runoff into receiving waters.

Because construction of the proposed project would disturb greater than 1 acre of soil, the project is subject to the requirements of the CGP. The proposed project would also be required to comply with the Vacaville Municipal Code⁵⁰ which specifies provisions for urban storm water quality, management and discharge control during project construction including the preparation of a construction erosion and sediment control plan, as described in the City's Grading, Erosion, and Sediment Control Ordinance, Division 14.19.

The purpose of the construction BMPs is to control the volume, rate, and potential pollutant load of stormwater runoff during construction. As specified in **Mitigation Measure HYD-1** and **Mitigation Measure HYD-2**, and as required by the CGP and the Vacaville Municipal Code, the Construction Contractor would be required to prepare a SWPPP and implement construction BMPs detailed in the

⁴⁹ California Regional Water Quality Control Board (RWQCB). 2019. Order No. 2013-001-DWQ, NPDES No. CAS000004, as amended by Order 2015-0133-EXEC, Order WQ 2016-0069-EXEC, Order 2017-XXXX-DWQ, Order 2018-0001-EXEC, and Order 2018-0007-EXEC, *National Pollutant Discharge Elimination System (NPDES) General Permit for Waste Discharge Requirements (WDRs) for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)* (accessed February 14, 2024)

⁵⁰ City of Vacaville Municipal Code. 2022. Codified through Ordinance 1796. *Title 14.26 Urban Stormwater Quality Management*. Website: <https://www.codepublishing.com/CA/Vacaville/#!/Vacaville14/Vacaville1426.html> (accessed January 25, 2024).

SWPPP during construction activities. Construction BMPs would include, but are not limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters.

Mitigation Measure HYD-1

Construction General Permit. Prior to the commencement of any land-disturbing activities, the Construction Contractor shall obtain coverage under the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order No. 2022-0057-DWQ, National Pollutant Discharge Elimination System No. CAS000002) (Construction General Permit). This shall include submission of Permit Registration Documents (PRDs), including a Notice of Intent for coverage under the permit to the SWRCB via the Stormwater Multiple Application and Report Tracking System (SMARTs). The City shall provide the Waste Discharge Identification Number (WDID) to the Planning Manager of the City of Vacaville (City) or designee, to demonstrate proof of coverage under the Construction General Permit. Project construction shall not be initiated until a WDID is received from the SWRCB and is provided to the City, or designee.

A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared by a Qualified SWPPP Developer in accordance with the requirements of the Construction General Permit. These include: BMPs for erosion and sediment control, site management/housekeeping/waste management, management of non-stormwater discharges, run-on and runoff controls, and BMP inspection/maintenance/repair activities. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association's Stormwater Best Management Handbook: Construction.

The SWPPP shall include a construction site monitoring program that identifies requirements for dry weather visual observations of pollutants at all discharge locations, and as appropriate (depending on the Risk Level), sampling of the site effluent and receiving waters. A Qualified SWPPP Practitioner shall be responsible for implementing the BMPs at the site and performing all required monitoring and inspection/maintenance/repair activities.

Upon completion of construction and stabilization of the site, a Notice of Termination shall be submitted via SMARTs.

Mitigation Measure HYD-2

City of Vacaville Municipal Code. Prior to issuance of a grading permit, the City shall review and approve final project plans, which address compliance with the water quality management requirements of Title 14 Land Use and Development Code. Title 14 includes specific provisions for urban storm water quality, management and discharge control to be implemented during construction activities including the requirement that new development must submit for review and approval by the City a construction erosion and sediment control plan, as described in the City's Grading, Erosion, and Sediment Control Ordinance, Division 14.19.

In addition, prior to the issuance of a building or construction permit, the City shall prepare a post-construction BMP design plan including a storm water management facilities operation and maintenance plan (O&M plan) in accordance with the Small Phase II MS4 Permit. The O&M Plan shall detail the post-construction BMPs intended to control the volume, rate, and potential pollutant load of storm water runoff from the project site. Post-construction BMP shall comply with the California Stormwater Quality Association (CASQA) Stormwater BMP Handbook for Construction. 51

Groundwater was encountered at the project site at 35 feet below the existing grade.⁵² The proposed project would require excavation to a maximum depth of 5 feet below the existing grade for construction of the proposed onsite stormwater collection system and utility connections. Therefore, groundwater dewatering would not be required during construction of the proposed project.

Adherence to the CGP and the Vacaville Municipal Code, as specified in **Mitigation Measure HYD-1** and **Mitigation Measure HYD-2**, would ensure that the proposed project would not violate any water quality standards or waste discharge requirements associated with State or City requirements. With implementation of **Mitigation Measure HYD-1** and **Mitigation Measure HYD-2**, which require compliance with the CGP and the Vacaville Municipal Code, construction impacts related to surface water quality standards, waste discharge requirements, and surface water quality would be less than significant.

Operation. The proposed project would develop a Neighborhood Park, including a playfield multipurpose court, tot lot, kids playground, shade structures, and stage/seating area, Recreation Center building, and Vacaville Housing and Community Services Department office building, at the project site, thereby increasing the amount of impervious surface area. The increase in impervious surface area could result in increased stormwater runoff (both flow rate and volume) from the

⁵¹ California Stormwater Quality Association. 2019. *Stormwater BMP Handbook for Construction*. December. Website: <https://www.casqa.org/resources/bmp-handbooks/construction-bmp/2019-construction-bmp-handbook> (accessed January 25, 2024).

⁵² Personal communication with Sharon Chan, City of Vacaville, on January 8, 2024.

project site relative to pre-project conditions, which may result in hydromodification impacts (i.e., increased potential for erosion of creek beds and banks, silt pollution generation, or other adverse impacts on beneficial uses due to increased erosive force).

During operation, anticipated pollutants of concern associated with the proposed project include bacteria/virus, heavy metals, toxic organic compounds, nutrients, pesticides, sediment/turbidity, trash and debris, oils, and grease. Potential sources of these pollutants associated with the proposed project include:

- **Bacteria/Virus:** Sediment, and landscaping areas
- **Heavy Metals and Toxic Organic Compounds:** Automobiles and surface parking areas
- **Nutrients:** Fertilizers, sediment, and trash/debris
- **Pesticides:** Landscaping activities
- **Sediment/turbidity:** Disturbed or unstabilized landscaping areas
- **Trash and Debris:** Landscaping activities, food wrappers, and food wastes
- **Oil and Grease:** Parking areas and parked vehicles

Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. As previously discussed, the current impairments for receiving waters (i.e., Ulati Creek, Cache Slough, and Sacramento River) include pesticides, salinity/total dissolved solids/chlorides/sulfates, mercury, water temperature, and toxicity.⁵³

Project operations would be subject to the requirements of the Small Phase II MS4 Permit. The Small MS4 Permit is designed to avoid and minimize water quality impacts attributable to discharge from the stormwater drainage systems owned and/or operated by the co-permittees, which includes the City of Vacaville. This permit regulates stormwater runoff by requiring implementation of BMPs to reduce pollutants in runoff to the maximum extent practicable to protect water quality. The provisions of the Small Phase II MS4 Permit are implemented through the Vacaville Municipal Code Section 14.26, Urban Storm Water Quality Management and Discharge Control. Permittees must develop and implement a Stormwater Management Plan (SWMP) with the goal of addressing the rate and volume of runoff and the discharge of pollutants to the maximum extent practicable. Permittees shall regulate development through the following: site design measures, source control measures, Low Impact Development (LID) Design Standards, Hydromodification Measures, Operation and Maintenance of Storm Water Control Measures, and Post-Construction BMPs. Finally, the MS4 requires ongoing water quality monitoring and corrective actions if water quality thresholds are not maintained. As detailed in **Mitigation Measure WQ-2** and required by the Vacaville Municipal Code Section 14.26, the proposed project would be required to prepare a post-construction BMP design plan and storm water management facilities operation and maintenance

⁵³ State Water Resources Control Board (SWRCB). 2023. *2020-2022 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report)*. Website: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.waterboards.ca.gov%2Fwater_issues%2Fprograms%2Ftmdl%2F2020_2022state_ir_reports_revised_final%2Fapx-a-303d-list.xlsx&wdOrigin=BROWSELINK (accessed January 25, 2024).

plan (O&M plan) in accordance with the Small Phase II MS4 Permit that details the post-construction BMPs intended to control the volume, rate, and potential pollutant load of storm water runoff.

The City's standard conditions of approval require development projects to demonstrate to the City Engineer and Director of Public Works that the proposed development meets the requirements of the Small Phase II MS4 Permit and corresponding design standards, as detailed in **Mitigation Measure HYD-3**.

Additionally, the project has the potential to adversely affect existing City storm drain capacity. Therefore, the project would be required to comply with the *Storm Drain Design Standards Section DS 4* developed by the City of Vacaville. These standards provide the minimum requirements for design of a storm drain system that will collect storm water to ensure that stormwater runoff from storms up to the 100-year frequency event are adequately conveyed through storm facilities so as not to cause flooding⁵⁴. As part of these requirements, the project would need to develop a Storm Drainage Master Plan (SDMP) Report, as detailed in **Mitigation Measure HYD-4**.

Development of the proposed project would result in an increase in impervious surfaces on the project site from 0 acres to approximately 1.25 acres (36 percent of the project site), which could generate pollutants that infiltrate into the groundwater. However, the on-site soils have medium to very high runoff potential.⁵⁵ Therefore, infiltration at the project site is low. Furthermore, according to the City, groundwater at the project site occurs more than 35 feet below ground surface. Pollutants in stormwater are generally removed by soil through absorption as water infiltrates. In areas of deep groundwater, there is more absorption potential and, as a result, less potential for pollutants to reach groundwater. Due to the depth to groundwater, it is not expected that any stormwater that may infiltrate would affect groundwater quality because there is not a direct path for pollutants to reach groundwater.

With implementation of the **Mitigation Measure HYD-2**, **Mitigation Measure HYD-3**, and **Mitigation Measure HYD-4**, which require compliance with the requirements of the Vacaville Municipal Code, Small Phase II MS4 Permit, and the *Storm Drain Design Standards Section DS 4* developed by the City, operation impacts related to a violation of any water quality standards or waste discharge requirements would be less than significant, and no mitigation is required.

Mitigation Measure HYD-3 **Small Phase II MS4 Permit.** Prior to issuance of grading permit, the City of Vacaville (City) shall review and approve a Final Storm Water Management Plan (SWMP) in compliance with the *National Pollutant Discharge Elimination System (NPDES) General Permit for Waste Discharge Requirements (WDRs) for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)* RWQCB Order No. 2013-001-DWQ, NPDES No. CAS000004, as amended by Order 2015-0133-EXEC, Order WQ 2016-0069-EXEC, Order 2017-

⁵⁴ City of Vacaville. 2006. Storm Drain Design Standards. May.

⁵⁵ United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS). Web Soil Survey. Website: <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx> (accessed January 25, 2024).

XXXX-DWQ, Order 2018-0001-EXEC, and Order 2018-0007-EXEC, including specifying project-specific site design measures, source control measures, Low Impact Development (LID) Design Standards, Hydromodification Measures, Operation and Maintenance of Storm Water Control Measures, and Post-Construction BMPs and associated water quality monitoring actions to ensure water quality thresholds are maintained and facilities meet the required sizing design criteria.

Mitigation Measure HYD-4

Storm Drain Design Standards Section DS 4. Prior to issuance of grading, the City of Vacaville shall review and approve a Final Storm Drainage Master Plan to ensure it is in compliance with the City of Vacaville *Storm Drain Design Standards Section DS 4*.

Overall, because the proposed project would be required to comply with existing regulations including the CGP, the Small Phase II MS4 Permit, and all applicable City codes and requirements, the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. Impacts would be less than significant.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? (Less Than Significant Impact)

The City, including the project site, is located within the Solano Subbasin, which includes the southernmost portion of the Sacramento Valley Groundwater Basin and extends unto the northern portion of the Sacramento Joaquin Delta.⁵⁶ The Solano Subbasin boundaries are defined by Putah Creek on the north, the Sacramento River on the East (from Sacramento to Walnut Grove), the North Mokelumne River on the southeast (from Walnut Grove to the San Joaquin River), the San Joaquin River on the South (from the North Mokelumne River to the Sacramento River), the Lower Members of the Great Valley Group on the Northwest, and the Suisun-Fairfield Valley Basin on the Southwest. In addition to Vacaville, the Solano Subbasin underlies Dixon and Rio Vista, and is pumped extensively for local agricultural and municipal uses. Recharge of the Solano Subbasin primarily comes from direct percolation of rainfall and return flows of applied water by agricultural and municipal users.⁵⁷ The surface area of the Solano Subbasin is approximately 425,000 acres or 664 square miles, with average annual rainfall over the basin ranging from approximately 23 inches in the western portion of the subbasin to 16 inches in the eastern portion.⁵⁸ In 2014, the Department of Water Resources (DWR) identified the Solano Sub-Basin as a medium-priority basin,

⁵⁶ City of Vacaville. 2015. *Draft General Plan and ECAS Environmental Impact Report, Section 4.9: Hydrology and Water Quality*. February 27. Website: <https://www.cityofvacaville.gov/home/showpublisheddocument/5502/636234161698230000> (accessed January 25, 2024).

⁵⁷ Solano Subbasin Groundwater Sustainability Agencies Collaborative. 2021. *Solano Subbasin Groundwater Sustainability Plan*. November 30.

⁵⁸ State Water Resources Control Board Division of Water Rights. 2004. *Sacramento Valley Groundwater Basin, Solano Subbasin Bulletin 118*. February 27.

and maintained the priority level in the 2019 prioritization update.⁵⁹ To date, there has been no groundwater storage calculation for the Solano Subbasin as it is described by the DWR Bulletin 118.⁶⁰

According to the City's 2020 Amended Urban Water Management Plan (2020 UWMP)⁶¹, the City has multiple sources of water available for its use including Solano Project water from Lake Berryessa, State Water Project and Settlement Water, and groundwater from local wells. These water sources allow the City to manage use of the water supply based on each source's availability. The City uses more surface water during wet years and can rely more on groundwater during dry years. Groundwater conditions at local wells are consistently monitored, and levels have been stable for over a decade. The City does not expect any water supply shortages in future years, even in a drought, as determined by a drought risk assessment that showed that even in five consecutive dry years, the City has enough supply to meet customer demands. The City also has the ability to put measures in place to reduce demand in response to water shortages, if necessary.⁶²

Construction. As discussed in Section 4.10.a, above, groundwater was encountered at the project site at 35 feet below the existing grade. The proposed project would require excavation to a maximum depth of 5 feet below the existing grade for construction of the proposed onsite stormwater collection system and utility connections. As such, construction groundwater dewatering is not anticipated and impacts related to the decrease of groundwater supplies or interference with groundwater recharge during construction would be less than significant. No mitigation is required.

Operation. Water service for the proposed project would be provided by the City. The City's water utility system was purchased from Pacific Gas and Electric Company in 1959 by issuing voter-approved water revenue bonds and is run by the Utilities Department with support from other City departments. As previously discussed, the City has multiple sources of water available for its use including Solano Project water from Lake Berryessa, State Water Project and Settlement Water, and groundwater from local wells. Therefore, operation of the proposed project would likely involve the use of both surface and groundwater sources for potable water. The 2020 UWMP indicates the City does not expect any water supply shortages in future years, even in a drought. A drought risk assessment showed that even in five consecutive dry years, the City has enough supply to meet customer demands. The City also has the ability to put measures in place to reduce demand in response to water shortages, if necessary. Additionally, because the proposed project is consistent with the existing land use and zoning designation for the project site, the water demand associated with development of the site was assumed in the City's future water demand projections. Therefore, it is expected the City would rely on existing groundwater entitlements to serve the proposed project's water needs. The planting plans would primarily rely on native, drought tolerant species.

⁵⁹ City of Vacaville. *Groundwater Sustainability*. Website: <https://www.cityofvacaville.gov/government/utilities/groundwater-sustainability?locale=en> (accessed January 25, 2024).

⁶⁰ State Water Resources Control Board Division of Water Rights. 2004. *Sacramento Valley Groundwater Basin, Solano Subbasin Bulletin 118*. February 27.

⁶¹ City of Vacaville. 2023. *City of Vacaville 2020 Amended Urban Water Management Plan*. August.

⁶² Ibid.

Therefore, implementation of the proposed project would not contribute to a substantial depletion of groundwater supplies.

Development of the proposed project would result in an increase in impervious surfaces on the project site from 0 acres to approximately 1.25 acres (36 percent of the project site), which could decrease on-site infiltration. According to the US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCA) Web Soil Survey, the soils on the project site consist of approximately 8.6 percent Brentwood clay loam (BrA), 26.9 percent Corning gravelly loam (CvD2), and 64.5 percent Rincon clay loam (RoA).⁶³ The BrA and RoA soils present on the site are considered to have medium runoff potential and the CvD2 soil is considered to have a very high runoff potential.⁶⁴ In addition, under existing conditions, storm water sheet flows to existing drainage facilities located in Brown Street as opposed to directly percolating into the site. As such, the project site does not provide substantial infiltration under the existing condition and the project site is not considered a significant source of groundwater recharge.

Because implementation of the proposed project would not contribute to a substantial depletion of groundwater supplies and the project site is not a significant source of groundwater recharge, the proposed project would not result in a significant decrease in groundwater recharge that would result in a net deficit in aquifer volume or a lowering of the local groundwater table level.

Therefore, impacts related to the decrease of groundwater supplies or interference with groundwater recharge would be less than significant.

- c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i. Result in substantial erosion or siltation on- or off-site; ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv. Impede or redirect flood flows?*

Under existing conditions, stormwater from the project site sheet flows in an east to west direction into an existing 18-inch storm drain located in Brown Street (i.e., the western project site boundary) which directs flows into Ulatis Creek. Ulatis Creek ultimately discharges to the Sacramento River via Cache Slough. With implementation of the proposed project, the project site would continue to direct storm water flows to the existing 18-inch storm drain located in Brown Street, which would be extended onsite with a pipe not to exceed 18 inches. An onsite stormwater collection system consisting of 4- to 18- inch storm drainpipes, with associated catch basins and/or manholes, would be installed throughout the project area to direct on-site storm water flows to approximately 2,200 square feet of bioswales located along the northern, eastern, and southern edges of the project site. The on-site stormwater collection system and proposed bioswales would manage and treat storm

⁶³ United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS). *Web Soil Survey*. Website: <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx> (accessed January 25, 2024).

⁶⁴ *Ibid.*

water runoff before discharging flows into existing storm drain infrastructure located in Brown Street. The bioswales would be designed to collect, treat, and convey the 10- and 100-year post-development peak flows for the project site in accordance with the Small Phase II MS4 Permit and City requirements, as detailed in **Mitigation Measure HYD-1** and **Mitigation Measure HYD-2**, above.

i. Result in substantial erosion or siltation on- or off-site; (Less Than Significant Impact)

Stormwater from the project site currently sheet flows to an existing 18-inch storm drain located in Brown Street (i.e., the western project site boundary). During construction activities, more than 1 acre of soil would be disturbed. During grading and other construction activities, soil would be exposed, drainage patterns would be temporarily altered, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion and siltation could occur at an accelerated rate. As specified in **Mitigation Measure HYD-1** and **Mitigation Measure HYD-2**, the proposed project would be required to comply with the CGP and the Vacaville Municipal Code, which require the preparation of a SWPPP to identify construction BMPs that comply with the CASQA *Stormwater BMP Handbook for Construction* to be implemented during construction of the proposed project to reduce impacts on water quality, including those impacts associated with soil erosion and siltation. Compliance with the requirements in the CGP and the Vacaville Municipal Code, including implementation of construction BMPs, would ensure that construction impacts related to on- or off-site erosion or siltation would be less than significant.

After the completion of project construction, the proposed project would not significantly alter the existing drainage pattern of the site. However, operation of the proposed project would result in an increase in impervious surfaces on the project site from 0 acre to approximately 1.25 acres (36 percent of the project site), which would result in a net increase in stormwater runoff that could lead to downstream erosion in receiving waters. However, as discussed above, the proposed project would be required to prepare a post-construction BMP design plan and storm water management facilities O&M plan in accordance with the Small Phase II MS4 Permit that details the post-construction BMPs intended to control the volume, rate, and potential pollutant load of storm water runoff, as specified in **Mitigation Measure HYD-2**. In addition, the proposed project would be required to prepare a Final SWMP, which would demonstrate that the stormwater facilities meet water quality treatment and stormwater rate and volume requirements in compliance with the Small Phase II MS4 Permit, as specified in **Mitigation Measure HYD-3**. Further, the proposed project would also be required to submit a Final SDMP Report to the City of Vacaville, for review and approval, in compliance with the City's *Storm Drain Design Standards Section DS 4*, as specified in **Mitigation Measure HYD-4**. With implementation of **Mitigation Measure HYD-2**, **Mitigation Measure HYD-3**, and **Mitigation Measure HYD-4**, operational impacts related to on- or off-site erosion or siltation would be less than significant.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; (Less Than Significant Impact)

Project construction would comply with the requirements of the CGP and the Vacaville Municipal Code and would include the preparation and implementation of a SWPPP pursuant to **Mitigation Measure HYD-1** and **Mitigation Measure HYD-2**. The SWPPP would include

construction BMPs (e.g., soil binders, straw mulch, non-vegetative stabilization, fiber rolls, sandbag barrier, straw bale barrier, stabilized construction entrance/exit, stabilized construction roadway, and entrance/outlet tire wash) to control the rate and amount of on-site surface runoff and to direct flows to ensure that storm water runoff from the construction site does not result in on- or off-site flooding. With adherence to **Mitigation Measure HYD-1** and **Mitigation Measure HYD-2**, construction impacts related to a substantial increase in the rate or amount of surface runoff that would result in flooding and impede or redirect flood waters would be less than significant, and no mitigation is required.

The undeveloped project site is currently entirely comprised of pervious surfaces. Development of the proposed project would result in an increase in impervious surfaces on the project site to 1.25 acres (36 percent of the project site), which could have the potential to increase the volume and rate of stormwater runoff discharged from the project site. The proposed project would include an onsite stormwater collection system consisting of 4- to 18- inch storm drainpipes, with associated catch basins and/or manholes, which would direct on-site storm water flows to approximately 2,200 square feet of bioswales located along the northern, eastern, and southern edges of the project site. The on-site stormwater collection system and proposed bioswales would be used for stormwater treatment and peak flow mitigation prior to discharging into the City's storm drain system, in compliance with the requirements of the Vacaville Municipal Code, Small Phase II MS4 Permit and the City's *Storm Drain Design Standards Section DS 4*, as specified in **Mitigation Measure HYD-2**, **Mitigation Measure HYD-3**, and **Mitigation Measure HYD-4**. Therefore, with implementation of the requirements of the Vacaville Municipal Code, Small Phase II MS4 Permit, and the City's *Storm Drain Design Standards Section DS 4*, including the implementation of LID techniques to address the volume and rate of stormwater runoff in the post-project condition, the proposed project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site. Impacts would be less than significant, and no mitigation is required.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (Less Than Significant Impact)

Stormwater Drainage System Capacity. The proposed project would include an onsite stormwater collection system consisting of 4- to 18- inch storm drainpipes, with associated catch basins and/or manholes, which would direct on-site storm water flows to approximately 2,200 square feet of bioswales located along the northern, eastern, and southern edges of the project site. The on-site stormwater collection system and proposed bioswales would manage the rate and volume of storm water runoff before discharging flows into existing storm drain infrastructure located in Brown Street so as not to exceed the capacity of the storm drain system in compliance with the requirements of the Small Phase II MS4 Permit and the City's *Storm Drain Design Standards Section DS 4*, as specified in **Mitigation Measure HYD-3** and **Mitigation Measure HYD-4**.

Therefore, the proposed project would not contribute to an exceedance of existing or planned stormwater drainage systems, and impacts would be less than significant. No mitigation is required.

Polluted Runoff. Implementation of BMPs to reduce pollutants of concern in stormwater runoff in compliance with the CGP, Small Phase II MS4 Permit, and City regulations, as detailed in **Mitigation Measure HYD-1 through Mitigation Measure HYD-4**, such as the use of on-site bioswales to manage the volume of stormwater flows to minimize erosion and siltation and to target and reduce pollutants of concern, would ensure that the proposed project would result in less than significant impacts related to discharge of polluted runoff during project construction and operations. Therefore, the proposed project would not contribute additional sources of polluted runoff, and impacts would be less than significant. No mitigation is required.

iv. Impede or redirect flood flows? (No Impact)

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 06095C0276E, the entirety of the project site is located in Zone X, which is identified as an area of either minimal flood hazard or an area with 0.2 percent annual chance of flood hazard.⁶⁵ The project site is not located within a 100-year floodplain. Therefore, the proposed project would not impede or redirect flood flows, and there would be no impact. No mitigation is required.

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation? (Less Than Significant Impact)

Flooding. As discussed above, according to FEMA FIRM No. 06095C0276E, the entirety of the project site is located in Zone X, which is identified as an area of either minimal flood hazard or an area with 0.2 percent annual chance of flood hazard. During construction, BMPs would be implemented to ensure that during a rain event, pollutants would be retained on site and would be prevented from reaching downstream receiving waters in accordance with **Mitigation Measure HYD-1** and **Mitigation Measure HYD-2**. During operation, the proposed project would include approximately 2,200 square foot of bioswales, pursuant to the requirements of **Mitigation Measure HYD-3** and **Mitigation Measure HYD-4**, which would ensure that pollutants would be treated and prevented from reaching downstream receiving waters. According to the California Department of Water Resources Division of Safety of Dams, the project site is not located within the dam inundation area.⁶⁶ Therefore, the proposed project would not result in the release of pollutants due to flooding cause by a dam failure.

Tsunami. Tsunamis are ocean waves generated by tectonic displacement of the seafloor associated with shallow earthquakes, seafloor landslides, rock falls, and exploding volcanic islands. Tsunamis can have wavelengths of up to 120 miles and travel as fast as 500 miles per hour across hundreds of miles of deep ocean. Upon reaching shallow coastal waters, the waves can reach up to 50 feet in height, causing great devastation to near-shore structures. The project site is located approximately 50 miles from the Pacific Ocean. Based on the distance from the Pacific Ocean, the project site is not

⁶⁵ Federal Emergency Management Agency (FEMA). 2009. *Flood Insurance Rate Map (FIRM) No. 06095C0276E*. May 4.

⁶⁶ Department of Water Resources, Division of Safety of Dams. n.d. *Dam Breach Inundation Map Web Publisher*. Website: https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2 (accessed January 25, 2024).

located in a tsunami hazard zone and would not result in the release of pollutants due to inundation caused by a tsunami.

Seiches. Seiches are waves that are created in an enclosed body of water such as a bay, lake, or harbor and go up and down or oscillate and do not progress forward like standard ocean waves. Seiching occurs when seismic ground shaking induces standing waves (seiches) inside water retention facilities (e.g., reservoirs and lakes). Such waves can cause retention structures to fail and flood downstream properties. The nearest sizeable, enclosed body of water to the project site is Lake Curry, which is located approximately 7.8 miles west of the project site. Because impacts from seiches are very localized and the project site is located miles from enclosed bodies of water, implementation of the proposed project would not result in the release of pollutants due to inundation caused by a seiche.

With implementation of **Mitigation Measures HYD-1 through Mitigation Measure HYD-4**, including the incorporation of approximately 2,200 square foot of bioswales that would address the volume and rate of post-project stormwater flows, and because the project site is not within a tsunami or seiche zone, implementation of the proposed project would not result in the release of pollutants from a flood, dam inundation, tsunami, or seiche, and impacts would be less than significant.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? (Less Than Significant Impact)

The project site is within the jurisdiction of the Central Valley RWQCB, which has adopted a Water Quality Control Plan (i.e., Basin Plan)⁶⁷ that designates beneficial uses for all surface and groundwater within their jurisdiction and establishes the water quality objectives and standards necessary to protect those beneficial uses. As previously discussed, the proposed project would comply with existing NPDES permit requirements, including the CGP and Small Phase II MS4 Permit, and would implement construction and operational BMPs to reduce pollutants of concern in stormwater runoff as detailed in **Mitigation Measure HYD-1 through Mitigation Measure HYD-4**. Compliance with these regulatory requirements would ensure that the proposed project would not degrade or alter water quality, which would cause the receiving waters to exceed the water quality objectives or impair the beneficial use of receiving waters. As such, the proposed project would not result in water quality impacts that would conflict with the Basin Plan. Construction and operational impacts related to a conflict with the Basin Plan would be less than significant.

The Sustainable Groundwater Management Act (SGMA), which was enacted in September 2014, requires governments and water agencies of high- and medium-priority basins to halt overdraft of groundwater basins. The SGMA requires the formation of local Groundwater Sustainability Agencies (GSAs), which are required to adopt Groundwater Sustainability Plans (GSPs) to manage the sustainability of the groundwater basins. The project site is in the Solano Subbasin of the Sacramento Valley Groundwater Basin, which the DWR designates as a medium-priority basin.

⁶⁷ California Regional Water Quality Control Board Central Valley Region (RWQCB). 2019. *Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region*. Fifth Edition. Website: https://www.waterboards.ca.gov/centralvalley/water_issues?basin_plans/sacsjr_201902.pdf (accessed January 25, 2024).

On January 18, 2024, DWR approved the Solano Subbasin GSP⁶⁸, which provides a detailed roadmap for the Solano Subbasin to maintain long-term groundwater sustainability and went into effect when it was submitted to DWR on January 31, 2022. The GSP was the product of significant collaboration amongst various water management entities in the Subbasin, including the five GSAs comprising the Solano Subbasin GSA Collaborative, who worked together to fulfill the requirements of the SGMA. Solano Subbasin GSA Collaborative includes the Solano GSA, City of Vacaville GSA, Sacramento County GSA, Solano Irrigation District GSA, and the Northern Delta GSA. The GSP indicates that the groundwater conditions in the Subbasin suggest the Subbasin is currently sustainable and anticipated to remain sustainable under projected future conditions. Although an area in the northwestern portion of the Subbasin was identified to have recent localized lowered groundwater levels, groundwater levels reflecting the amount (storage) and movement of water in the groundwater system generally exhibit stable long-term trends. In addition, the GSP indicates that groundwater quality in the Subbasin is generally suitable for all beneficial uses, most notably for drinking water uses that typically have the most restrictive standards for water quality.

Implementation of the GSP will involve regular monitoring and reporting on conditions in the Subbasin and performing management actions indicated in the GSP. Several potential projects focused on enhanced groundwater recharge in the northwestern part of the Subbasin are also noted for consideration as part of GSP implementation. Table 4.10.A below summarizes the various projects and management actions (PMAs) identified in the GSP.

As previously discussed, groundwater was encountered at the project site at 35 feet below the existing grade. The proposed project would require excavation to a maximum depth of 5 feet below the existing grade for construction of the proposed onsite stormwater collection system and utility connections. Therefore, groundwater dewatering would not be required during construction of the proposed project and construction of the proposed project would not conflict with or obstruct implementation of the GSP.

The proposed project would increase water use, which would be partially obtained from groundwater. However, as previously discussed, the 2020 UWMP completed for the City indicates the City does not expect any water supply shortages in future years, even in a drought. A drought risk assessment showed that even in five consecutive dry years, the City has enough supply to meet customer demands. The City also has the ability to put measures in place to reduce demand in response to water shortages, if necessary.⁶⁹ Additionally, the GSP established management actions to ensure that future development will not significantly impact groundwater resources.

⁶⁸ Solano Subbasin Groundwater Sustainability Agencies Collaborative. 2021. *Solano Subbasin Groundwater Sustainability Plan*. November 30.

⁶⁹ City of Vacaville. 2023. *City of Vacaville 2020 Amended Urban Water Management Plan*. August.

Table 4.10.A: Solano Subbasin PMAs

PMA	Description
Ongoing PMAs	
Municipal and industrial Water Use Efficiency Outreach and Implementation	Develop Outreach materials and incentives for municipal and industrial water users to increase water use efficiency
PMAs Developed for Implementation	
City of Vacaville Recycled Water	Develop City's Recycled Water Program as recommended in the 2020 Recycled Water Master Plan Feasibility Study
Westside Streams Stormwater Capture Project	Develop an implementation schedule for potential projects in the Northwest Focus Area to enhance groundwater recharge and support local groundwater sustainability
Rainfall Managed Aquifer Recharge Demonstration Project	Evaluate the use of specific managed aquifer recharge activities on local farms to generate multiple benefits for groundwater sustainability and stormwater management
Potential PMAs	
Other Groundwater Recharge Opportunities	Several conceptual recharge projects have been identified along Ulatis Creek to support ongoing groundwater sustainability in the Solano Subbasin. The Nature Conservancy has provided GSAs with guidelines to implement on-farm, multi-benefit groundwater recharge efforts that would also be applicable in the Solano Subbasin
Grower Education Related to On-Farm Practices for Sustainable Groundwater Management	Use of Solano Agricultural Scenario Planning System (SASPS), a web-based application that GSAs and other local agencies can use to design voluntary programs to engage agricultural producers in on-farm sustainable groundwater management projects
Demand Management	Develop a program that would incentivize voluntary participants to reduce water consumption
Groundwater Trading Institution	Monitor Solano Subbasin conditions and consider a groundwater trading market to increase flexibility (options) to respond to potential demand management programs
Education and Collaboration	The Solano Resource Conservation District, The Freshwater Trust, Local Government Commission, and RD 2068 all provide groundwater and water conservation education to classrooms and growers within the Solano Subbasin
Well Owner Outreach and Education	Develop and implement education and outreach about private domestic well monitoring
Participation in Other Water Resources Management Programs	Implement other groundwater management strategies including further use of recycled water, expanded conjunctive water management, changes to well regulations, and other actions

Source: *Solano Subbasin GSP*. 2021

PMA = Projects and Management Actions

Recharge of the Solano Subbasin primarily comes from direct percolation of rainfall and return flows of applied water by agricultural and municipal users.⁷⁰ As described above, the soils on the project site consist of approximately 8.6 percent BrA, 26.9 percent CvD2, and 64.5 percent RoA.⁷¹ The BrA and RoA soils present on the site are considered to have medium runoff potential and the CvD2 soil is considered to have a very high runoff potential.⁷² In addition, under existing conditions, storm water sheet flows to existing drainage facilities located in Brown Street as opposed to directly percolating into the site. As such, the project site does not provide substantial infiltration under the existing condition and the project site is not a significant source of groundwater recharge. Nevertheless, the proposed project would include an onsite stormwater collection system consisting

⁷⁰ Solano Subbasin Groundwater Sustainability Agencies Collaborative. 2021. *Solano Subbasin Groundwater Sustainability Plan*. November 30.

⁷¹ US Department of Agriculture Natural Resources Conservation Service (USDA NRCS). *Web Soil Survey*. Website: <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx> (accessed January 25, 2024).

⁷² *Ibid.*

of 4- to 18- inch storm drainpipes, with associated catch basins and/or manholes, throughout the project area to direct on-site storm water flows to approximately 2,200 square feet of bioswales located along the northern, eastern, and southern edges of the project site. The on-site stormwater collection system and proposed bioswales would collect on-site stormwater and be used for stormwater treatment and peak-flow mitigation prior to discharging into the City's storm drain system in compliance with the requirements of the Vacaville Municipal Code and Small Phase II MS4 Permit, as detailed in **Mitigation Measure HYD-2** and **Mitigation Measure HYD-3**. For these reasons, the proposed project would not conflict with or obstruct the implementation of a sustainable groundwater management plan. Therefore, construction and operational impacts related to conflict with, or obstruction of water quality control plans or sustainable groundwater management plans would be less than significant.

4.11 LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.11.1 Impact Analysis

a. *Would the project physically divide an established community? (No Impact)*

The physical division of an established community typically refers to the construction of a feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying areas. For instance, the construction of an interstate highway through an existing community may constrain travel from one side of the community to another; similarly, such construction may also impair travel to areas outside of the community.

The project site is located in an urban area and is surrounded by a mix of residential and public facility/institutional uses to the north, east and west, and commercial uses to the south. The proposed project would include the construction of a new Recreation Center building, Vacaville Housing Services Department office building, and multiple outdoor recreation facilities such as playfields, basketball courts, tot lots, playgrounds, and a walking trail. Access to the project site would be provided via an existing roadway (Brown Street). The proposed project would not result in the realignment or closure of any existing roads. Therefore, the proposed project would not result in the physical division of an established community or adversely affect the continuity of land uses in the vicinity, and this impact would be less than significant.

b. *Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? (Less Than Significant)*

The project site is within an urban area in Vacaville. The project site encompasses 3.44 acres of land composed of 9 parcels (Assessor's Parcel Numbers 0129-320-020, -150, -170, -180, -190, -200, -250, -260 and -270). The entire project site is currently undeveloped and consists of grassy areas with sparse trees including valley oaks and an elm. Sidewalks are present along the Brown Street frontage and fences separate the site from residential uses to the north and east. The project site is surrounded by public facility, commercial and residential uses.

The project site is located within the City of Vacaville and is subject to the land use and zoning designations of the City of Vacaville General Plan (2016) and relevant portions of the Vacaville Municipal Code Zoning Regulations Title 14 (1977, as amended through 2022)⁷³.

The following provides an evaluation of the proposed project's consistency with applicable goals and policies of the General Plan and Zoning Ordinance. In reviewing this section, it is important to understand that the determination of whether a project is consistent with a specific policy can be subjective, and that consistency determinations are best made with a broad understanding of the often-competing policy objectives in a planning document. As a result, policy consistency determinations are ultimately made by the local decision-making body. The City is the lead agency for environmental review; therefore, the City Council would determine the proposed project's consistency with the City's applicable plans and policies. The analysis in this chapter provides decision makers with a list of the goals and policies that are pertinent to the proposed project and the project site, and a recommendation regarding whether or not the proposed project would directly conflict with relevant planning directives. These recommendations are intended to supplement decision-makers' own understanding of the various policy considerations. A conflict with an applicable policy is not itself a significant impact unless it results in a significant environmental impact, as described below.

Per the *State CEQA Guidelines*, policy conflicts do not, in and of themselves, constitute significant environmental impacts. Policy conflicts are considered to be environmental impacts only when they would result in direct physical impacts or where those conflicts relate to avoiding or mitigating environmental impacts. As such, associated physical environmental impacts are discussed in this Initial Study under specific topical sections.

General Plan. The City's General Plan designates the site as Commercial General. The Commercial General designation provides for a full range of commercial uses, including retail stores, food and drug stores, auto sales, and businesses selling home furnishings, apparel, durable goods, and specialty items. Support facilities, such as entertainment and eating-and-drinking establishments, are also permitted.

The proposed project would be consistent with the following applicable General Plan goals and policies as discussed below.

Goal LU-3. Coordinate land development with the provision of services and infrastructure.

Goal PR-1. Develop and maintain a high-quality public park system that provides varied recreational opportunities for city residents, workers, and visitors.

Policy PR-P1.3. Provide community parks to encompass a range of uses, including active high-investment (e.g., gymnasiums and swimming pools), active low-investment (e.g., playfields and picnic facilities), and passive recreational facilities (e.g. natural areas suitable for quiet reflection). Community parks shall serve large portions of the city by

⁷³ City of Vacaville. 2022. Vacaville Municipal Code. Website:
<https://www.codepublishing.com/CA/Vacaville/#!/Vacaville14/Vacaville14.html>

providing facilities suitable for recreational and cultural activities beyond those supplied by neighborhood parks.

Goal PR-3. Locate new parks to maximize safety, site efficiency, public safety, and convenient public access.

Goal PR-4. Provide and maintain parks that reflect, preserve, and respect Vacaville's natural setting and the public's investment in each facility.

Policy PR-P4.4. Preserve and enhance the natural areas and biotic resources within parks, such as corridors, wildlife habitat, and oak woodlands.

Goal PUB-5. Build and maintain public buildings that are a source of civic pride for all residents.

Policy PUB-P5.6. Encourage public buildings to accommodate multiple community uses.

The proposed project would develop a new infill development on an underutilized vacant lot consisting of a new Neighborhood Park, Recreation Center, and Vacaville Housing and Community Services Department office building, and associated site improvements. The proposed Neighborhood Park includes recreational amenities such as a playfield, multipurpose courts, stage, tot lot, playground, picnic areas, interactive water feature, pedestrian trail, drinking fountains, and a 26-foot diagonal width mobile TV screen with an associated sound system). The project would serve community needs and provide opportunities for increased physical activity and social interaction. The proposed project would be compatible with the mix and intensity of uses located within the vicinity of the site, which generally consists of public facility and residential uses.

Zoning Ordinance. The project site is zoned as Commercial General (CG-PD). The CG district is intended for both small and large commercial development, primarily on sites located along major streets and adjacent to the freeway. In conjunction with Commercial General, the Planned Development (PD) zoning overlay allows for flexibility in applying zoning regulations to encourage innovation and creativity in project concept and design. Allowed uses include a variety of small and large commercial uses. Recreational centers and associated facilities are a permitted use within this district and the proposed project would be consistent with this zoning designation. Additionally, the project site is in an urban area in Vacaville. It is surrounded by single- and multifamily residential uses, commercial uses, and institutional facilities. As stated above, the proposed project would develop a new park, associated recreational facilities, and a community services building. The proposed project would remain consistent with surrounding land uses. Additionally, both the Recreation Center building and Vacaville Housing and Community Services Department office building would be less than 40 feet in height. Therefore, the project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect; impacts would be less than significant.

Therefore, the proposed project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

4.12 MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.12.1 Impact Analysis

- a. *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? (No Impact)*

Vacaville contains limited mineral resources that are being extracted and ,although the western hills contain sandstone and conglomerates that may be used for sands, gravel, and stone, none of these resources are currently being mined.⁷⁴ The project site is in an urban area of central Vacaville and is not in an area where mineral resources are present. Additionally, the project site is not within a Resource Conservation overlay on the City of Vacaville’s General Plan Land Use Map. Therefore, the proposed project would not result in the loss of availability of a known mineral resource of value to the region or residents of the State, and there would be no impact related to the availability of mineral resources.

- b. *Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? (No Impact)*

Please refer to Section 4.12.(a). The proposed project would not result in the loss of availability of any known locally important mineral resource recovery site. Therefore, no impact related to the availability of a mineral resource’s recovery site would occur.

⁷⁴ City of Vacaville. 2021. *General Plan. Chapter 4 Conservation and Open Space Element*. Website: <https://ci.vacville.ca.us/government/community-development/advanced-planning/adopted-plans/general-plan> (accessed February 14, 2024).

4.13 NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.13.1 Impact Analysis

- a. *Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (Less Than Significant Impact)*

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a sound wave, which results in the tone's range from high to low. Loudness is the strength of a sound, and it describes a noisy or quiet environment; it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity is the average rate of sound energy transmitted through a unit area perpendicular to the direction in which the sound waves are traveling. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

Sound intensity is measured with the A-weighted decibel (dBA) scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound, similar to the human ear's de-emphasis of these frequencies. Decibels (dB), unlike the linear scale (e.g., inches or pounds), are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 dB is 10 times more intense than 0 dB, 20 dB is 100 times more intense than 0 dB, and 30 dB is 1,000 times more intense than 0 dB. Thirty decibels (30 dB) represents 1,000 times as

much acoustic energy as 0 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the sound's loudness. Ambient sounds generally range from 30 dB (very quiet) to 100 dB (very loud).

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and Community Noise Equivalent Level (CNEL) or the day-night average noise level (L_{dn}) based on A-weighted decibels. CNEL is the time-weighted average noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noises occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during relaxation hours. CNEL and L_{dn} are within 1 dBA of each other and are normally interchangeable. The City uses the CNEL noise scale for long-term traffic noise impact assessment.

Noise impacts can be described in three categories. The first category includes audible impacts, which are increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3 dB or greater because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1 dB and 3 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category includes changes in noise levels of less than 1 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

The applicable noise standards governing the project site include the criteria in the City of Vacaville General Plan Noise Element (Noise Element) and the Vacaville Municipal Code.

City of Vacaville.

General Plan. The City of Vacaville General Plan establishes acceptable noise level criteria for transportation noise sources under Chapter 8, Noise Element. Table 4.13.A shows the acceptable noise levels for various land use categories and is used when determining a proposed project's noise impact.

Table 4.13 A: Land Use Noise Compatibility Guidelines

Land Use Category	Community Noise Exposure (L_{dn} or CNEL, dBA)			
	Normally Acceptable ¹	Conditionally Acceptable ²	Normally Unacceptable ³	Clearly Unacceptable ⁴
Residential – Low Density Single Family, Duplex, Mobile Home	<60	55-70	70-75	75+
Residential – Multifamily	<65	60-70	70-75	75+
Transient Lodging – Motel, Hotel	<65	60-70	70-80	80+
Schools, libraries, Churches, Hospitals, Nursing Homes	<70	60-70	70-80	80+
Auditoriums, Concert Halls, Amphitheaters	-	<70	65+	-
Sports Arena, Outdoor Spectator Sports	-	<75	70+	-
Playgrounds, Neighborhood Parks	<70	-	67.5-75	72.5+
Golf Courses, Riding Stables, Water Recreation, Cemeteries	<75	-	70-80	80+
Office Building, Business Commercial, and Professional	<70	67.5-77.5	75+	-
Industrial, Manufacturing Utilities, Agriculture	<75	70-80	75+	-

Source: City of Vacaville General Plan.

- ¹ Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
- ² New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
- ³ New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.
- ⁴ New construction or development should generally not be undertaken.
- ⁵ These standards are not applicable for development within the airport compatibility review area. Development in the airport compatibility review areas are subject to standards in the applicable airport land use plan.

CNEL = Community Noise Equivalent Level

dBA = A-Weighted decibel

L_{dn} = day-night average noise level

The Noise Element provides the City's goals, policies, and actions related to noise. The City has identified the following goals and policies which are applicable to the proposed project:

Goal NOI-1: Maintain an acceptable noise environment in all areas of the city.

Policy NOI-P1.2: Require that noise created by new transportation and non-transportation noise sources be mitigated, to the extent that is technically and economically feasible, to comply with the noise level standards of Table NOI-3 [Table 4.13.A of this document].

Policy NOI-P1.3: Allow minor exceptions to the noise level design standards in Table NOI-3 [Table 4.13.A of this document] in circumstances where mitigation requirements are not technically or economically feasible and not consistent with other City goals, standards, and policies.

Goal NOI-2: Protect noise-sensitive uses from excessive noise.

Policy NOI-P2.1: Reduce outdoor noise levels in existing residential areas, where economically and aesthetically feasible.

Policy NOI-P2.3: Design subdivisions to minimize the transportation-related noise impacts to adjacent residential areas.

Policy NOI-P2.4: Maintain smooth street surfaces adjacent to land uses that are sensitive to noise intrusion.

Policy NOI-P2.5: Encourage the use of open space, earthen berms, parking, accessory buildings, and landscaping to buffer new and existing development from noise. Use sound walls only when other methods are not practical or when recommended by an acoustical expert as part of a mitigation program.

Policy NOI-P2.6: Require that the effects of sound walls on noise levels in surrounding areas be considered and taken into account in the design, location, and construction of sound walls.

Action NOI-A2.2: Review all non-residential development proposals for noise impacts on noise sensitive land uses, such as residences, schools, and hospitals.

Goal NOI-4: Minimize noise from stationary sources.

Policy NOI-P4.1: Preclude the generation of annoying or harmful noise through conditions of approval on stationary noise sources, such as construction and property maintenance activity and mechanical equipment.

Policy NOI-P4.2: Require the following construction noise control measures:

- Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Locate stationary noise-generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction area.
- Utilize “quiet” air compressors and other stationary noise sources where technology exists.
- Limit hours of operation of outdoor noise sources through conditions of approval.

City of Vacaville Municipal Code. To determine the potential noise impacts generated by the project to surrounding uses during construction and operation, the following standards and conditions would be applicable:

Nontransportation (Stationary) Sources. Section 14.09.240.140, Noise, outlines the acceptable daytime and nighttime noise performance standards for nontransportation noise sources. Two standards apply to nontransportation noise sources: the hourly L_{eq} , dBA, which is an hourly

average sound level, and the maximum level, dBA. All uses shall comply with these standards. The noise standards for nontransportation sources shall not apply in the following situations:

- a. To new uses if the ambient noise levels exceed the hourly L_{eq} or the maximum level of the proposed noise generator, unless the additional noise generated would increase the projected, combined noise levels a minimum of three decibels;
- b. To public parks or public playgrounds upon a finding by the decision maker that the location of the facilities within the park or playground reasonably limits the noise impacts upon other land uses;
- c. For nuisance abatement related to residential generated noise sources including, but not limited to, children playing, lawn mowers, barking dogs, and musical equipment;
- d. To residential caretaker units established in conjunction with nonresidential uses;
- e. To construction activity related to public improvement projects where the Director of community Development has determined that full compliance with these standards cannot practically be achieved.


Construction. Vacaville Municipal Code Section 8.10.060, *Public Nuisance*, restricts construction, repair work or grading within 500 feet from any occupied residence between the hours of 7:00 p.m. and 7:00 a.m. Monday through Saturday. No such construction, repair work or grading activities shall be allowed on Sundays or holidays. These restrictions do not apply to:


1. City projects;
2. An exception granted by the department of public works for emergency work, to offset project delays due to inclement weather, for 24-hour projects, or other similar occurrences; or
3. Interior work, construction, repair work or grading activities that are performed by or under the direction of the homeowner at his or her residence on a Sunday or holiday, provided such work shall only be allowed between the hours of 8:00 a.m. and 7:00 p.m.


To assess existing noise levels, LSA conducted noise monitoring to establish the existing ambient noise environment at the project site. Two long-term (24-hour) noise level measurement were conducted between June 22 and June 23, 2021, using two Larson Davis Spark 706RC Dosimeters. Two short-term (15-minute) noise level measurements were conducted on June 23, 2021, using a Larson Davis LxT. Table 4.13.B provides a summary of the measured hourly noise levels from the long-term noise level measurements. Hourly noise levels at surrounding sensitive uses are as low as 46.6 dBA L_{eq} during nighttime hours and 55.4 dBA L_{eq} during daytime hours. Figure 4-1 shows the noise monitoring locations.



LSA

 Project Site Boundary

 Short-term Noise Monitoring Location

 Long-term Noise Monitoring Location



0 100 200
FEET

SOURCE: Nearmap (2023)

I:\COV2101\GIS\Pro\Brown Street Master Plan Project\Brown Street Master Plan Project.aprx (2/23/2024)

FIGURE 4-1

Brown Street Park Master Plan Project
Noise Monitoring Locations

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Table 4.13.B: Existing Noise Level Measurements

Location Number	Location Description	Daytime Noise Levels ¹ (dBA L _{eq})	Evening Noise Levels ² (dBA L _{eq})	Nighttime Noise Levels ³ (dBA L _{eq})	Average Daily Noise Levels (dBA CNEL)	Primary Noise Sources
LT-1	Southwest corner of site, approximately 32 ft from the centerline of Brown Street	62.0–65.1	60.6–64.1	53.2–62.1	66.5	Brown St, Monte Rio Ave, I-80, aircraft overflights, wildlife
LT-2	Northeast corner of site, approximately 400 ft from Brown Street	56.0–59.3	53.9–56.6	48.5–54.9	60.0	Aircraft overflights, I-80, wildlife, Brown St, Monte Rio Ave.
ST-1 ⁴	Near center of project site, approximately 240 ft east of Brown Street.	55.4–57.9	54.0–58.1	46.6–55.5	59.9	Aircraft overflights, I-80, wildlife, Brown St, Monte Rio Ave.
ST-2 ⁴	Northwest corner of project site, approximately 50 ft east of center of Brown Street	58.0–61.0	56.5–61.5	49.2–58.1	62.6	Brown St, I-80, Monte Rio Ave, aircraft overflights, wildlife

Source: Compiled by LSA (2024).

¹ Daytime Noise Levels = noise levels during the hours of 7:00 a.m. to 7:00 p.m.

² Evening Noise Levels = noise levels during the hours of 7:00 p.m. to 10:00 p.m.

³ Nighttime Noise Levels = noise levels during the hours of 10:00 p.m. to 7:00 a.m.

⁴ Short-term measurement data estimated based on corresponding long-term measurement intervals.

CNEL = Community Noise Equivalent Level

L_{eq} = equivalent continuous sound level

dBA = A-weighted decibels

ft = foot/feet

Although the City does not have daytime construction noise level limits for activities that occur within the specified hours in Section 11.80.030(D)(7) to determine potential California Environmental Quality Act noise impacts, construction noise was assessed using criteria from the *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) (FTA Manual). Table 4.13.C shows the Federal Transit Administration's (FTA) Detailed Assessment Construction Noise Criteria based on the composite noise levels per construction phase.

Table 4.13.C: Detailed Assessment Daytime Construction Noise Criteria

Land Use	Daytime 8-hour L _{eq} (dBA)
Residential	80
Commercial	85
Industrial	90

Source: Transit Noise and Vibration Impact Assessment Manual (FTA 2018).

dBA = A-weighted decibels

L_{eq} = equivalent continuous sound level

Short-Term (Construction) Noise Impacts. Two types of short-term noise impacts could occur during the construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the site for the proposed project would incrementally

increase noise levels on access roads leading to the site. Although there would be a relatively high single-event noise-exposure potential causing intermittent noise nuisance, the effect on longer-term ambient noise levels would be small when compared to existing daily traffic volumes on roadways accessing the project site. Because construction-related vehicle trips would not approach existing daily traffic volumes, traffic noise would not increase by 3 dBA CNEL. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, short-term, construction-related impacts associated with worker commute and equipment transport to the project site would be less than significant.

The second type of short-term noise impact is related to noise generated during construction, which includes site preparation, grading, building construction, paving, and architectural coating on the project site. Construction is completed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 4.13.D lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor, taken from the Federal Highway Administration (FHWA) *Roadway Construction Noise Model* (FHWA 2006).

In addition to the reference maximum noise level, the usage factor provided in Table 4.13.D is used to calculate the hourly noise level impact for each piece of equipment based on the following equation:

$$L_{eq}(equip) = E.L. + 10 \log(U.F.) - 20 \log\left(\frac{D}{50}\right)$$

- where:
- $L_{eq}(equip)$ = L_{eq} at a receiver resulting from the operation of a single piece of equipment over a specified time period.
 - E.L. = noise emission level of the particular piece of equipment at a reference distance of 50 ft.
 - U.F. = usage factor that accounts for the fraction of time that the equipment is in use over the specified period of time.
 - D = distance from the receiver to the piece of equipment.

Each piece of construction equipment operates as an individual point source. Using the following equation, a composite noise level can be calculated when multiple sources of noise operate simultaneously:

$$Leq (composite) = 10 * \log_{10} \left(\sum_{1}^n 10^{\frac{Ln}{10}} \right)$$

Table 4.13.D: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%) ¹	Maximum Noise Level (L _{max}) at 50 Feet ²
Auger Drill Rig	20	84
Backhoes	40	80
Compactor (ground)	20	80
Compressor	40	80
Cranes	16	85
Dozers	40	85
Dump Trucks	40	84
Excavators	40	85
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Graders	40	85
Impact Pile Drivers	20	95
Jackhammers	20	85
Paver	50	77
Pickup Truck	40	55
Pneumatic Tools	50	85
Pumps	50	77
Rock Drills	20	85
Rollers	20	85
Scrapers	40	85
Tractors	40	84
Trencher	50	80
Welder	40	73

Source: FHWA Roadway Construction Noise Model User's Guide, Table 1 (FHWA 2006).

Note: Noise levels reported in this table are rounded to the nearest whole number.

¹ Usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.

² Maximum noise levels were developed based on Specification 721.560 from the Central Artery/Tunnel program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.

FHWA = Federal Highway Administration

L_{max} = maximum instantaneous sound level

Using the equations from the methodology above, the reference information in Table 4.13.D, and the construction equipment list provided, LSA calculated the composite noise level of each construction phase. The project construction composite noise levels at a distance of 50 feet would range from 74 dBA L_{eq} to 88 dBA L_{eq}, with the highest noise levels occurring during the site preparation and paving phases.

Once composite noise levels are calculated, reference noise levels can then be adjusted for distance using the following equation:

$$Leq \text{ (at distance } X) = Leq \text{ (at 50 feet)} - 20 * \log_{10} \left(\frac{X}{50} \right)$$

In general, this equation shows that doubling the distance would decrease noise levels by 6 dBA, while halving the distance would increase noise levels by 6 dBA.

Table 4.13.E shows the nearest sensitive uses to the project site, their distance from the center of construction activities, and composite noise levels expected during construction. These noise level projections do not consider intervening topography or barriers. Construction equipment calculations are provided in Appendix C.

Table 4.13.E: Potential Construction Noise Impacts at Nearest Receptor

Receptor (Location)	Composite Noise Level (dBA L_{eq}) at 50 feet ¹	Distance (feet)	Composite Noise Level (dBA L_{eq})
Residences (North)	88	220	75
Mobile Home Park (East)		230	74
Solano County Health and Social Services building (South)		250	74
Residences (West)		300	72

Source: Compiled by LSA (2024).

¹ The composite construction noise level represents the site preparation and paving phases, which are expected to result in the greatest noise level as compared to other phases.

dBA = A-weighted decibels

L_{eq} = equivalent continuous sound level

While construction noise will vary, it is expected that composite noise levels during construction at the nearest off-site sensitive residential use to the north would reach an average noise level of 75 dBA L_{eq} during daytime hours. These predicted noise levels would only occur when all construction equipment is operating simultaneously and, therefore, are assumed to be rather conservative in nature. While construction-related short-term noise levels have the potential to be higher than existing ambient noise levels in the project area under existing conditions, the noise impacts would no longer occur once project construction is completed.

As stated above, the City's Noise Ordinance regulates noise impacts associated with construction activities. The proposed project would comply with the construction hours specified in the City's Noise Ordinance, which states that construction activities are restricted between the hours of 7:00 p.m. and 7:00 a.m. Monday through Saturday. No such construction, repair work or grading activities shall be allowed on Sundays or holidays. Construction of the proposed project would take place Monday through Friday, 7:00 a.m. to 6:00 p.m., with the potential for weekend work.

As it relates to off-site uses, construction-related noise impacts would remain below the 80 dBA L_{eq} construction noise level criteria, as established by the FTA for residential land uses for the average daily condition as modeled from the center of the project site and therefore would be considered less than significant. Best construction practices presented at the end of this analysis shall be implemented to minimize noise impacts to surrounding receptors.

Long-Term Off-Site Traffic Noise Impacts. With implementation of the proposed project, off-site traffic volumes on surrounding roadways have the potential to increase.⁷⁵ The proposed project is

⁷⁵ LSA Associates Inc. 2024. *Transportation Memorandum for the Brown Street Master Site Plan Project*. January.

forecast to generate 193 daily trips. Based on the most recent available data, the existing (2012) average daily trips on Brown Street from Monte Vista Avenue to Browns Valley Parkway is approximately 4,700.^{76,77} While the current traffic volumes on the adjacent street segment are likely higher, using the 2012 volumes would be considered conservative. The following equation was used to determine the potential impacts of the project:

$$\text{Change in CNEL} = 10 \log_{10} [V_{e+p} / V_{\text{existing}}]$$

where: V_{existing} = existing daily volumes
 V_{e+p} = existing daily volumes plus project
Change in CNEL = increase in noise level due to the project

The results of the calculations show that an increase of approximately 0.2 dBA CNEL is expected along Brown Street. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment; therefore, the traffic noise increase in the vicinity of the project site resulting from the proposed project would be less than significant.

Stationary Operational Noise Impacts to Off-Site Receivers. Implementation of the proposed project could result in the shifting of noise levels in the vicinity of the project site associated with the following facilities:

- Playfield
- Walking and Jogging Path
- Multipurpose Sports Court
- Picnic Shelters
- Children's Play Areas
- Splash Pad
- Stage
- Recreation Center
- Parking Spaces

Typical activities at the facilities mentioned above are not expected to generate excessive noise levels and would only occur during daytime hours. Predicted noise levels at the nearest noise-sensitive land uses would be largely masked by ambient traffic noise levels and would not be anticipated to result in a significant increase in ambient noise levels that would exceed the City's noise standards. The stage would be approximately 200 feet from the closest sensitive receptor. To achieve compliance with the City's threshold of 50 dBA at nearby sensitive receptors, noise levels at the stage should not exceed 62 dBA at 50 feet.

While the daily noise levels show that noise levels at the project site would approach 67 dBA CNEL closest to Brown Street. An exterior noise level of 70 dBA CNEL or less is acceptable, as specified

⁷⁶ City of Vacaville. 2015. *General Plan*.

⁷⁷ City of Vacaville. 2021. *Energy and Conservation Action Strategy (ECAS)*.

above. Because exterior noise levels at the project site are considered acceptable, no exterior noise mitigation is required.

Additionally, the proposed recreation center is expected to include heating, ventilation, and air conditioning equipment. It is expected that the equipment installed would comply with the City's noise standards presented in Table 4.13.D.

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels? (Less Than Significant With Mitigation Incorporated)

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may not be discernible, but without the effects associated with the shaking of a building there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as the motion of building surfaces, the rattling of items sitting on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibration of walls, floors, and ceilings that radiate sound waves. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 dB or less. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile-driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with both ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 feet from the vibration source, although there are examples of ground-borne vibration causing interference out to distances greater than 200 feet. When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. It is assumed for most projects that the roadway surface will be smooth enough that ground-borne vibration from street traffic will not exceed the impact criteria; however, construction of the project could result in ground-borne vibration that may be perceptible and annoying.

Ground-borne noise is not likely to be a problem because noise arriving via the normal airborne path will usually be greater than ground-borne noise.

Ground-borne vibration has the potential to disturb people and damage buildings. Although it is very rare for train-induced ground-borne vibration to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile-driving to cause vibration of sufficient amplitudes to damage nearby buildings. Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). The RMS is best for characterizing human response to building vibration, and PPV is used to characterize the potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as:

$$L_v = 20 \log_{10} [V/V_{ref}]$$

where “ L_v ” is the vibration velocity in decibels (VdB), “ V ” is the RMS velocity amplitude, and “ V_{ref} ” is the reference velocity amplitude, or 1×10^{-6} inches/second (in/sec) used in the United States.

Vibration standards included in the FTA Manual are used in this analysis for ground-borne vibration impacts on human annoyance. The criteria for environmental impact from ground-borne vibration and noise are based on the maximum levels for a single event.

Table 4.13.F, below, provides the criteria for assessing the potential for interference or annoyance from vibration levels in a building.

Table 4.13.F: Interpretation of Vibration Criteria for Detailed Analysis

Land Use	Max L_v (VdB) ¹	Description of Use
Workshop	90	Vibration that is distinctly felt. Appropriate for workshops and similar areas not as sensitive to vibration.
Office	84	Vibration that can be felt. Appropriate for offices and similar areas not as sensitive to vibration.
Residential Day	78	Vibration that is barely felt. Adequate for computer equipment and low-power optical microscopes (up to 20×).
Residential Night and Operating Rooms	72	Vibration is not felt, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power microscopes (100×) and other equipment of low sensitivity.

Source: Transit Noise and Vibration Impact Assessment Manual (FTA 2018).

¹ As measured in 1/3-octave bands of frequency over a frequency range of 8 to 80 Hertz.

FTA = Federal Transit Administration

Max = maximum

L_v = velocity in decibels

VdB = vibration velocity decibels

Table 4.13.G, below, lists the potential vibration building damage criteria associated with construction activities, as suggested in the FTA Manual. FTA guidelines show that a vibration level of up to 0.5 in/sec in PPV is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster) and would not result in any construction vibration damage. For non-engineered timber and masonry buildings, the construction building vibration damage criterion is 0.2 in/sec in PPV.

Table 4.13.G: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
Reinforced concrete, steel, or timber (no plaster)	0.50
Engineered concrete and masonry (no plaster)	0.30
Non-engineered timber and masonry buildings	0.20
Buildings extremely susceptible to vibration damage	0.12

Source: Transit Noise and Vibration Impact Assessment Manual (FTA 2018).

FTA = Federal Transit Administration

PPV = peak particle velocity

in/sec = inch/inches per second

Short-Term Construction Vibration Impacts. This construction vibration impact analysis discusses the level of human annoyance using vibration levels in RMS (VdB) and assesses the potential for

building damages using vibration levels in PPV (in/sec). This is because vibration levels calculated in RMS are best for characterizing human response to building vibration, while calculating vibration levels in PPV is best for characterizing the potential for damage.

Table 4.13.H shows the PPV and VdB values at 25 feet from the construction vibration source. As shown in Table 4.13.H, bulldozers and other heavy-tracked construction equipment (expected to be used for this project) generate approximately 0.089 PPV in/sec or 87 VdB of ground-borne vibration when measured at 25 feet, based on the FTA Manual. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project construction boundary (assuming the construction equipment would be used at or near the project setback line).

Table 4.13.H: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L _v at 25 ft	
	PPV (in/sec)	L _v (VdB) ¹
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.170	93
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer²	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks²	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Source: Transit Noise and Vibration Impact Assessment Manual (FTA 2018).

¹ RMS vibration velocity in decibels (VdB) is 1 μin/sec.

² Equipment shown in **bold** is expected to be used on site.

μin/sec = microinches per second

ft = foot/feet

FTA = Federal Transit Administration

in/sec = inch/inches per second

L_v = velocity in decibels

PPV = peak particle velocity

RMS = root-mean-square

VdB = vibration velocity decibels

The formulae for vibration transmission are provided below, and Tables 4.13.I and 4.13.J provide a summary of off-site construction vibration levels.

$$L_{\text{vdB}}(D) = L_{\text{vdB}}(25 \text{ ft}) - 30 \log(D/25)$$

$$\text{PPV}_{\text{equip}} = \text{PPV}_{\text{ref}} \times (25/D)^{1.5}$$

As shown in Table 4.13.F, above, the threshold at which vibration levels would result in annoyance would be 78 VdB for daytime residential uses. As shown in Table 4.13.G, the FTA guidelines indicate that for a non-engineered timber and masonry building, the construction vibration damage criterion is 0.2 in/sec in PPV.

Table 4.13.I: Potential Construction Vibration Annoyance Impacts at Nearest Receptor

Receptor (Location)	Reference Vibration Level (VdB) at 25 ft ¹	Distance (ft) ²	Vibration Level (VdB)
Residences (North)	87	220	59
Mobile Home Park (East)		230	58
Solano County Health and Social Services building (South)		250	57
Residences (West)		300	55

Source: Compiled by LSA (2024).

¹ The reference vibration level is associated with a large bulldozer, which is expected to be representative of the heavy equipment used during construction.

² The reference distance is associated with the average condition, identified by the distance from the center of construction activities to surrounding uses.

ft = foot/feet

VdB = vibration velocity decibels

Table 4.13.J: Potential Construction Vibration Damage Impacts at Nearest Receptor

Receptor (Location)	Reference Vibration Level (PPV) at 25 ft ¹	Distance (ft) ²	Vibration Level (PPV)
Residences (North)	0.089	5	0.995
Mobile Home Park (East)		5	0.995
Solano County Health and Social Services building (South)		55	0.027
Residences (West)		70	0.019

Source: Compiled by LSA (2024).

¹ The reference vibration level is associated with a large bulldozer, which is expected to be representative of the heavy equipment used during construction.

² The reference distance is associated with the peak condition, identified by the distance from the perimeter of construction activities to surrounding structures.

ft = foot/feet

PPV = peak particle velocity

Based on the information provided in Table 4.13.I, vibration levels are expected to approach 59 VdB at the closest residential uses located immediately north of the project site, which is below the 78 VdB threshold for annoyance.

Based on the information provided in Table 4.13.J, vibration levels are expected to approach 0.995 PPV in/sec at the nearest surrounding structures and would exceed the 0.2 PPV in/sec damage threshold considered safe for non-engineered timber and masonry buildings, which would result in a potentially significant impact.

Vibration levels at all other buildings would be lower. Therefore, construction would not result in any vibration damage, and impacts would be less than significant with the incorporation of **Mitigation Measure NOI-1**, as detailed below.

Mitigation Measure-NOI-1

Construction Vibration Damage. Due to the close proximity to surrounding structures, the City of Vacaville (City) Director of Community Development, or designee, shall verify prior to issuance of demolition or grading permits, that the approved plans require that the construction contractor shall implement the following mitigation measures during project construction activities to ensure that damage does not occur at surrounding structures:

- A 15-foot buffer between existing structures and the Project site area shall be clearly delineated with stakes, fencing or other conspicuous boundary markings, to outline the area in which the use of heavy equipment shall be avoided.
- The use of heavy construction shall be avoided within 15 feet of existing surrounding structures.
- However, if the use of heavy equipment is required within 15 feet of surrounding structures, the following measures should be employed:
 - Identify structures that are located within 15 feet (ft) of heavy construction activities and that have the potential to be affected by ground-borne vibration. This task shall be conducted by a qualified structural engineer as approved by the City's Director of Community Development, or designee.
 - Develop a vibration monitoring and construction contingency plan for approval by the Director of Community Development, or designee, to identify structures where monitoring would be conducted; set up a vibration monitoring schedule; define structure-specific vibration limits; and address the need to conduct photo, elevation, and crack surveys to document before and after construction conditions. Construction contingencies would be identified for when vibration levels approached the limits.
 - At a minimum, monitor vibration during initial demolition activities. Monitoring results may indicate the need for more or less intensive measurements.
 - When vibration levels approach limits, suspend construction and implement contingencies as identified in the approved vibration monitoring and construction contingency plan to either lower vibration levels or secure the affected structures.

With implementation of **Mitigation Measure NOI-1**, construction vibration impacts would be reduced through monitoring the proximity of construction equipment to existing structures and, if necessary, implementing additional plans to monitor and avoid impacts to structures. Therefore, construction vibration impacts would be less than significant.

Long-Term Traffic-Related Vibration Impacts. The proposed project would not generate vibration levels related to on-site operations. In addition, vibration levels generated from project-related traffic on the adjacent roadways are unusual for on-road vehicles because the rubber tires and suspension systems of on-road vehicles provide vibration isolation. Based on a reference vibration level of 0.076 in/sec PPV, structures greater than 20 feet from the roadways that contain project trips would experience vibration levels below the most conservative standard of 0.12 in/sec PPV; therefore, vibration levels generated from project-related traffic on the adjacent roadways would be less than significant.

- c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? (Less Than Significant)*

Airport-related noise levels are primarily associated with aircraft engine noise made while aircraft are taking off, landing, or running their engines while still on the ground. The project site is approximately 1.3 miles southwest of Nut Tree Airport (general aviation). Based on a review of the Nut Tree Airport Noise Contours in the Vacaville General Plan (Figure NOI-3), noise impacts related to aircraft operations contribute to the aircraft noise in the project area. The northeast portion of the project site is within the 60 to 65 dBA CNEL contours and the southwest portion of the site is within the 55 to 60 dBA CNEL contours. According to Vacaville Municipal Code Table 14.09.240.B, noise levels of less than 70 dBA CNEL are considered normally acceptable for playgrounds. Although aircraft-related noise may be audible on the project site, the proposed project would not expose people working in the project area to excessive noise levels. This impact would be less than significant.

4.14 POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.14.1 Impact Analysis

- a. *Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? (Less Than Significant Impact)*

No new housing would be developed on the site; therefore, the proposed project would not directly induce substantial population growth. The proposed project would provide the residents of Vacaville with a neighborhood park and community center on an existing undeveloped and vacant lot in an urban, developed area. These uses and associated amenities would serve the existing community.

The project includes development of the City Housing and Community Services Department office building. The proposed Housing and Community Services Department office building would provide employment for up to 25 full-time employees and the proposed Community Center building would provide employment for up to 2 employees. The Community Services Department office building is expected to be occupied by existing employees. Therefore, the proposed project would not directly or indirectly induce substantial population growth on the site or in the surrounding area through the increase in employment on the site. There are no other aspects of the project that could directly or indirectly induce population growth. Therefore, this impact would be less than significant.

- b. *Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? (No Impact)*

The project site is currently vacant and does not contain any housing. As such, development of the proposed project would not displace any existing people or housing and would not necessitate the construction of replacement housing elsewhere. Therefore, no impact would occur.

- c. *Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? (No Impact)*

Refer to Section 4.14(b) The proposed project would not displace any people and would not require the construction of replacement housing. Therefore, no impact would occur.

4.15 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.15.1 Impact Analysis

- a. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: i. Fire protection? ii. Police protection? iii. Schools? iv. Parks? v. Other public facilities?*

i. Fire protection? (**Less Than Significant Impact**)

The Vacaville Fire Department (VFD) provides fire protection and emergency medical services to the project site, as well as emergency medical services to unincorporated county land surrounding the city. The VFD continuously operates five fire stations and is currently staffed with 103 sworn in officers and 8 civilian staff.⁷⁸ The VFD responded to 13,204 calls for service in 2023, 72 percent of which were for emergency medical services.⁷⁹ Service to the project site would be primarily provided by Fire Station 72, located approximately 1.3 miles east of the project site at 2001 Ulatis Drive.

The proposed project would result in an increase in the daytime population at the project site and incrementally increase the demand for emergency fire service and emergency medical services compared to existing conditions. However, as noted in Section 4.15.1.(e) Public Services, the proposed project would have adequate emergency access.

⁷⁸ The City of Vacaville. Operating Budget and Critical Improvement Program (Fiscal Year 2023-2024). Website: <https://www.ci.vacaville.ca.us/home/showpublisheddocument/22277/638230463415524270> (accessed February 14, 2024)

⁷⁹ Vacaville Fire Department. Annual Report 2022. Website: <https://indd.adobe.com/view/f8d6dcdd-9dcf-400a-b3b1-1bdcfea4f976> (accessed February 14, 2024)

The VFD would continue providing services to the project site and would not require additional firefighters to serve the proposed project. As noted in Section 4.14.1.(a) Population and Housing, the proposed project would not substantially result in a direct or indirect increase in population within the City. The construction of a new or expanded fire station would not be required. The proposed project would not result in a significant impact on the physical environment due to the incremental increase in demand for fire protection and life safety services, and the potential increase in demand for services is not expected to adversely affect existing response times to the site or within the City. Therefore, construction and operation of the proposed project would have a less than significant impact on fire protection and safety services and facilities.

ii. Police protection? (Less Than Significant Impact)

The City of Vacaville Police Department (VPD) provides police protection to the project site. The VPD headquarters is located at 660 Merchant Street, 1.2 miles northwest of the project site. VPD currently employs 92 sworn police officers. With a current population of 101,918⁸⁰, existing staffing levels are approximately 0.90 sworn officers per 1,000 residents⁸¹. As noted in Section 4.14.1.(a), Population and Housing, the proposed project would not substantially result in a direct or indirect increase in population within the City. The proposed project would result in an increase in the daytime population of the project site and incrementally increase demand for emergency police services to the project site compared to existing conditions. However, VPD would continue to provide services to the project site and would not require additional officers to serve the project site. The construction of new or expanded police facilities would not be required. Therefore, the proposed project would not result in a substantial adverse impact associated with the provision of additional police facilities or services and impacts to police services represent a less than significant impact.

iii. Schools? (No Impact)

The Vacaville Unified School District (VUSD) comprises 4 high schools, 1 alternative education high school, 2 middle schools, 1 K–8 school, and 10 elementary schools. The VUSD currently serves approximately 12,459 students.⁸² The proposed project does not include the construction of any new residential uses. As described in Section 4.14.1 (a), Population and Housing, the proposed project would not substantially induce housing or population growth, either directly or indirectly, within Vacaville. Therefore, the proposed project would not result in an increase in the number of school-age children in the area. As such, the proposed project would not increase demand for schools, and no impact would occur.

iv. Parks? (No Impact)

The proposed project would include the construction of a New Neighborhood Park, Community Center building, Vacaville Housing and Community Services Department office building, and

⁸⁰ United States Census Bureau. Vacaville (2022) Website: <https://www.census.gov/quickfacts/vacavillecitycalifornia> (accessed February 14, 2024)

⁸¹ Sworn officers per 1,000 residents 101,918 92 1000 0.901

⁸² Vacaville Unified School District. n.d. Schools. Website: <https://www.vacavilleusd.org/cms/one.aspx?pagelD=70705357> (accessed January 24, 2024).

multiple outdoor recreation facilities. Parks within the vicinity of the project site include Andrews Park, approximately 0.5 mile southwest of the project site, featuring trails, picnic areas, children's playgrounds and a sports center; Trower Park, 0.38 mile northwest of the project site, featuring a basketball court, trails, and a children's playground; and Centennial Park, 0.7 mile northeast of the project site, featuring tennis courts, baseball fields, soccer fields, and a dog park. Implementation of the proposed project would likely reduce the demand for these parks as residents within area may choose to recreate at the proposed project rather than the parks listed above. As a result, the proposed project would serve existing demand from residents of Vacaville; therefore, implementation of the proposed project is not anticipated to increase the use of other existing neighborhood and regional parks or other recreational facilities. Therefore, the proposed project would have no impact on parks.

v. Other public facilities? (No Impact)

As noted above, the proposed project does not include the construction of any new residential uses and would not substantially induce housing or population growth, either directly or indirectly, within the City. Therefore, the proposed project would not result in increased demand for other public facilities (e.g., libraries or community centers), and no impact would occur.

4.16 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.16.1 Impact Analysis

- a. *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? (Less Than Significant Impact)*

The proposed project would include the construction of a new Neighborhood Park and two new buildings, including a Community Center building and a Vacaville Housing and Community Services Department office building. As stated above in Section 4.15.1 (v), Public Services, the proposed project would serve the existing demands from residents of Vacaville. Implementation of the proposed project would likely reduce the demand of parks within the vicinity of project site. The proposed project would not result in a physical deterioration of the surrounding parks and facilities. Therefore, implementation of the proposed project is not anticipated to increase the use of existing neighborhood and regional parks or other recreational facilities and impacts would be less than significant.

- b. *Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? (Less Than Significant Impact)*

As stated above in section 4.16.1(a) Recreation, the proposed project would develop a new Neighborhood Park and construct a new Community Center building, and Vacaville Housing and Community Services Department office building. Potential adverse effects on the environment related to the development of the recreational facilities associated with the proposed project have been evaluated in this IS/MND. Implementation of the mitigation measures described in this IS/MND would ensure that proposed improvements would not have an adverse physical effect on the environment. With implementation of the mitigation measures described herein, environmental impacts associated with the construction of proposed recreational facilities would be less than significant mitigation measures described herein, environmental impacts associated with the construction of proposed recreational facilities would be less than significant.

4.17 TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The following section is based on the information provided in the Transportation Memorandum prepared for the proposed project (Appendix D)⁸³. The Transportation Memorandum evaluates the transportation impacts that could result from the proposed project, including impacts associated with traffic congestion, transit services, and pedestrian and bicycle circulation.

4.17.1 Impact Analysis

- a. *Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? (Less than Significant Impact)*

Roadway Analysis. On December 28, 2018, the California Office of Administrative Law and the California Governor’s Office of Planning Research (OPR) cleared and adopted the revised *State CEQA Guidelines* Section 15064.3. Among the changes to the guidelines was the removal of vehicle delay and level of service (LOS) as the sole basis of determining CEQA impacts. With the implementation of the adopted guidelines, transportation impacts are to be evaluated based on a project’s effect on vehicle miles traveled (VMT). On July 1, 2020, the provisions of Section 15064.3 became effective Statewide.

On May 29, 2020, the City of Vacaville (City) developed its *Traffic Impact Analysis (TIA) Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, which was most recently updated on January 11, 2021. On September 28, 2021, the City of Vacaville approved the City’s updated General Plan Transportation Element and Energy and Conservation Action Strategy (ECAS) Supplemental Environmental Impact Report (SEIR) (SCH #2020090526) to address VMT. The SEIR identified VMT as a significant and unavoidable impact and concluded with a statement of overriding considerations. Land use(s) for a specific project that are consistent with the General Plan land uses identified in the SEIR may tier off the General Plan’s VMT analysis. Under this approach, VMT in the City is modeled by land use type and grouped by similar land uses within Transportation Analysis Zones (TAZs).

⁸³ LSA Associates Inc. 2024. *Transportation Memorandum for the Brown Street Master Site Plan Project*. January.

Furthermore, the Interim Senate Bill (SB) 743 Implementation Guidelines for City of Vacaville⁸⁴ were adopted to provide guidance for specific projects within the General Plan. The discussion of the project's consistency with Section 15064.3 is discussed under Section 4.17.(b), below.

The proposed project includes the construction of a new 2.63-acre Neighborhood Park, a 2,500 square foot Recreation Center building (for the purpose of this trip generation analysis below, a 2,500 square foot building is assumed), and a 10,000-square-foot Vacaville Housing and Community Services Department office building, with associated improvements. Vehicular access to the project site would be provided by two existing driveways on East Monte Vista Avenue (an existing right-in/right-out driveway and a full access driveway). Both driveways would provide shared access for the existing William J. Carroll Government Center to the east of the site and the proposed project's surface parking lot. As part of the proposed project, the exiting sidewalk would be replaced with a with a 6-foot separated sidewalk along the Brown Street frontage.

Existing Roadway Network. Direct automobile access to the project site is provided by two existing driveways on East Monte Vista Avenue (an existing right-in/right-out driveway and a full-access driveway). Regional access to the project site is provided via Interstate 80 and Interstate 505. These facilities are described below.

- **Interstate 80 (I-80)** is a major freeway connecting San Francisco through the northern United States to the East Coast, ultimately ending in New Jersey. The freeway is oriented in a west/east direction through Vacaville. It provides four lanes in each direction through most of Vacaville. The East Monte Vista Avenue interchange provides access to and from the project site.
- **Interstate 505 (I-505)** is a north-south freeway starting in Solano County to the south and ending at Yolo County to the north. In the vicinity of the project site, I-505 is two lanes in each direction with an interchange at East Monte Vista Avenue, signalized intersections at Brown Street and Main Street, and a split interchange at Nut Tree Road and Vaca Valley Parkway serving northbound and southbound traffic, respectively.
- **Brown Street** is a two-lane, north-south roadway along the project frontage (one lane in each direction). Brown Street is classified as a 2-Lane Collector in the Transportation Element of the *City of Vacaville General Plan*.⁸⁵ The posted speed limit is 25 miles per hour (mph). Sidewalks are provided on both sides of the street. On-street parking is permitted on both sides of the street. Bus stops are located on each side of the street north of East Monte Vista Drive.
- **East Monte Vista Drive** is a four-lane, east-west roadway (two lanes in each direction) south of the project site. East Monte Vista Avenue is classified as an arterial in the Transportation Element of the *City of Vacaville General Plan*. The posted speed limit is 30 mph. Sidewalks are

⁸⁴ Fehr & Peers. 2020. *Interim SB 743 Implementation Guidelines for City of Vacaville*. October.

⁸⁵ City of Vacaville. 2020. Transportation Element. *City of Vacaville General Plan*. January. Website: <https://www.ci.vacaville.ca.us/home/showpublisheddocument/14102/637045896849400000> (accessed July 2021).

provided on both sides of the street. On-street parking is not permitted. Bus stops are located on each side of the street east of Brown Street.

Trip generation rates from the San Diego Association of Governments were applied to the proposed neighborhood park. Trip generation rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition,⁸⁶ which is a nationally recognized source for estimating site-specific trip generation, were used for the proposed Recreation Center (ITE Land Use 495 [Recreational Community Center]) and the proposed Vacaville Housing and Community Services Department office building (ITE Land Use 710 [General Office Building]). Table 4.17A presents the trip generation for the project.

As shown below in Table 4.17.A, during Phase 1, the project has the potential to generate 85 daily trips, including 7 trips (4 inbound and 3 outbound) in the a.m. peak hour and 8 trips (4 inbound and 4 outbound) in the p.m. peak hour. During Phase 2, the project has the potential to generate 108 daily trips, including 15 trips (13 inbound and 2 outbound) in the a.m. peak hour and 15 trips (2 inbound and 13 outbound) in the p.m. peak hour. The total project is forecast to generate 193 daily trips, including 22 trips (17 inbound and 5 outbound) in the a.m. peak hour and 23 trips (6 inbound and 17 outbound) in the p.m. peak hour.

Table 4.17.A: Project Trip Generation

Land Use	Size	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Trip Rates									
Neighborhood Park ¹	–	tsf	5.00	0.33	0.32	0.65	0.23	0.22	0.45
Recreational Community Center ²	–	tsf	28.82	1.26	0.65	1.91	1.18	1.32	2.50
General Office ²	–	tsf	10.84	1.34	0.18	1.52	0.24	1.20	1.44
Project Trip Generation									
Phase 1									
Neighborhood Park	2.630	acres	13	1	1	2	1	1	2
Recreational Community Center	2.500	tsf	72	3	2	5	3	3	6
Total			85	4	3	7	4	4	8
Phase 2									
General Office (VHCSDOB)	10.000	tsf	108	13	2	15	2	13	15
Grand Total (Phases 1 and 2)			193	17	5	22	6	17	23

¹ Trip rates referenced from the San Diego Association of Governments (SANDAG) (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (April 2002).

² Trip rates referenced from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition (2021); Land Use Code 710 - General Office Building, Land Use Code 495 - Recreational Community Center

tsf = thousand square feet

VHCSDOB = Vacaville Housing and Community Services Department Office Building

The project trip generation does not take into account a reduction for the proximity to transit for the proposed 2,500-square-foot Recreation Center building and 10,000-square-foot Vacaville Housing and Community Services Department office building. In addition, the Recreation Center building would be a locally serving facility. Given the proximity of the project site to housing, the

⁸⁶ Institute of Transportation Engineers. 2021. *Trip Generation Manual*. 11th edition.

recreation center building is expected to generate significantly more pedestrian trips than vehicular trips. Furthermore, ITE's Recreational Community Center trip generation rates are based on centers starting at 50,000 square feet that provide services such as swimming pools, whirlpools, saunas, tennis courts, volleyball courts, daycare, etc. These services are significantly more than can be offered in a 2,500-square-foot facility. Therefore, the 193 daily trips are a conservative, worst-case estimate of the total number of vehicle trips for the project.

As previously noted, a TIA is not required based on the low trip generation of the project (a maximum of 23 peak-hour trips). As such, the project is not anticipated to result in any LOS or operational deficiencies to the surrounding circulation system.

The project would not make any changes to the public right-of way in the project vicinity or generate a substantial number of daily or peak-hour vehicle trips to warrant modifications to any transportation facilities (e.g., vehicular, transit, bicycle, or pedestrian). The project would not preclude alternative modes of transportation or facilities (e.g., transit, bicycle, or pedestrian). Therefore, the project would not conflict with the Transportation Element of the *City of Vacaville General Plan*.

Additionally, the proposed project would be required to comply with the following Standard Conditions of Approval (SCOAs) required for all Design Permits, Use Permits, and Planned Developments that addresses public and private access roads:

SCOA 186: Where a Traffic Study is not required by Section 14.13.180 of the Land Use and Development Code, any traffic controls or other changes to the nearby streets required by the City Traffic Engineer shall be shown on the final development plans prior to the issuance of grading or building permits.

SCOA 188: The design and construction of all public street improvements shall conform to the City of Vacaville Public Works Department Standard Plans and Specifications for Public Improvements, latest edition, unless otherwise approved by the City Engineer or as may be required by any applicable Standard or Special Conditions of Approval.

Based on the above, and with implementation of these SCOAs, the proposed project would not conflict with an applicable plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and this impact would be less than significant.

b. Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)? (Less than Significant Impact)

State CEQA Guidelines Section 15064.3, subdivision (b) states that transportation impacts for land use projects are to be measured by evaluating the project's VMT or the amount and distance of automobile travel attributable to the project, as outlined in the following:

Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact.

The OPR Technical Advisory and the *Interim SB 743 Implementation Guidelines for the City of Vacaville*⁸⁷ both provide guidance for screening land use projects from a detailed VMT analysis and the presumption of a less than significant transportation impact, such as project size, locally serving retail use. The screening guidance provides that projects that generate 110 trips per day or fewer may be assumed to cause a less-than-significant transportation impact. In addition, locally serving retail uses (less than 50,000 square foot) are screened from a VMT analysis. The project includes a 2.63-acre Neighborhood Park, a 2,500-square-foot Recreation Center building, and a 10,000-square-foot Vacaville Housing and Community Services Department office building. The Neighborhood Park and Recreation Center building are locally serving uses that would generate fewer than 110 daily trips. The Neighborhood Park and Recreation Center building would support and benefit the surrounding residences and community. It is expected that most trips to the Neighborhood Park and Recreation Center building would be pedestrian trips rather than vehicular trips and originate from close to the project site. In addition, the ITE's Recreational Community Center trip generation rates may overestimate the project trip generation because these rates were developed from much larger facilities (starting at 50,000 square feet) and include higher-intensity uses (e.g., swimming pools, whirlpools, saunas, tennis courts, volleyball courts, daycare) than currently proposed. The Vacaville Housing and Community Services Department office building would also generate fewer than 110 daily trips. Additionally, the proposed project is designated as Commercial General under the General Plan, which provides for a full range of commercial uses, including retail stores, food and drug stores, auto sales, and businesses selling home furnishings, apparel, durable goods, and specialty items. The proposed project would be consistent with the General Plan. Furthermore, because the project meets the City's VMT screening criteria, it is not subject to a VMT analysis and is presumed to have a less than significant transportation impact.

As such, the project would not conflict with or be inconsistent with State CEQA Guidelines Section 15064.3(b). Potential impacts would be less than significant.

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? (Less than Significant Impact)

Vehicular access to the project site would be provided via existing drive aisles from the adjacent Solano County Health building parking lot at East Monte Vista Avenue, south of the project site. Access would not change as part of the proposed project. As such, the project would not substantially increase hazards for vehicles due to a geometric design feature or incompatible uses, and impacts would be less than significant.

d. Would the project result in inadequate emergency access? (Less than Significant Impact)

The proposed project would provide access for emergency vehicles via a full-access driveway from the Solano County Health building parking lot at East Monte Vista Avenue south of the project site. Internal emergency access would be provided along the perimeter of the kids' playground and tot lots, connecting to the proposed parking lot in the eastern portion of the project site. The proposed project would not modify the existing configuration of the driveway along East Monte Vista Avenue

⁸⁸ Solano County Water Agency. n.d. North Bay Aqueduct. Website: <https://www.scwa2.com/north-bay-aqueduct/> (accessed February 14, 2024)

and would not affect emergency access to the site. Therefore, impacts associated with emergency access would be less than significant.

4.18 TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.18.1 Impact Analysis

- a. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:*
- i. *Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or*
 - ii. *A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. **(Less Than Significant with Mitigation Incorporated)***

Assembly Bill 52 (AB 52), which became law on January 1, 2015, provides for consultation with California Native American tribes during the CEQA environmental review process, and equates significant impacts to “tribal cultural resources” with significant environmental impacts. Public Resources Code (PRC) Section 21074 states that “tribal cultural resources” are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe and are one of the following:

- Included or determined to be eligible for inclusion in the California Register of Historical Resources.
- Included in a local register of historical resources as defined in subdivision (k) of PRC Section 5020.1.
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

A “historical resource” (PRC Section 21084.1), a “unique archaeological resource” (PRC Section 21083.2(g)), or a “non-unique archaeological resource” (PRC Section 21083.2 (h)) may also be a tribal cultural resource if it is included or determined to be eligible for inclusion in the California Register.

The consultation provisions of the law require that a public agency consult with local Native American tribes that have requested placement on that agency’s notification list for CEQA projects. Within 14 days of determining that a project application is complete, or a decision by a public agency to undertake a project, the lead agency must notify tribes of the opportunity to consult on the project, should a tribe have previously requested to be on the agency’s notification list. California Native American tribes must be recognized by the NAHC as traditionally and culturally affiliated with the project site and must have previously requested that the lead agency notify them of projects. Tribes have 30 days following notification of a project to request consultation with the lead agency.

The purpose of consultation is to inform the lead agency in its identification and determination of the significance of tribal cultural resources. If a project is determined to result in a significant impact on an identified tribal cultural resource, the consultation process must occur and conclude prior to adoption of a Negative Declaration or Mitigated Negative Declaration, or certification of an Environmental Impact Report (PRC Sections 21080.3.1, 21080.3.2, 21082.3).

Tribal Outreach and Consultation. LSA contacted the NAHC on January 17, 2024, to request a review of their Sacred Lands File for any tribal cultural resources that might be present within the project site. Also requested were the names of Native American individuals and organizations that may have knowledge of cultural resources within the project site. Pricilla Torres-Fuentes, NAHC Cultural Resources Analyst, responded to the SLF search request on February 7, 2024, stating that the results were negative and that there were no known Native American cultural resources in the project site.

In 2022, the City of Vacaville initiated consultation with the Yocha Dehe Wintun Nation for the purpose of developing Cultural Resource Protocols for any project within a cultural sensitivity area in the City of Vacaville. On December 16, 2022, the Yocha Dehe Wintun Nation provided a formal response indicating their concurrence with the adoption and application of these protocols to projects located within the City of Vacaville. According to these protocols, the project would be located within an area of moderate sensitivity, and the specific protocols associated with this category have been incorporated into the **Project-Specific Conditions of Approval**, which include the following:

Cultural Resources Awareness Training. The City shall require the project applicant to provide a cultural resources and tribal cultural resources sensitivity and awareness training program for all personnel involved in project construction, including consultants and construction workers. The training program shall be developed in coordination with a Secretary of the Interior-qualified archaeologist. The City shall invite the Yocha Dehe Wintun Nation (Tribe) to participate. The training program shall include relevant information regarding sensitive cultural resources and tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The training program shall also describe appropriate avoidance and minimization measures for cultural resources and tribal cultural resources that have the potential to be located in the project site and shall outline what to do and who to contact if any potential cultural resources or tribal cultural resources are encountered. The training program shall emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans.

Discovery Protocol for Cultural Materials. If pre-contact Native American or historic-era cultural materials are encountered during project implementation, all construction activities within 100 feet shall halt, and a Secretary of the Interior-qualified archaeologist shall inspect the find within 24 hours of discovery and notify the City of their initial assessment. If the find is pre-contact, the Tribe shall be invited to evaluate the find. Pre-contact cultural materials include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials include building or structure footings and walls, and deposits of metal, glass, and/or ceramic refuse.

If the City determines, based on recommendations from a Secretary of the Interior-qualified archaeologist and the Tribe (if the resource is Native American related), that the resource may qualify as a historical resource or unique archaeological resource (defined in CEQA Guidelines Section 15064.5), a tribal cultural resource (defined in PRC Section 21080.3), or a historic property (defined in the National Historic Preservation Act), the resource shall be avoided, if feasible. This may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement.

If avoidance is not feasible, the City shall work with a Secretary of the Interior-qualified archaeologist and affiliated Native American tribal representatives (if the resource is Native American-related) to develop a Cultural Resources Treatment Plan to determine treatment measures to avoid, minimize, or mitigate any potential impacts or adverse effects to the resource. This shall include documentation of the resource and may include data recovery, if deemed appropriate, or other actions such as treating the resource with culturally appropriate dignity and protecting the cultural character and integrity of the resource.

If deemed appropriate, data recovery shall be completed according to an established Cultural Resources Treatment Plan, which will be reviewed by the City and the Tribe. The Treatment Plan shall include, at a minimum, the following components:

- Scope of work;

- Environmental setting;
- Identification of property types;
- Research questions and goals;
- Detailed field strategy to address research goals;
- Analytical methods;
- Disposition of artifacts;
- Treatment of human remains;
- Security approaches and protocols; and
- Reporting requirements.

Treatment may include, but would not be limited to, backhoe trenching, shovel test units, hand augering, and hand excavation. All treatment shall be approved by the Tribe and adhere to Tribe's *Treatment Protocol for Handling Human Remains and Cultural Items Affiliated with the Yocha Dehe Wintun Nation*.

Discovery Protocol for Human Remains. In the event of discovery or recognition of any human remains during project implementation, construction activities within 100 feet of the find shall cease until the Solano County Coroner has been contacted to determine that no investigation of the cause of death is required. The Coroner shall contact the California Native American Heritage Commission within 24 hours, if the Coroner determines the remains to be Native American in origin. The Commission will then identify the person or persons it believes to be the most likely descendant from the deceased Native American (PRC Section 5097.98), who in turn will make recommendations to the City for the appropriate means of treating the human remains and any associated grave goods (CEQA Guidelines Section 15064.5[d]). A determination may include avoidance of the human remains, reburial on-site, or reburial on Tribal or other lands that will not be disturbed in the future.

The City sent letters describing the proposed project and maps depicting the project site to Native American tribes that the NAHC identified as traditionally and culturally affiliated with the project area on March 1, 2024. On April 12, 2024, the City received a request for consultation from the Yocha Dehe Wintun Nation stating that the project is within the aboriginal territories of the Yocha Dehe Wintun Nation. To date, consultation is still ongoing.

Tribal Cultural Resources. As discussed in Section 4.5.1(a), Cultural Resources, a record search was conducted at the Northwest Information Center of the California Historical Resources Information System, which identified no archaeological or historical resources within the boundary of the project site.

The project site is currently vacant and surrounded by urban development. No known significant archaeological or tribal cultural resources are located within the project site. Additionally, there are no tribal cultural resources within the project site that have been determined by the lead agency to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. The proposed project would not cause a substantial adverse change in the significance of a tribal cultural resource defined as a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is listed or eligible for listing in the California Register or in a local register of historical resources as defined in PRC Section 5020.1(k).

With implementation of of t e **Project-Specific Conditions of Approvals**, as detailed above, **Mitigation Measure CULT-1 and CULT-2**, as detailed in Section 4.5.1, Cultural Resources, and compliance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the PRC, the potential construction-period discovery of previously unidentified human remains, which may be of tribal origin, would be reduced to a less than significant level.

4.19 UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.19.1 Impact Analysis

- a. *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? (Less than Significant)*

The project site is located in an urban area that is currently served by existing utilities, including water, sanitary sewer, storm drainage, electricity, gas, and telecommunications infrastructure.

Water. The City provides potable water service to approximately 29,000 customers from both surface and groundwater from a variety of reserves including the Solano Project, State Water Project (North Bay Aqueduct)⁸⁸, Settlement Water provided by the Division of Water Rights, and municipal groundwater wells. The majority of the City's water supply comes from local water sources, with 77 percent of the City's water coming from groundwater and the Solano Project. The remaining 23 percent consisted of State Water Project water and Settlement Water.⁸⁹

The project site is served by water provided by the City of Vacaville via existing 12-inch mains located within Brown Street. The City's potable water supply is sourced from both surface and groundwater from a variety of reserves including the Solano Project, State Water Project (North Bay

⁸⁸ Solano County Water Agency. n.d. North Bay Aqueduct. Website: <https://www.scwa2.com/north-bay-aqueduct/> (accessed February 14, 2024)

⁸⁹ City of Vacaville. Water Supply. Website: <https://www.cityofvacaville.gov/government/utilities/water/water-supply?locale=en9> (accessed February 14, 2024)

Aqueduct), Settlement Water provided by the Division of Water Rights, and municipal groundwater wells. The City's water system consists of two surface water treatment plants, thirteen groundwater wells (ten active), nine storage reservoirs, five booster pump stations, and over 340 miles of distribution and transmission pipelines.⁹⁰

The City updated its Urban Water Management Plan (UWMP) in 2020, which was adopted in 2021, amended it in 2023, with the amendment adopted by Council Resolution No. 2023-092. According to the UWMP, the annual water use in 2020 was 18,295 acre-feet. As discussed in Section 4.19.(b), the proposed project would not substantially increase demand for water and would therefore not exceed the capacity of existing water treatment facilities. The proposed project would not require the construction of new water treatment facilities, or the expansion of existing facilities, other than those already planned as part of the City's Water Master Plan. The proposed project would include the installation of three new 8-inch water lines on the site that would connect to the existing 12-inch mains located within Brown Street. The proposed project would connect directly to existing mains, which have sufficient capacity to accommodate the proposed project. Therefore, the impact of the proposed project on water infrastructure would be less than significant.

Wastewater. The City owns and operates the wastewater collection system in Vacaville, which consists of gravity and pressure sewers, lift stations, and associated facilities. Wastewater is treated at the Easterly Wastewater Treatment Plant located at 6040 Vaca Station Road in Elmira, which treats an average of 7.5 million gallons of wastewater a day before it is released into Alamo Creek.⁹¹ The Easterly WWTP has an average dry-weather flow capacity of 15 million gallons of wastewater per day and 55 million gallons of wastewater per day for peak hour wet weather flow.⁹² The Easterly WWTP only treats an average of approximately 50 percent of its capacity on a daily basis.

The City of Vacaville maintains existing sanitary sewer lines within the vicinity of the site, including a 12-inch line within Brown Street. The proposed project would include the installation of three new 8-inch lines throughout the project site that would tie into the existing 12-inch lines. The new sanitary sewer lines would be constructed in conformance with City standards and would not cause significant environmental effects.

Storm Water. As stated in Section 4.10.1 (iii), The proposed project would include an onsite stormwater collection system consisting of 4- to 18- inch storm drainpipes, with associated catch basins and/or manholes, which would direct on-site storm water flows to approximately 2,200 square feet of bioswales located along the northern, eastern, and southern edges of the project site. The on-site stormwater collection system and proposed bioswales would manage and treat storm water runoff before discharging flows into existing storm drain infrastructure located in Brown Street. The bioswales would be appropriately sized to store and infiltrate the 10- and 100-year post-development peak flows for the project site in compliance with the requirements of the Small Phase

⁹⁰ City of Vacaville, 2021. *City of Vacaville 2020 Urban Water Management Plan*. June.

⁹¹ City of Vacaville. *Wastewater Treatment*. Website: <https://www.ci.vacaville.ca.us/government/utilities/sewer/wastewater-treatment> (accessed February 14, 2024).

⁹² California Regional Water Quality Control Board Central Valley Region (RWQCB). 2019. *Order R5-2019-0049, NPDES No. CA0077691, Waste Discharge Requirements for the City of Vacaville Easterly Wastewater Treatment Plant, Solano County*. June 7.

II MS4 Permit and the City's *Storm Drain Design Standards Section DS 4*, as specified in **Mitigation Measure HYD-3 and Mitigation Measure HYD-4**. Therefore, the proposed project would not contribute to an exceedance of existing or planned stormwater drainage systems, and impacts would be less than significant.

Solid Waste. The City of Vacaville currently contracts with Recology Vacaville Solano to provide weekly solid and yard waste, and recyclable material collection to Vacaville residents. In 2010, Vacaville's per capita disposal rate was 4.9 pounds per resident per day, well below the city's California Integrated Waste Management Board target disposal rate of 6.5, but slightly above the Statewide average of 4.5⁹³. Solid waste collected from Vacaville is deposited at the Hay Road Landfill, located at 6426 Hay Road in Vacaville. The landfill has a capacity of 37,000,000 cubic yards, a remaining capacity of 30,433,000 cubic yards, and can accept 2,400 tons per day. The landfill's estimated closure date is currently 2077.⁹⁴ Operation of the proposed project is not anticipated to generate a significant amount of solid waste.

Electric Power, Natural Gas, and Telecommunications. PG&E provides electricity and gas service to the project site. The proposed project would include connections to the existing electricity and natural gas lines that run adjacent to the project site on Brown Street. Telecommunications would be provided by AT&T and Comcast. The proposed project would not require any new infrastructure, aside from project-specific tie-ins and lines to serve the proposed project.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? (Less than Significant)

The City of Vacaville provides water to the project site. As previously discussed in Section 4.19.1(a), the City's potable water supply is sourced from both surface and groundwater from a variety of reserves including the Solano Project, State Water Project (North Bay Aqueduct), Settlement Water provided by the Division of Water Rights, and municipal groundwater wells. In 2020, the majority of the City's water supply came from local water sources, with 77 percent of the City's water coming from groundwater and the Solano Project. The remaining 23 percent consisted of State Water Project water and Settlement Water.⁹⁵

The City's 2020 UWMP describes the projected water supplies from each source and compares those to the projected demand over the next 25 years, in 5-year increments. The City has determined that groundwater and surface supplies are projected to meet or exceed projected water demands, even during extended drought conditions and that the future water supply will be

⁹³ City of Vacaville. 2021. *Vacaville General Plan and ECAS EIR, Utilities and Service Systems*.

⁹⁴ California Department of Resources Recycling and Recovery, 2021. Solid Waste Information System. Recology Hay Road Landfill (48-AA-0002). Website: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1184?siteID=3582> (accessed January 25, 2024).

⁹⁵ City of Vacaville. n.d. Wastewater Treatment. Website: <https://www.ci.vacaville.ca.us/government/utilities/sewer/wastewater-treatment> (accessed February 14, 2024).

adequate to offset future water demands during a normal year, a single dry year, and a five-consecutive-year drought.⁹⁶

According to the CalEEMod calculations for the proposed project, at buildout, the project would have an average total water demand of approximately 12,936 gallons per day (14.50-acre feet per year), including 405 gallons per day for the proposed Recreation Center building, 4,871 gallons per day for the proposed Vacaville Housing and Community Services Department office building and 7,660 gallons per day for the proposed Neighborhood Park and associated park facilities. Therefore, the proposed project represents approximately 0.08 percent of the City's anticipated water supply.

While the proposed project would result in an incremental increase in water demand, the existing water system infrastructure has adequate capacity to serve the proposed project. In addition, the proposed project would be required to coordinate with the City of Vacaville Fire Department to assess fire flow requirements and comply with them as part of the project. Based on the above, the City would have sufficient water supply to support the proposed project, and implementation of the project would not require new or expanded entitlements for water supplies, and impacts related to water supply would be less than significant.

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? (Less than Significant)

As stated above in Section 3.19.1(a), the City of Vacaville owns and operates its municipal wastewater collection system containing over 200 miles of sanitary sewer mains and seven lift stations. Wastewater is treated at the Easterly Wastewater Treatment Plant (EWTP) at 6040 Vaca Station Road in Elmira, which treats an average of 7.5 million gallons of wastewater a day before it is released into Alamo Creek.⁹⁷ The design average dry weather flow capacity of the facility is 15 million gallons of wastewater per day;⁹⁸ therefore, the facility only treats an average of approximately 50 percent of its capacity on a daily basis.

Development of the proposed project includes the construction would add approximately 2,500 square feet of new building space to the project site. The proposed project would generate additional domestic wastewater, which would be treated by the EWTP. Considering the treatment plant only treats an average of approximately 50 percent of its capacity on a daily basis, the City would have sufficient capacity to serve the proposed project. Therefore, wastewater generated from the proposed project would not cause the EWTP to violate any wastewater treatment requirements, and this impact would be less than significant.

⁹⁶ City of Vacaville. n.d. Wastewater Treatment. Website: <https://www.ci.vacaville.ca.us/government/utilities/sewer/wastewater-treatment> (accessed February 14, 2024).

⁹⁷ Ibid.

⁹⁸ California Regional Water Quality Control Board Central Valley Region (RWQCB). 2019. *Order R5-2019-0049, NPDES No. CA0077691, Waste Discharge Requirements for the City of Vacaville Easterly Wastewater Treatment Plant, Solano County*. June 7.

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? (Less than Significant)

As stated above in Section 4.19.1(a), the Recology Vacaville Solano would provide weekly solid, yard waste, and recyclable material collection to Vacaville residents and the project site. Operation of the proposed project is anticipated to generate approximately 130 pounds per day of solid waste (0.65 tons per day). As such, the proposed project would reduce the maximum daily permitted capacity of the Recology Hay Road Landfill by approximately 0.03 percent.

The Recology Hay Road Landfill has adequate capacity to serve the proposed project. Therefore, the proposed project would not generate solid waste in excess of State or local standard, or in excess of the capacity of the local infrastructure, and impact associated with the disposition of solid waste would be less than significant.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? (Less than Significant)

The proposed project would comply with all federal, State, and local solid waste statutes and/or regulations related to solid waste. Also refer to Section 4.19.1 (d). Therefore, the proposed project would have a less than significant impact related to solid waste regulations.

4.20 WILDFIRE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.20.1 Impact Analysis

a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan? (No Impact)

The project site is not located within any State responsibility areas (SRA) for fire service.⁹⁹ In addition, as noted in Section 4.9.1 (f), the proposed project would not impair the implementation of, nor physically interfere with an adopted emergency response plan. Therefore, this impact would be less than significant.

b. Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? (No Impact)

Refer to Section 4.20.1 (a), above. Additionally, as noted in Section 2.0, Project Description, the project site is located in an urban environment and is bounded by existing development. Therefore, the proposed project would not exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire, and this impact would be less than significant.

⁹⁹ California Department of Forestry and Fire Protection (CAL FIRE). FHSZ Viewer2024. Website: <https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=988d431a42b242b29d89597ab693d008> (accessed February 14, 2024).

- c. *Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? (No Impact)*

Refer to Section 4.20.1(a), above. The proposed project is not located within an SRA for fire service and is not within a very high fire hazard severity zone. Therefore, the proposed project would not require the installation or maintenance of associated infrastructure, and no impact would occur.

- d. *Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? (No Impact)*

Refer to Section 4.20.1(a) and 4.20.1(b). The proposed project would not expose people or structures to significant risks as a result of post-fire slope instability or drainage and runoff changes. No impact would occur.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.21.1 Impact Analysis

- a. *Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?*

Implementation of **Mitigation Measure CULT-1** and **Mitigation Measure CULT -2** would ensure that potential impacts to cultural resources that could be uncovered during construction activities would be reduced to a less than significant level. Implementation of **Mitigation Measure BIO-1** through **Mitigation Measure BIO-4** would ensure that potential impacts to special-status species (e.g., Swainson's hawk and Burrowing owls, and nesting birds) are reduced to a less than significant level. Therefore, with the incorporation of mitigation measures, development of the proposed project would not: (1) degrade the quality of the environment; (2) substantially reduce the habitat of a fish or wildlife species; (3) cause a fish or wildlife species population to drop below self-sustaining levels; (4) threaten to eliminate a plant or animal community; (5) reduce the number or restrict the range of a rare or endangered plant or animal; or (6) eliminate important examples of the major periods of California history. With implementation of the mitigation measures identified herein, this impact would be less than significant with mitigation incorporated.

- b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

The proposed project's impacts would be individually limited and not cumulatively considerable. The potentially significant impacts that can be reduced to a less-than-significant level with implementation of recommended mitigation measures include the topics of air quality, biological resources, cultural resources, geology and soils, and noise. For the topic of air quality, potentially significant impacts to air quality standards would be reduced to less-than-significant levels with implementation of **Mitigation Measure AIR-1**. For the topic of biological resources, implementation of **Mitigation Measure BIO-1 through Mitigation Measure BIO-4** would ensure that impacts to special-status species are reduced to less-than-significant levels. For the topic of cultural resources, potentially significant impacts to archaeological resources and paleontological resources would be reduced to less-than-significant levels with implementation of **Mitigation Measure CULT-1 and Mitigation Measure CULT 2**. For the topic of geology and soils, implementation of **Mitigation Measure GEO-1** would ensure that impacts associated with paleontological resources would be less than significant. For the topic of hydrology and water quality, implementation of **Mitigation Measure HYD-1 through Mitigation Measure HYD-4** would ensure that impacts to runoff, water quality and stormwater standards, drainage, groundwater supplies, flooding, and other water and groundwater plans would be less than significant. For the topic of noise, implementation of **Mitigation Measure NOI-1** would ensure that potentially significant impacts associated with construction vibration are reduced to less-than-significant levels.

For the topics of aesthetics, agricultural and forestry resources, energy, greenhouse gas emissions hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire the project would have no impacts or less-than-significant impacts; therefore, the project would not substantially contribute to any potential cumulative impacts for these topics. All environmental impacts that could occur as a result of the proposed project would be reduced to less-than-significant levels through the implementation of the mitigation measures recommended in this document.

Implementation of these measures would ensure that the impacts of the project would be below established thresholds of significance and that these impacts would not combine with the impacts of other cumulative projects to result in a cumulatively considerable impact on the environment as a result of project development. Therefore, this impact would be less than significant with mitigation incorporated.

- c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

The proposed project would not result in any environmental effects that would cause substantial direct or indirect adverse effects to human beings. No impact would occur.

5.0 LIST OF PREPARERS

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7.0 MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) is formulated based on the findings of the IS/MND. The MMRP, which is included in Table 7.A, lists mitigation measures prescribed in the IS/MND prepared for the Brown Street Master Plan Project and identifies mitigation monitoring requirements.

This MMRP has been prepared to comply with the requirements of State law (PRC Section 21081.6). State law requires the Lead Agency to adopt an MMRP when mitigation measures are required to avoid significant impacts. The MMRP is intended to ensure compliance with the mitigation measures identified in the IS/MND during implementation of the project.

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
Aesthetics						
SCOA 208	Plans submitted for Building, Grading, or Underground Permits shall indicate the exact location and design of all exterior lighting fixtures and shall include a photometric plan. All lighting shall be shielded or placed such that it does not shine directly on any adjoining properties or impact traffic on adjacent streets. Lighting shall be subject to the approval of the Director of Community Development.	Prior to issuance of grading or building permits	City of Vacaville/ Engineer	City of Vacaville/ Director of Community Development	Prior to issuance of grading or building permits	Approval of photometric plan by the Director of Community Development
SCOA 209	SCOA 209: A photometric plan shall be required for the proposed lighting. Minimum lighting of one-half foot-candle(0.5) and a maximum of three (3) foot candles shall be provided on the site.	Prior to issuance of grading or building permits	City of Vacaville/ Engineer	City of Vacaville/ Director of Community Development	Prior to issuance of grading or building permits	Approval of photometric plan by the Director of Community Development
Air Quality						
Mitigation Measure AIR-1: Air Quality Dust Control Measures	<p>The following construction dust control measures shall be implemented by the project applicant, or their designee, during construction activities:</p> <ul style="list-style-type: none"> • Water all active construction sites at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure. • Haul trucks shall maintain at least 2 feet of freeboard. • Cover all trucks hauling dirt, sand, or loose materials. • Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations and hydroseed area. • Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days). • Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land. 	During construction	City of Vacaville/ Contractor	City of Vacaville	During construction	Successful implementation of dust control measures during construction activities

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	<ul style="list-style-type: none"> Plant vegetative ground cover in disturbed areas as soon as possible. Cover inactive storage piles. Sweep streets if visible soil material is carried out from the construction site. Treat site accesses to a distance of 100 feet from the paved road with 6 to 12-inch layer of wood chips or mulch. Treat site accesses to a distance of 100 feet from the paved road with 6-inch layer of gravel. 					
Biology						
Mitigation Measure BIO-1: Swainson's Hawk Pre-construction Survey	<p>Swainson's Hawk Pre-Construction Survey. If project construction activities are scheduled during the nesting season for Swainson's hawks (March 1 to September 15), prior to commencement of construction, a qualified biologist shall conduct surveys according to the recommended timing and methodology for Swainson's Hawk Nesting Surveys in California's Central Valley, as defined by the Swainson's Hawk Technical Advisory Committee. Survey methods should be closely followed by starting early in the nesting season (late March to early April) to maximize the likelihood of detecting an active nest. Surveys shall be conducted: (1) within a minimum 0.25-mile radius of the project site or a larger area if needed to identify potentially impacted active nests, and (2) for at least the two survey periods immediately prior to initiating project-related construction activities. Consistent with the Technical Advisory Committee Guidance, the recommended survey periods are March 20 to April 5, April 5 to April 20, and June 10 to July 30 (post-fledging). Surveys shall occur annually for the duration of the project. The qualified biologist shall have a minimum of 2 years of experience implementing the survey methodology resulting in detections. If active Swainson's hawk nests are</p>	Prior to construction during	Qualified Biologist	City of Vacaville/ Qualified Biologist	Prior to construction	Completion of preconstruction surveys for Swainson's Hawk

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	detected, the project shall implement a 0.25-mile construction avoidance buffer around the nest until the nest is no longer active as determined by a qualified biologist. If take of Swainson's hawk cannot be avoided, the City shall consult with the California Department of Fish and Wildlife (CDFW) pursuant to the California Endangered Species Act (CESA) and obtain an Incidental Take Permit (ITP).					
Mitigation Measure BIO-2: Swainson's Hawk Foraging Habitat	Swainson's Hawk Foraging Habitat. To mitigate for the loss of Swainson's Hawk foraging habitat, the City shall: (1) acquire suitable habitat land and permanently preserve foraging habitat through recording a conservation easement and implementing and funding a long-term management plan in perpetuity, or (2) acquire Swainson's hawk foraging habitat mitigation credits from a mitigation bank approved by the CDFW prior to building permit issuance. Either mitigation option shall be consistent with CDFW's 1994 Staff Report Regarding Mitigation for Impacts to Swainson's Hawk in the Central Valley of California, which specifies that projects within 5 miles of an active nest tree but greater than 1 mile from the nest tree shall provide 0.75 acre of foraging habitat for each acre of urban development authorized (i.e., 0.75:1	Prior to building permit issuance	City of Vacaville	CDFW/CESA	Prior to building permit issuance	Completion of appropriate mitigation for loss of known Swainson's Hawk foraging habitats.
Mitigation Measure BIO-3: Burrowing Owl Habitat Assessment	Burrowing Owl Habitat Assessment. Prior to project activities, a habitat assessment shall be performed following 'Habitat Assessment and Reporting Details' of the CDFW 2012 Staff Report on Burrowing Owl Mitigation. The habitat assessment shall extend at least 492 feet from the project site boundary or more where direct or indirect effects could potentially extend off site (up to 1,640 feet) and include burrows and burrow surrogates. If the habitat assessment identifies potentially suitable burrowing owl habitat, then a qualified biologist shall conduct surveys following the CDFW 2012	Prior to project activities	Qualified Biologist	Qualified Biologist	Prior to project activities	Habitat assessment shall be performed following 'Habitat Assessment and Reporting Details' of the CDFW 2012 Staff Report on Burrowing Owl Mitigation

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	Staff Report survey methodology. Surveys shall encompass the project site and a sufficient buffer zone to detect owls nearby that may be impacted commensurate with the type of disturbance anticipated, as outlined in the CDFW 2012 Staff Report, and include burrow surrogates such as culverts, piles of concrete or rubble, and other non-natural features, in addition to burrows and mounds. Time lapses between surveys or project activities shall trigger subsequent surveys, as determined by a qualified biologist, including but not limited to a final survey within 24 hours prior to ground disturbance. The qualified biologist shall have a minimum of 2 years of experience implementing the CDFW 2012 Staff Report survey methodology resulting in detections. Detected nesting burrowing owls shall be avoided pursuant to the buffer zone prescribed in the CDFW 2012 Staff Report and any passive relocation plan for non-nesting owls shall be subject to CDFW review.					
Mitigation Measure BIO-4: Nesting Bird Surveys	Nesting Bird Surveys. If construction activities are scheduled during the nesting season (February 1 through August 31), the City shall retain a qualified biologist to conduct a pre-construction survey of all suitable nesting habitat (i.e., field, trees) within 250 feet of the project site (where accessible). The pre-construction survey shall be conducted no more than 7 days prior to the start of work. If the survey indicates the presence of nesting birds, protective buffer zones should be established around the nests as follows: for raptor nests, the size of the buffer zone should be a 250-foot radius centered on the nest; for other birds, the size of the buffer zone should be a 50- to 100-foot radius centered on the nest. In some cases, these buffers may be increased or decreased depending on the bird species and the level of disturbance that will occur near the nest.	Prior to construction between February 1 through August 31	City of Vacaville/ Qualified Biologist	Qualified Biologist	Prior to construction between February 1 through August 31	Completion of preconstruction Nesting Bird Surveys

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	If there is a pause in construction activities of 7 days or more during the nesting season, an additional nesting bird survey shall be conducted to ensure that there are no new nests that require buffering.					
Cultural Resources						
Mitigation Measure CULT-1: Archaeological Alert Sheet and Crew Training	Implementation of Archaeological Alert Sheet and Crew Training Program. The City, or designee, shall implement an Archaeological Alert Sheet and Crew Training Program to mitigate the impacts to archaeological resources. The Archaeological Alert Sheet and Crew Training should be prepared and performed prior to any ground-disturbing work at all locations within the project site. This Alert Sheet shall be distributed to all project personnel, including construction – crew and their supervisory personnel, the Project Design Team and the future contractor(s). The Alert Sheet shall contain information regarding potential archaeological resources and the actions to take in the case of inadvertent discovery of cultural resources, including contact protocol and avoidance and minimization measures.	Prior to ground-disturbing activities	City of Vacaville	City of Vacaville	Prior to ground-disturbing activities	Implementation of Archaeological Alert Sheet and Crew Training Program
Mitigation Measure CULT-2: Archaeological Discovery Protocol	Archaeological Discovery Protocol. Consistent with Standard Condition of Approval (SCOA) 12, should an archaeological deposit be encountered during project subsurface construction activities, all ground-disturbing activities within 25 feet shall be redirected and a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology contacted to assess the situation, determine if the deposit qualifies as a historical resource, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. If the deposit is found to be significant (i.e., eligible for listing in the California Register of Historical Resources), the City shall be responsible	During construction	County Contractor/ Qualified Archaeologist/ City of Vacaville	Qualified Archaeologist/ City of Vacaville	During construction	Completion of appropriate protocol upon the discovery of any archaeological resources

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	for funding and implementing appropriate mitigation measures. Mitigation measures may include recollection of the archaeological deposit, data recovery and analysis, and public outreach regarding the scientific and cultural importance of the discovery. Upon completion of the selected mitigations, a report documenting methods and findings shall be prepared and submitted to the City's Community Development Director for review and approval, and the final report shall be submitted to the Northwest Information Center at Sonoma State University. Significant archaeological materials shall be submitted to an appropriate curation facility and used for public interpretive displays, as appropriate and in coordination with a local Native American tribal representative.					
Geology and Soils						
SCOA 104	Developer shall prepare and submit to the City Engineer a Geotechnical Investigation Report prepared by a Civil Engineer or Geotechnical Engineer, licensed in the State of California, to be used in the preparation of the grading plan. The Geotechnical Investigation Report shall provide recommendations for all grading and remediation work. The Developer shall comply with the recommendations of the Geotechnical Investigation Report and any additional requirements deemed necessary by the City Engineer and Chief Building Official.	Prior to and during construction	City of Vacaville / Project Engineer	City of Vacaville	Prior to and during construction	Preparation and implementation of Geotechnical Investigation Report recommendations
SCOA 105	A grading, geotechnical, and erosion control plan shall be submitted concurrently with the Final Map and Improvement Plans. Plans shall show any effect on adjacent properties.	Prior to issuance of grading or building permits	City of Vacaville / Project Engineer	City of Vacaville	Prior to issuance of grading or building permits	Submission of grading, geotechnical, and erosion control plan
SCOA 106	For projects with greater than 5,000 cubic yards of grading, grading plans shall be prepared by a Civil Engineer licensed by the State of California in accordance with Appendix Chapter 33 of the	Prior to issuance of grading or building permits	City of Vacaville/ Licensed Civil Engineer/ Licensed	City of Vacaville/ City Engineer	Prior to issuance of grading or building permits	Submission and approval of grading plans and Soils Report

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	California Building Standards Code and Section 11 of the Standard Specifications. The plans shall be accompanied by a Soils Report prepared, signed, and wet-stamped by a geotechnical engineer licensed by the State of California, and shall be submitted to the City Engineer for concurrent review with the Improvement Plans and Final Map.		Geotechnical Engineer			
Mitigation Measure GEO-1: Identification of Paleontological Resources	Identification of Paleontological Resources. Should paleontological resources be encountered during project subsurface construction activities, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. For purposes of this mitigation, a “qualified paleontologist” shall be an individual with the following qualifications : (1) a graduate degree in paleontology or geology and/or a person with a demonstrated publication record in peer-reviewed paleontological journals; (2) at least two years of professional experience related to paleontology; (3) proficiency in recognizing fossils in the field and determining their significance; (4) expertise in local geology, stratigraphy, and biostratigraphy ; and (5) experience collecting vertebrate fossils in the field. If the paleontological resources are found to be significant and project activities cannot avoid them, measures shall be implemented to ensure that the project does not cause a substantial adverse change in the significance of the paleontological resource. Measures may include monitoring, recording the fossil locality, data recovery and analysis, a final report, and accessioning the fossil material and technical report to a paleontological repository. Upon completion of the assessment, a report documenting methods, findings, and	During subsurface construction activities	Qualified Paleontologist/ Project Contractor	Qualified Paleontologist/ City of Vacaville	During subsurface construction activities	Implementation of appropriate protection measures for paleontological resources

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	<p>recommendations shall be prepared and submitted to the City for review. If paleontological materials are recovered, this report also shall be submitted to a paleontological repository such as the University of California Museum of Paleontology, along with significant paleontological materials. Public educational outreach may also be appropriate.</p> <p>The City shall inform its contractor(s) of the sensitivity of the project site for paleontological resources and shall verify that the following directive has been included in the appropriate contract documents:</p> <p><i>“The subsurface of the construction site may be sensitive for fossils. If fossils are encountered during project subsurface construction, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel shall not collect or move any paleontological materials. Fossils can include plants and animals, and such trace fossil evidence of past life as tracks or plant imprints. Ancient marine sediments may contain invertebrate fossils such as snails, clam and oyster shells, sponges, and protozoa; and vertebrate fossils such as fish, whale, and sea lion bones. Contractor acknowledges and understands that excavation or removal of paleontological material is prohibited by law and constitutes a misdemeanor under California Public Resources Code, Section 5097.5.”</i></p>					

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
Hazards and Hazardous Materials						
SCOA 262	Access roads with a minimum unobstructed width of 20 feet shall be provided to the front and rear of structures. A minimum vertical clearance of 13 feet 6 inches shall be provided. Access roads shall be engineered to support the imposed load of the apparatus which is typically 25 tons and shall be designed per the City Public Work's Department Standards. An access road shall be provided to within 150 feet of all exterior walls of the first floor of the buildings. The route of the access road shall be approved by the Fire Marshal. Dead-end access roads in excess of 150 feet in length shall be provided with an approved means for turning around the apparatus. The final design of the turnaround shall be reviewed and approved by the Fire Marshal prior to installation.	Prior to issuance of grading or building permits	City of Vacaville/ Project Engineer	City of Vacaville Public Works Department, Fire Marshal	Prior to issuance of grading or building permits	Approval of access road and turnaround dimensions and route
SCOA 263	Every building shall be accessible to Fire Department apparatus by way of all-weather access roadways during the time of construction. These roads shall have a minimum unobstructed width of 20 feet and shall be required to have a minimum 'first lift' of pavement applied which shall support the imposed load of a fire apparatus which is typically 25 tons. The developer shall be required to provide the Fire Marshal with a site plan showing the location, width, grades, and cross section of the proposed access roads to be used during construction. Permits shall not be issued and combustible construction shall not be allowed on the site until this site plan is reviewed and approved and stamped by the Fire Department.	Prior to issuance of grading or building permits	City of Vacaville/ Project Engineer	City of Vacaville Fire Department, Fire Marshal	Prior to issuance of grading or building permits	Approval of building access and access roads
SCOA 265	Prior to the issuance of any grading or building permits, the Fire Marshal shall approve the location of all Emergency Vehicle Access Roads within the project site. Unless otherwise approved, the access points to any Emergency Vehicle Access Roads shall	Prior to issuance of grading or building permits	City of Vacaville/ Project Engineer	City of Vacaville Fire Department, Fire Marshal	Prior to issuance of grading or building permits	Approval of Emergency Vehicle Access Road locations and access restrictions

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	be located at the end of cul-de-sacs and across utility easements and shall be kept locked at all times with a City 1C04 lock.					
SCOA 266	Prior to the issuance of any grading or building permits, the Fire Marshal shall approve the location of all Emergency Vehicle Access Roads around the perimeter of the site. Such Emergency Vehicle Access roads shall have average grades of not more than 20% with no section greater than 25%. The minimum width of such roads shall be 20 feet. Side slopes shall not exceed 4%. These roads shall be engineered to withstand a minimum load of 12 tons. At a minimum, this road shall be graded and compacted with decomposed granite or equivalent and shall be kept clear of all flammable vegetation at all times. The Fire Marshal may require the road to be surfaced with pavement if it is determined the road will not be or is not being properly maintained in accordance with these standards.	Prior to issuance of grading or building permits	City of Vacaville / Project Engineer	City of Vacaville Fire Department, Fire Marshal	Prior to issuance of grading or building permits	Approval of Emergency Vehicle Access Road grades, widths, weight capacities, and surfacing
SCOA 267	The Fire Marshal shall identify on the final site development plans where metal grates shall be provided for emergency fire apparatus cross V-ditches in the event of a fire or emergency. These grates shall have a minimum width of 10 feet and be designed and engineered to accommodate a minimum load of 12 tons.	Prior to issuance of grading or building permits	City of Vacaville / Project Engineer	City of Vacaville Fire Department, Fire Marshal	Prior to issuance of grading or building permits	Approval of emergency fire apparatus metal grates dimensions, location, and weight capacity
Hydrology and Water Quality						
Mitigation Measure HYD-1: Construction General Permit	Prior to the commencement of any land-disturbing activities, the Construction Contractor shall obtain coverage under the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order No. 2022-0057-DWQ, National Pollutant Discharge Elimination System No. CAS000002) (Construction General Permit). This shall include submission of	Prior to and during construction	City of Vacaville / Project Engineer	City of Vacaville	Prior to and during construction	Preparation and implementation of Geotechnical Investigation Report recommendations

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	<p>Permit Registration Documents (PRDs), including a Notice of Intent for coverage under the permit to the SWRCB via the Stormwater Multiple Application and Report Tracking System (SMARTs). The Project Applicant shall provide the Waste Discharge Identification Number (WDID) to the Planning Manager of the City of Vacaville (City) or designee, to demonstrate proof of coverage under the Construction General Permit. Project construction shall not be initiated until a WDID is received from the SWRCB and is provided to the City, or designee.</p> <p>A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared by a Qualified SWPPP Developer in accordance with the requirements of the Construction General Permit. These include: BMPs for erosion and sediment control, site management/housekeeping/waste management, management of non-stormwater discharges, run-on and runoff controls, and BMP inspection/maintenance/repair activities. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association's Stormwater Best Management Handbook: Construction.</p> <p>The SWPPP shall include a construction site monitoring program that identifies requirements for dry weather visual observations of pollutants at all discharge locations, and as appropriate (depending on the Risk Level), sampling of the site effluent and receiving waters. A Qualified SWPPP Practitioner shall be responsible for implementing the BMPs at the site and performing all required monitoring and inspection/maintenance/repair activities.</p>					

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	Upon completion of construction and stabilization of the site, a Notice of Termination shall be submitted via SMARTs.					
Mitigation Measure HYD-2: City of Vacaville Municipal Code	<p>Prior to issuance of a grading permit, the City shall review and approve final project plans, which address compliance with the water quality management requirements of Title 14 Land Use and Development Code. Title 14 includes specific provisions for urban storm water quality, management and discharge control to be implemented during construction activities including the requirement that new development must submit for review and approval by the City a construction erosion and sediment control plan, as described in the City's Grading, Erosion, and Sediment Control Ordinance, Division 14.19.</p> <p>In addition, prior to the issuance of a building or construction permit, the Project Applicant shall prepare a post-construction BMP design plan including a storm water management facilities operation and maintenance plan (O&M plan) in accordance with the Small Phase II MS4 Permit. The O&M Plan shall detail the post-construction BMPs intended to control the volume, rate, and potential pollutant load of storm water runoff from the project site. Post-construction BMP shall comply with the California Stormwater Quality Association (CASQA) Stormwater BMP Handbook for Construction.</p>	Prior to issuance of grading or building permits	City of Vacaville / Project Engineer	City of Vacaville	Prior to issuance of grading or building permits	Submission of grading, geotechnical, and erosion control plan
Mitigation Measure HYD-3: Small Municipal Separate Storm Sewer Systems MS4 Permit.	Small Phase II MS4 Permit. Prior to issuance of grading permit, the City of Vacaville (City) shall review and approve a Final Storm Water Management Plan (SWMP) in compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Waste Discharge Requirements (WDRs) for Storm Water Discharges	Prior to issuance of grading or building permits	City of Vacaville/ Project Engineer	City of Vacaville	Prior to issuance of grading or building permits	Submission of grading, geotechnical, and erosion control plan

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	from Small Municipal Separate Storm Sewer Systems (MS4s) RWQCB Order No. 2013-001-DWQ, NPDES No. CAS000004, as amended by Order 2015-0133-EXEC, Order WQ 2016-0069-EXEC, Order 2017-XXXX-DWQ, Order 2018-0001-EXEC, and Order 2018-0007-EXEC, including specifying project-specific site design measures, source control measures, Low Impact Development (LID) Design Standards, Hydromodification Measures, Operation and Maintenance of Storm Water Control Measures, and Post-Construction BPMs and associated water quality monitoring actions to ensure water quality thresholds are maintained and facilities meet the required sizing design criteria.					
Mitigation Measure HYD-4: Storm Drain Design Standards Section DS4	Storm Drain Design Standards Section DS4. Prior to issuance of grading, the City of Vacaville shall review and approve a Final Storm Drainage Master Plan to ensure it is in compliance with the City of Vacaville Storm Drain Design Standards Section DS4.	Prior to issuance of grading or building permits	City of Vacaville/ Licensed Civil Engineer/ Licensed Geotechnical Engineer	City of Vacaville/ City Engineer	Prior to issuance of grading or building permits	Submission and approval of grading plans and Soils Report
Noise						
Mitigation Measure NOI-1: Construction Vibration Damage	<p>Construction Vibration Damage. Due to the close proximity to surrounding structures, the City of Vacaville (City) Director of Community Development, or designee, shall verify prior to issuance of demolition or grading permits, that the approved plans require that the construction contractor shall implement the following mitigation measures during project construction activities to ensure that damage does not occur at surrounding structures:</p> <ul style="list-style-type: none"> A 15-foot buffer between existing structures and the Project site area shall be clearly delineated with stakes, fencing or other conspicuous boundary markings, to outline the area in which the use of heavy equipment shall be avoided. 	During construction	Qualified Paleontologist/ Project Contractor	Qualified Paleontologist/ City of Vacaville	During construction	Implementation of appropriate protection measures for paleontological resources

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	<ul style="list-style-type: none"> The use of heavy construction shall be avoided within 15 feet of existing surrounding structures. However, if the use of heavy equipment is required within 15 feet of surrounding structures, the following measures should be employed: <ul style="list-style-type: none"> Identify structures that are located within 15 feet (ft) of heavy construction activities and that have the potential to be affected by ground-borne vibration. This task shall be conducted by a qualified structural engineer as approved by the City's Director of Community Development, or designee. Develop a vibration monitoring and construction contingency plan for approval by the Director of Community Development, or designee, to identify structures where monitoring would be conducted; set up a vibration monitoring schedule; define structure-specific vibration limits; and address the need to conduct photo, elevation, and crack surveys to document before and after construction conditions. Construction contingencies would be identified for when vibration levels approached the limits. At a minimum, monitor vibration during initial demolition activities. Monitoring results may indicate the need for more or less intensive measurements. When vibration levels approach limits, suspend construction and implement contingencies as identified in the approved vibration monitoring and construction 					

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	contingency plan to either lower vibration levels or secure the affected structures.					
Transportation						
SCOA 186	Where a Traffic Study is not required by Section 14.13.180 of the Land Use and Development Code, any traffic controls or other changes to the nearby streets required by the City Traffic Engineer shall be shown on the final development plans prior to the issuance of grading or building permits.	Prior to issuance of grading or building permits	City of Vacaville / Project Engineer	City of Vacaville Public Works Department, Fire Marshal	Prior to issuance of grading or building permits	Approval of access road and turnaround dimensions and route
SCOA 188	The design and construction of all public street improvements shall conform to the City of Vacaville Public Works Department Standard Plans and Specifications for Public Improvements, latest edition, unless otherwise approved by the City Engineer or as may be required by any applicable Standard or Special Conditions of Approval.	Prior to issuance of grading or building permits	City of Vacaville/ Project Engineer	City of Vacaville Fire Department, Fire Marshal	Prior to issuance of grading or building permits	Approval of building access and access roads
Tribal Cultural Resources						
Project-Specific Conditions of Approval	Cultural Resources Awareness Training. The City shall require the project applicant to provide a cultural resources and tribal cultural resources sensitivity and awareness training program for all personnel involved in project construction, including consultants and construction workers. The training program shall be developed in coordination with a Secretary of the Interior-qualified archaeologist. The City shall invite the Yocha Dehe Wintun Nation (Tribe) to participate. The training program shall include relevant information regarding sensitive cultural resources and tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The training program shall also describe appropriate avoidance and minimization measures for cultural resources and tribal cultural resources that have the potential to be located in the project site and shall outline what to do and who to contact if any potential					

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	cultural resources or tribal cultural resources are encountered. The training program shall emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans.					
Project-Specific Conditions of Approval	<p>Discovery Protocol for Cultural Materials. If pre-contact Native American or historic-era cultural materials are encountered during project implementation, all construction activities within 100 feet shall halt, and a Secretary of the Interior-qualified archaeologist shall inspect the find within 24 hours of discovery and notify the City of their initial assessment. If the find is pre-contact, the Tribe shall be invited to evaluate the find. Pre-contact cultural materials include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials include building or structure footings and walls, and deposits of metal, glass, and/or ceramic refuse.</p> <p>If the City determines, based on recommendations from a Secretary of the Interior-qualified archaeologist and the Tribe (if the resource is Native American related), that the resource may qualify as a historical resource or unique archaeological resource (defined in CEQA Guidelines Section 15064.5), a tribal cultural resource (defined in PRC Section 21080.3), or a historic property (defined in the National Historic Preservation Act), the resource shall be avoided, if feasible. This may be accomplished through planning construction to</p>					

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	<p>avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement.</p> <p>If avoidance is not feasible, the City shall work with a Secretary of the Interior-qualified archaeologist and affiliated Native American tribal representatives (if the resource is Native American-related) to develop a Cultural Resources Treatment Plan to determine treatment measures to avoid, minimize, or mitigate any potential impacts or adverse effects to the resource. This shall include documentation of the resource and may include data recovery, if deemed appropriate, or other actions such as treating the resource with culturally appropriate dignity and protecting the cultural character and integrity of the resource.</p> <p>If deemed appropriate, data recovery shall be completed according to an established Cultural Resources Treatment Plan, which will be reviewed by the City and the Tribe. The Treatment Plan shall include, at a minimum, the following components:</p> <ul style="list-style-type: none"> • Scope of work; • Environmental setting; • Identification of property types; • Research questions and goals; • Detailed field strategy to address research goals; • Analytical methods; • Disposition of artifacts; • Treatment of human remains; • Security approaches and protocols; and • Reporting requirements. 					

Table 7.A: Brown Street Master Plan Project Mitigation Monitoring and Reporting Program

Mitigation Measure/Standard Condition of Approval	Avoidance and Minimization Measure	Timing	Implementing Party	Monitoring Party	Frequency and Duration of Monitoring	Performance Criteria
	Treatment may include, but would not be limited to, backhoe trenching, shovel test units, hand augering, and hand excavation. All treatment shall be approved by the Tribe and adhere to Tribe's <i>Treatment Protocol for Handling Human Remains and Cultural Items Affiliated with the Yocha Dehe Wintun Nation</i> .					
Project-Specific Conditions of Approval	Discovery Protocol for Human Remains. In the event of discovery or recognition of any human remains during project implementation, construction activities within 100 feet of the find shall cease until the Solano County Coroner has been contacted to determine that no investigation of the cause of death is required. The Coroner shall contact the California Native American Heritage Commission within 24 hours, if the Coroner determines the remains to be Native American in origin. The Commission will then identify the person or persons it believes to be the most likely descendant from the deceased Native American (PRC Section 5097.98), who in turn will make recommendations to the City for the appropriate means of treating the human remains and any associated grave goods (CEQA Guidelines Section 15064.5[d]). A determination may include avoidance of the human remains, reburial on-site, or reburial on Tribal or other lands that will not be disturbed in the future.					

APPENDIX A

CALEEMOD OUTPUTS

Brown Street Master Plan Project Custom Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Brown Street Master Plan Project
Construction Start Date	1/5/2026
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	34.8
Location	38.36173500459927, -121.97674125990946
County	Solano-Sacramento
City	Vacaville
Air District	Yolo/Solano AQMD
Air Basin	Sacramento Valley
TAZ	832
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
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City Park	2.63	Acre	2.63	0.00	96,501	96,501	—	—
General Office Building	10.0	1000sqft	0.22	10,000	0.00	—	—	—
Health Club	2.50	1000sqft	0.06	2,500	0.00	—	—	—
Parking Lot	48.0	Space	0.49	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.64	18.9	14.5	0.02	0.69	5.96	6.65	0.64	0.60	1.24	—	2,490	2,490	0.10	0.03	2,501
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.41	39.9	28.9	0.05	1.12	25.9	27.0	1.02	5.78	6.79	—	5,438	5,438	0.22	0.05	5,458
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.50	15.3	11.6	0.02	0.52	5.82	6.35	0.49	0.89	1.38	—	2,024	2,024	0.08	0.02	2,033
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.09	2.79	2.11	< 0.005	0.10	1.06	1.16	0.09	0.16	0.25	—	335	335	0.01	< 0.005	337

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.64	18.9	14.5	0.02	0.69	5.96	6.65	0.64	0.60	1.24	—	2,490	2,490	0.10	0.03	2,501
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.13	39.9	28.9	0.05	1.12	25.9	27.0	1.02	5.78	6.79	—	5,438	5,438	0.22	0.05	5,458
2027	4.41	19.0	14.5	0.02	0.69	20.8	21.3	0.64	2.10	2.55	—	2,484	2,484	0.10	0.03	2,495
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.50	15.3	11.6	0.02	0.52	5.82	6.35	0.49	0.89	1.38	—	2,024	2,024	0.08	0.02	2,033
2027	0.27	1.42	1.14	< 0.005	0.06	1.20	1.26	0.05	0.12	0.17	—	188	188	0.01	< 0.005	189
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.09	2.79	2.11	< 0.005	0.10	1.06	1.16	0.09	0.16	0.25	—	335	335	0.01	< 0.005	337
2027	0.05	0.26	0.21	< 0.005	0.01	0.22	0.23	0.01	0.02	0.03	—	31.2	31.2	< 0.005	< 0.005	31.3

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.19	0.57	4.36	0.01	0.02	43.8	43.8	0.02	4.46	4.47	16.5	1,109	1,126	1.74	0.06	1,188
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	1.03	0.65	3.88	0.01	0.02	43.8	43.8	0.01	4.46	4.47	16.5	1,050	1,067	1.75	0.06	1,128
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.07	0.61	3.86	0.01	0.02	39.7	39.7	0.02	4.05	4.06	16.5	1,062	1,078	1.74	0.06	1,140
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.20	0.11	0.70	< 0.005	< 0.005	7.24	7.24	< 0.005	0.74	0.74	2.73	176	179	0.29	0.01	189

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.75	0.46	3.73	0.01	0.01	43.8	43.8	0.01	4.46	4.47	—	834	834	0.04	0.04	850
Area	0.43	< 0.005	0.54	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.24	2.24	< 0.005	< 0.005	2.24
Energy	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	268	268	0.03	< 0.005	269
Water	—	—	—	—	—	—	—	—	—	—	3.69	5.89	9.58	0.38	0.01	21.8
Waste	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	44.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04
Total	1.19	0.57	4.36	0.01	0.02	43.8	43.8	0.02	4.46	4.47	16.5	1,109	1,126	1.74	0.06	1,188
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.68	0.54	3.79	0.01	0.01	43.8	43.8	0.01	4.46	4.47	—	777	777	0.05	0.05	792
Area	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	268	268	0.03	< 0.005	269
Water	—	—	—	—	—	—	—	—	—	—	3.69	5.89	9.58	0.38	0.01	21.8
Waste	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	44.8

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04
Total	1.03	0.65	3.88	0.01	0.02	43.8	43.8	0.01	4.46	4.47	16.5	1,050	1,067	1.75	0.06	1,128
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.68	0.50	3.50	0.01	0.01	39.7	39.7	0.01	4.05	4.05	—	787	787	0.05	0.05	803
Area	0.39	< 0.005	0.27	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.10	1.10	< 0.005	< 0.005	1.11
Energy	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	268	268	0.03	< 0.005	269
Water	—	—	—	—	—	—	—	—	—	—	3.69	5.89	9.58	0.38	0.01	21.8
Waste	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	44.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04
Total	1.07	0.61	3.86	0.01	0.02	39.7	39.7	0.02	4.05	4.06	16.5	1,062	1,078	1.74	0.06	1,140
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.12	0.09	0.64	< 0.005	< 0.005	7.24	7.24	< 0.005	0.74	0.74	—	130	130	0.01	0.01	133
Area	0.07	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.18	0.18	< 0.005	< 0.005	0.18
Energy	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	44.3	44.3	0.01	< 0.005	44.6
Water	—	—	—	—	—	—	—	—	—	—	0.61	0.97	1.59	0.06	< 0.005	3.60
Waste	—	—	—	—	—	—	—	—	—	—	2.12	0.00	2.12	0.21	0.00	7.42
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01
Total	0.20	0.11	0.70	< 0.005	< 0.005	7.24	7.24	< 0.005	0.74	0.74	2.73	176	179	0.29	0.01	189

3. Construction Emissions Details

3.1. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	39.9	28.3	0.05	1.12	—	1.12	1.02	—	1.02	—	5,298	5,298	0.21	0.04	5,316
Dust From Material Movement	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	3.28	2.33	< 0.005	0.09	—	0.09	0.08	—	0.08	—	435	435	0.02	< 0.005	437
Dust From Material Movement	—	—	—	—	—	0.63	0.63	—	0.32	0.32	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.60	0.42	< 0.005	0.02	—	0.02	0.02	—	0.02	—	72.1	72.1	< 0.005	< 0.005	72.3
Dust From Material Movement	—	—	—	—	—	0.11	0.11	—	0.06	0.06	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.58	0.00	0.00	18.2	18.2	0.00	1.84	1.84	—	140	140	< 0.005	0.01	142
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	1.36	1.36	0.00	0.14	0.14	—	11.7	11.7	< 0.005	< 0.005	11.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	0.25	0.25	0.00	0.02	0.02	—	1.94	1.94	< 0.005	< 0.005	1.97
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.73	23.2	17.8	0.03	0.75	—	0.75	0.69	—	0.69	—	2,960	2,960	0.12	0.02	2,970
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.95	0.73	< 0.005	0.03	—	0.03	0.03	—	0.03	—	122	122	< 0.005	< 0.005	122
Dust From Material Movement	—	—	—	—	—	0.11	0.11	—	0.05	0.05	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.17	0.13	< 0.005	0.01	—	0.01	0.01	—	0.01	—	20.1	20.1	< 0.005	< 0.005	20.2
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.50	0.00	0.00	15.6	15.6	0.00	1.57	1.57	—	120	120	< 0.005	0.01	121
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	0.58	0.58	0.00	0.06	0.06	—	5.02	5.02	< 0.005	< 0.005	5.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	0.11	0.11	0.00	0.01	0.01	—	0.83	0.83	< 0.005	< 0.005	0.84
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	11.0	8.34	0.01	0.40	—	0.40	0.37	—	0.37	—	1,398	1,398	0.06	0.01	1,403
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.07	2.01	1.52	< 0.005	0.07	—	0.07	0.07	—	0.07	—	231	231	0.01	< 0.005	232
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.17	0.00	0.00	4.42	4.42	0.00	0.45	0.45	—	37.5	37.5	< 0.005	< 0.005	38.1
Vendor	< 0.005	0.06	0.03	< 0.005	< 0.005	1.53	1.53	< 0.005	0.16	0.16	—	55.3	55.3	< 0.005	0.01	57.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.14	0.00	0.00	4.42	4.42	0.00	0.45	0.45	—	33.9	33.9	< 0.005	< 0.005	34.4
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	1.53	1.53	< 0.005	0.16	0.16	—	55.3	55.3	< 0.005	0.01	57.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	2.34	2.34	0.00	0.24	0.24	—	20.2	20.2	< 0.005	< 0.005	20.5
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.81	0.81	< 0.005	0.08	0.08	—	32.2	32.2	< 0.005	< 0.005	33.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	0.43	0.43	0.00	0.04	0.04	—	3.34	3.34	< 0.005	< 0.005	3.39
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	5.34	5.34	< 0.005	< 0.005	5.55
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
----------	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	------

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.81	0.62	< 0.005	0.03	—	0.03	0.03	—	0.03	—	103	103	< 0.005	< 0.005	104
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.15	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	17.1	17.1	< 0.005	< 0.005	17.1
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.13	0.00	0.00	4.42	4.42	0.00	0.45	0.45	—	33.3	33.3	< 0.005	< 0.005	33.7
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	1.53	1.53	< 0.005	0.16	0.16	—	54.1	54.1	< 0.005	0.01	56.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	0.17	0.17	0.00	0.02	0.02	—	1.46	1.46	< 0.005	< 0.005	1.48
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	2.33	2.33	< 0.005	< 0.005	2.42
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	0.03	0.03	0.00	< 0.005	< 0.005	—	0.24	0.24	< 0.005	< 0.005	0.25
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.39	0.39	< 0.005	< 0.005	0.40
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	11.2	8.87	0.01	0.48	—	0.48	0.45	—	0.45	—	1,350	1,350	0.05	0.01	1,355
Paving	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.55	0.44	< 0.005	0.02	—	0.02	0.02	—	0.02	—	66.6	66.6	< 0.005	< 0.005	66.8
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.10	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.0	11.0	< 0.005	< 0.005	11.1
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.62	0.00	0.00	20.8	20.8	0.00	2.10	2.10	—	157	157	< 0.005	0.01	159
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.93	0.93	0.00	0.09	0.09	—	7.88	7.88	< 0.005	< 0.005	7.99
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	0.17	0.17	0.00	0.02	0.02	—	1.30	1.30	< 0.005	< 0.005	1.32
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	134
Architectural Coatings	4.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.05	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.58	6.58	< 0.005	< 0.005	6.61
Architectural Coatings	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.09	1.09	< 0.005	< 0.005	1.09
Architectural Coatings	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.88	0.88	0.00	0.09	0.09	—	6.66	6.66	< 0.005	< 0.005	6.75
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	0.04	0.04	0.00	< 0.005	< 0.005	—	0.33	0.33	< 0.005	< 0.005	0.34
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	0.06
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.05	0.03	0.25	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	56.1	56.1	< 0.005	< 0.005	57.2

General Office Building	0.42	0.26	2.08	< 0.005	< 0.005	24.5	24.5	< 0.005	2.50	2.50	—	466	466	0.02	0.02	476
Health Club	0.28	0.17	1.39	< 0.005	< 0.005	16.3	16.3	< 0.005	1.66	1.67	—	311	311	0.02	0.02	317
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.75	0.46	3.73	0.01	0.01	43.8	43.8	0.01	4.46	4.47	—	834	834	0.04	0.04	850
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.05	0.04	0.26	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	52.3	52.3	< 0.005	< 0.005	53.3
General Office Building	0.38	0.30	2.12	< 0.005	< 0.005	24.5	24.5	< 0.005	2.50	2.50	—	435	435	0.03	0.03	443
Health Club	0.25	0.20	1.41	< 0.005	< 0.005	16.3	16.3	< 0.005	1.66	1.67	—	290	290	0.02	0.02	296
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.68	0.54	3.79	0.01	0.01	43.8	43.8	0.01	4.46	4.47	—	777	777	0.05	0.05	792
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.01	0.01	0.04	< 0.005	< 0.005	0.49	0.49	< 0.005	0.05	0.05	—	8.77	8.77	< 0.005	< 0.005	8.95
General Office Building	0.07	0.05	0.36	< 0.005	< 0.005	4.05	4.05	< 0.005	0.41	0.41	—	72.9	72.9	< 0.005	< 0.005	74.4
Health Club	0.05	0.03	0.24	< 0.005	< 0.005	2.70	2.70	< 0.005	0.28	0.28	—	48.6	48.6	< 0.005	< 0.005	49.6
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.12	0.09	0.64	< 0.005	< 0.005	7.24	7.24	< 0.005	0.74	0.74	—	130	130	0.01	0.01	133

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	—	117	117	0.02	< 0.005	118
Health Club	—	—	—	—	—	—	—	—	—	—	—	14.4	14.4	< 0.005	< 0.005	14.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	10.5	10.5	< 0.005	< 0.005	10.6
Total	—	—	—	—	—	—	—	—	—	—	—	142	142	0.02	< 0.005	143
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	—	117	117	0.02	< 0.005	118
Health Club	—	—	—	—	—	—	—	—	—	—	—	14.4	14.4	< 0.005	< 0.005	14.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	10.5	10.5	< 0.005	< 0.005	10.6
Total	—	—	—	—	—	—	—	—	—	—	—	142	142	0.02	< 0.005	143
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	—	19.4	19.4	< 0.005	< 0.005	19.6

Health Club	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39	< 0.005	< 0.005	2.41
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	1.74	1.74	< 0.005	< 0.005	1.76
Total	—	—	—	—	—	—	—	—	—	—	—	23.5	23.5	< 0.005	< 0.005	23.7

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.5	92.5	0.01	< 0.005	92.8
Health Club	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	33.2	33.2	< 0.005	< 0.005	33.3
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	126	126	0.01	< 0.005	126
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.5	92.5	0.01	< 0.005	92.8
Health Club	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	33.2	33.2	< 0.005	< 0.005	33.3
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00

Total	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	126	126	0.01	< 0.005	126
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.3	15.3	< 0.005	< 0.005	15.4
Health Club	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.50	5.50	< 0.005	< 0.005	5.51
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	20.8	20.8	< 0.005	< 0.005	20.9

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.09	< 0.005	0.54	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.24	2.24	< 0.005	< 0.005	2.24
Total	0.43	< 0.005	0.54	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.24	2.24	< 0.005	< 0.005	2.24
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer Products	0.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.18	0.18	< 0.005	< 0.005	0.18
Total	0.07	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.18	0.18	< 0.005	< 0.005	0.18

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	0.00	2.52	2.52	< 0.005	< 0.005	2.54
General Office Building	—	—	—	—	—	—	—	—	—	—	3.41	3.11	6.52	0.35	0.01	17.8
Health Club	—	—	—	—	—	—	—	—	—	—	0.28	0.26	0.54	0.03	< 0.005	1.48

Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	3.69	5.89	9.58	0.38	0.01	21.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	0.00	2.52	2.52	< 0.005	< 0.005	2.54
General Office Building	—	—	—	—	—	—	—	—	—	—	3.41	3.11	6.52	0.35	0.01	17.8
Health Club	—	—	—	—	—	—	—	—	—	—	0.28	0.26	0.54	0.03	< 0.005	1.48
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	3.69	5.89	9.58	0.38	0.01	21.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	0.00	0.42	0.42	< 0.005	< 0.005	0.42
General Office Building	—	—	—	—	—	—	—	—	—	—	0.56	0.52	1.08	0.06	< 0.005	2.94
Health Club	—	—	—	—	—	—	—	—	—	—	0.05	0.04	0.09	< 0.005	< 0.005	0.24
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.61	0.97	1.59	0.06	< 0.005	3.60

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
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Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	0.12	0.00	0.12	0.01	0.00	0.43
General Office Building	—	—	—	—	—	—	—	—	—	—	5.01	0.00	5.01	0.50	0.00	17.5
Health Club	—	—	—	—	—	—	—	—	—	—	7.68	0.00	7.68	0.77	0.00	26.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	44.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	0.12	0.00	0.12	0.01	0.00	0.43
General Office Building	—	—	—	—	—	—	—	—	—	—	5.01	0.00	5.01	0.50	0.00	17.5
Health Club	—	—	—	—	—	—	—	—	—	—	7.68	0.00	7.68	0.77	0.00	26.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	44.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	0.07
General Office Building	—	—	—	—	—	—	—	—	—	—	0.83	0.00	0.83	0.08	0.00	2.90
Health Club	—	—	—	—	—	—	—	—	—	—	1.27	0.00	1.27	0.13	0.00	4.45
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00

Total	—	—	—	—	—	—	—	—	—	—	2.12	0.00	2.12	0.21	0.00	7.42
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4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005

Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
---------	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequester ed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequester ed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequester ed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/5/2026	2/13/2026	5.00	30.0	—
Grading	Grading	2/16/2026	3/6/2026	5.00	15.0	—
Building Construction	Building Construction	3/9/2026	1/22/2027	5.00	230	—
Paving	Paving	1/25/2027	2/17/2027	5.00	18.0	—
Architectural Coating	Architectural Coating	2/18/2027	3/15/2027	5.00	18.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Tier 2	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 2	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 2	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Tier 2	1.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 2	3.00	8.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Tier 2	1.00	8.00	367	0.40
Building Construction	Cranes	Diesel	Tier 2	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 2	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Tier 2	1.00	8.00	14.0	0.74

Building Construction	Welders	Diesel	Tier 2	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 2	3.00	7.00	84.0	0.37
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 2	1.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Tier 2	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Tier 2	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 2	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Tier 2	2.00	6.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 2	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	4.25	11.7	LDA,LDT1,LDT2

Building Construction	Vendor	2.05	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.85	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	18,750	6,250	1,289

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00	0.00	40.5	0.00	—
Grading	0.00	0.00	8.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.49

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
City Park	0.00	0%
General Office Building	0.00	0%
Health Club	0.00	0%
Parking Lot	0.49	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
City Park	13.0	13.0	13.0	4,742	65.0	65.0	65.0	23,736
General Office Building	108	108	108	39,420	541	541	541	197,309
Health Club	72.0	72.0	72.0	26,280	360	360	360	131,539
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	18,750	6,250	1,289

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
City Park	0.00	204	0.0330	0.0040	0.00
General Office Building	209,293	204	0.0330	0.0040	288,690
Health Club	25,825	204	0.0330	0.0040	103,647
Parking Lot	18,812	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
City Park	0.00	2,795,532
General Office Building	1,777,337	0.00
Health Club	147,858	0.00
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
City Park	0.23	—
General Office Building	9.30	—
Health Club	14.2	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Health Club	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Health Club	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
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5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)
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5.17. User Defined

Equipment Type	Fuel Type
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5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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8. User Changes to Default Data

Screen	Justification
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Land Use	Total project site is 3.44 acres, project would consist of a 2.63 neighborhood park, a 2,500 sf recreational community center, and a 10,000 sf of office space. Project would also include 96,501 sf of landscape and 48 parking lot spaces
Construction: Construction Phases	No demolition phase. Construction is expected to occur over two phases. However, to be conservative, this analysis would assume all construction will take over one phase. Construction is expected to start in 2026 and end in 2027.
Construction: Off-Road Equipment	Default construction equipment with tier 2 engines
Operations: Vehicle Data	<p>Trip rates are adjusted based on the trip generation table. Based on a total of 193 daily trips.</p> <p>City park = 13 trips/ 2.63 acres = 4.94 General Building Office = 108 trips / 10.0tsf = 10.8 Health Club (Rec. Center) = 72 trips / 2.5 tsf = 28.8</p>
Construction: Dust From Material Movement	Balanced site



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APPENDIX B

ARBORIST REPORT AND RECORD SEARCHES



California Tree and Landscape Consulting, Inc.

September 17, 2023

Jonathan Hammond, AIA
Indigo Hammond + Playle Architects, LLP
909 5th St
Davis, CA 95616
530-220-0779
jhammond@indigoarch.com, pnichols@indigoarch.com

PRELIMINARY ARBORIST REPORT FOR DEVELOPMENT AT BROWN STREET PARK, BROWN STREET, VACAVILLE APNs 0129-320-020, 150, 170, 180, 190, 200, 250, & 270

Executive Summary:

Mr. Jonathan Hammond contacted California Tree and Landscape Consulting, Inc. to inventory and evaluate the trees on and adjacent to the proposed development for the purpose of processing plans for site improvements. The property falls under the jurisdiction of the City of Vacaville.

Gordon Mann, ISA Certified Arborist #WE-0151AM, and Tyler Thompson, ISA Certified Arborist WE-12751A were on site August 30, 2023. A total of 97 trees were assessed in the inspection. 2 trees were located off-site on adjacent properties and their branches extend into the property and will likely not be impacted. 8 trees are located outside the fence along Brown Street, and it is uncertain if they are offsite or not.

Table 1 – Tree Inventory

Tree Species	Trees Inventoried	Trees located on the Parcel ¹	Protected by Vacaville City Tree Preservation Code	Proposed for Removal
Valley, <i>Quercus lobata</i>	45	45	17 over 6" diameter	3 > 6"
Lemon Scented Gum, <i>Corimba citriodora</i>	1	1	1 over 6" diameter	0
American Elm, <i>Ulmus americana</i>	12	12	12 over 6" diameter	2 > 6"
Pecan, <i>Carya illinoensis</i>	5	4	1 over 6" diameter	0
White Mulberry, <i>Morus alba</i>	6	6	3 over 6" diameter	1 > 6"
CA Black Walnut, <i>Juglans hindsii</i>	5	5	3 over 6" diameter	2 > 6"
Cottonwood, <i>Populus fremontii</i>	4	4	2 over 6" diameter	0
Brazilian Pepper, <i>Schinus terebinthifolius</i>	4	4	3 over 6" diameter	1 > 6"
Other species	12	11	4 over 6" diameter	8 < 6"
Total	94	92	46 > 6"	9 > 6"

See Tree List in Appendix for specific information on each tree.

¹ CalTLC is not a licensed land surveyor. Tree ownership was not determined. Conclusions within this report are based on existing fences or other landmarks which may not represent the actual property boundary.

The design is working to avoid as many tree removals as possible. The smaller oaks were being considered for transplanting into the natural area. In discussions with professional tree movers, the Valley Oak tap root gets severed, and it does not have a great transplant survival rate. The natural area should be planted with grown nursery stock.

The larger trees on the site to be retained should be pruned for clearance, to remove dead branches, and reduce end weights to reduce the likelihood of branches failing in the new facility. Some of the smaller trees may need to be pruned to provide clearance.

All trees to be retained should be protected with fencing for a tree protection zone, or if work has to be performed within the tree protection zone, 4" of wood chip mulch shall be placed over the soil. If small equipment is required in the tree protection zone, 1" plywood is placed over the mulch where the equipment will travel. If large equipment is required in the tree protection zone, steel plates are placed over the wood chip mulch. Tree protection is to be put in place before any clean up or grading, or construction occurs on the site.

Methods

The definition of Protected trees in

14.09.131.020 Applicability

For the purposes of this chapter, tree means any live woody plant having one or more well defined perennial stems with an aggregate circumference of 31 inches or more, when measured at 4-1/2 feet above ground level. (31 inches circumference equals 9.87 inches diameter)

14.09.131.030 Permit Required for Tree Removal.

Except as otherwise specified in this chapter, no person shall cut down, remove, or destroy any tree, or cause the cutting down, removal or destruction of any tree, on any public or private property except in accordance with the conditions of a tree removal permit issued by the City

14.09.131.040 Development Projects.

Approval of a development project by the decision-maker shall constitute a permit to remove any trees when removal of such trees is clearly designated as part of the project application.

14.09.131.050 Preservation and Maintenance of Trees During Construction.

A. When proposed developments encroach into the dripline of any tree, special construction practices to allow the roots to breathe and obtain water shall be required as determined by the Director.

Mitigation requirements will need to be approved by the City.

Appendix 2 in this report is the detailed inventory and recommendations for the trees. The following terms and Table A – Ratings Description will further explain our findings.

The protected trees evaluated as part of this report have a numbered tag that was placed on each one that is 1-1/8" x 1-3/8", green anodized aluminum, "acorn" shaped, and labeled: CalTLC, Auburn, CA with 1/4" pre-stamped tree number and Tree Tag. They are attached with a natural-colored aluminum 10d nail, installed at approximately 6' above ground level on the approximate north side of the tree. The tag should last ~10 – 20+ years depending on the species, before it is enveloped by the trees' normal growth cycle.

A Level 2 – Basic Visual Assessment was performed in accordance with the International Society of Arboriculture's best management practices. This assessment level is limited to the observation of conditions and defects which are readily visible. Additional limiting factors, such as blackberries, poison oak, and/or debris piled at the base of a tree can inhibit the visual assessment.

Tree Location: The GPS location of each tree was collected using the ESRI's ArcGIS collector application on an Apple iPhone or Samsung. The data was then processed in ESRI's ArcMap by Julie McNamara, M.S. GISci, to produce the tree location map.

Tree Measurements: DBH (diameter breast high) is normally measured at 4'6" (above the average ground height for "Urban Forestry"), but if that varies then the location where it is measured is noted. A diameter tape was used to measure the DBH for all trees. The crown was paced to measure the canopy radius distances. Canopy radius measurements were estimated on trees inside the locked fenced yard.

Terms

Field Tag #	The pre-stamped tree number on the tag which is installed at approximately 6' above ground level on the north side of the tree.
City Tag #	The number listed on the City of Sacramento tree inventory in the ARC GIS system found online at: saccity.maps.arcgis.com
Species	The species of a tree is listed by our local and correct common name and botanical name by genus (capitalized) and species (lower case). Oaks frequently cross-pollinate and hybridize, but the identification is towards the strongest characteristics.
DBH	Diameter breast high' is normally measured at 4'6" (above the average ground height for "Urban Forestry"), but if that varies then the location where it is measured is noted in the next column "measured at"
DSH	"Diameter at standard height" is the same as DBH except as follows (according to the City of Sacramento requirements): (1) For a tree that branches at or below 4.5', DSH means the diameter at the narrowest point between the grade and the branching point; and (2) For a tree with a common root system that branches at the ground, DSH means the sum of the diameter of the largest trunk plus one-half the cumulative diameter of the remaining trunks at 4.5' above natural grade.
Canopy radius and Protection Zone Area	The farthest extent of the crown composed of leaves and small twigs. Most trees are not evenly balanced. This measurement represents the longest extension from the trunk to the outer canopy. The dripline measurement is from the center point of the tree and is shown on the Tree Location Map as a circle. This measurement further defines the radius of the protection zone to be specified on any development plans unless otherwise indicated in the arborist recommendations, Appendix 2.
Critical Root Zone	The radius of the critical root zone is a circle equal to the trunk diameter" converted to' and factored by tree age, condition and health pursuant to the industry standard. Best Management Practices: Managing Trees During Construction, the companion publication to the Approved American National Standard, provides guidance regarding minimum tree root protection zones for long term survival. In instances where a tree is multi-stemmed the protected root zone is equal to the extrapolated diameter (sum of the area of each stem converted to a single stem) factored by tree age, condition and health.
Arborist Rating	Subjective to condition and is based on both the health and structure of the tree. All of the trees were rated for condition, per the recognized national standard as set up by the Council of Tree and Landscape Appraisers and the International Society of Arboriculture (ISA) on a numeric scale of 5 (being the highest) to 0 (the worst condition, dead) as in Chart A. The rating was done in the field at the time of the measuring and inspection.

Arborist Ratings		
No problem(s)	Excellent	5
No apparent problem(s)	Good	4

Minor problem(s)	Fair	3
Major problem(s)	Poor	2
Extreme problem(s)	Very Poor	1
Dead	Dead	0

Rating #0 Dead: This indicates a tree that has no significant sign of life.

Rating #1 Very Poor: The problems are extreme. This rating is assigned to a tree that has structural and/or health problems that no amount of work or effort can change. The issues may or may not be considered a dangerous situation.

Rating #2 Poor: The tree has major problems. If the option is taken to preserve the tree, its condition could be improved with correct arboricultural work including, but not limited to: pruning, cabling, bracing, bolting, guying, spraying, mistletoe removal, vertical mulching, fertilization, etc. If the recommended actions are completed correctly, hazard can be reduced and the rating can be elevated to a 3. If no action is taken the tree is considered a liability and should be removed.

Rating #3 Fair: The tree is in fair condition. There are some minor structural or health problems that pose no immediate danger. When the recommended actions in an arborist report are completed correctly the defect(s) can be minimized or eliminated.

Rating #4 Good: The tree is in good condition and there are no apparent problems that a Certified Arborist can see from a visual ground inspection. If potential structural or health problems are tended to at this stage future hazard can be reduced and more serious health problems can be averted.

Rating #5 Excellent: No problems found from a visual ground inspection. Structurally, these trees have properly spaced branches and near perfect characteristics for the species. Highly rated trees are not common in natural or developed landscapes. No tree is ever perfect especially with the unpredictability of nature, but with this highest rating, the condition should be considered excellent.

Notes: Provide notable details about each tree which are factors considered in the determination of the tree rating including: (a) condition of root crown and/or roots; (b) condition of trunk; (c) condition of limbs and structure; (d) growth history and twig condition; (e) leaf appearance; and (f) dripline environment. Notes also indicate if the standard tree evaluation procedure was not followed (for example - why DBH may have been measured at a location other than the standard 54"). Additionally, notes will list any evaluation limiting factors such as debris at the base of a tree.

Development Restrictions/Actions Recommended actions to increase health and longevity.

Development Impacts

Projected development impacts are based solely on distance relationships between tree location and grading. Field inspections and findings during the project at the time of grading and trenching can change relative impacts. Closely followed guidelines and requirements can result in a higher chance of survival, while requirements that are overlooked can result in a dramatically lower chance of survival. Impacts are measured as follows:

Impact Term:

Long Term Result of Impact:

Negligible	Tree is unlikely to show any symptoms. Chance of survival post development is excellent. Impacts to the Protected Root Zone are less than 5%.
Minor	Tree is likely to show minor symptoms. Chance of survival post development is good. Impacts to the Protected Root Zone are less than 15% and species tolerance is good.
Moderate	Tree is likely to show moderate symptoms. Chance of survival post development is fair. Impacts to the Protected Root Zone are less than 35% and species tolerance is good or moderate.
Severe	Tree is likely to show moderate symptoms annually and a pattern of decline. Chance of long-term survival post development is low. Impacts to the Protected Root Zone are up to 50% and species tolerance is moderate to poor.

Critical	Tree is likely to show moderate to severe symptoms annually and a pattern of decline. Chance of long-term survival post development is negligible. Impacts to the Protected Root Zone are up to 80%.
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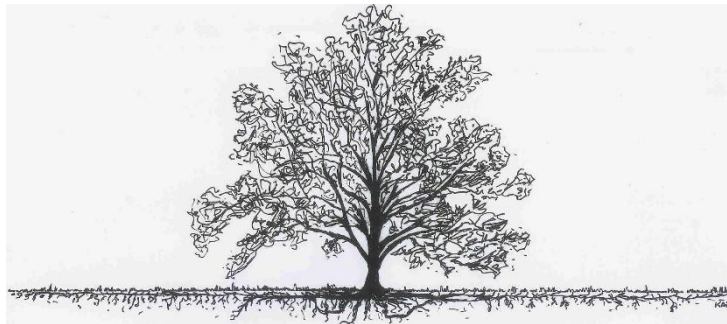
Discussion

On this property and project site, there are no private protected trees and possibly 2 or 4 protected Street Trees. The site plan shows that the one unprotected tree present on the subject property will be removed, and either 2 or 4 City street trees are proposed to be removed. The other two trees if not considered street trees are unprotected trees. There are 22 trees proposed for replacement in the plans provided for the inspection.

Trees need to be protected from normal construction practices if they are to remain healthy and viable on the site. Our recommendations are based on experience and the County ordinance requirements to enhance tree longevity. This requires their root zones remain intact and viable despite the use of heavy equipment to install foundations, driveways, underground utilities, and landscape irrigation systems. Simply walking and driving on soil can have serious consequences for tree health. The Tree Protection measures for this site will be to protect trees to the side setback along the angled side of the parcel where all the private trees are growing far enough away from the property line common fence to be protected from impact. The tree protection needs to be incorporated into the site plans in order to protect the trees.

Root Structure

The majority of a tree's roots are contained in a radius from the main trunk outward approximately two to three times the canopy of the tree. These roots are located in the top 6" to 3' of soil. It is a common misconception that a tree underground resembles the canopy. The correct root structure of a tree is in the drawing below. All plants' roots need both water and air for survival. Poor canopy development or canopy decline in mature trees after development is often the result of inadequate root space and/or soil compaction.



The reality of where roots are generally located

Our native oak trees are easily damaged or killed by having the soil within the Protected Root Zone (PRZ) disturbed or compacted. All of the work initially performed around protected trees that will be saved should be done by people rather than by wheeled or track type tractors. Oaks are fragile giants that can take little change in soil grade, compaction, or warm season watering. Don't be fooled into believing that warm season watering has no adverse effects on native oaks. Decline and eventual death can take as long as 5-20 years with poor care and inappropriate watering. Oaks can live hundreds of years if treated properly during construction, as well as later with proper pruning, and the appropriate landscape/irrigation design.

Arborist Classifications

There are different types of Arborists:

Tree Removal and/or Pruning Companies: These companies may be licensed by the State of California to do business, but they may lack the proper tree expertise.

Arborists: Arborist is a broad term. It is intended to mean someone with specialized knowledge of trees but is often used to imply knowledge that is not there.

ISA Certified Arborist: An International Society of Arboriculture Certified Arborist is someone who has been trained and tested to have specialized knowledge of trees. You can look up certified arborists at the International Society of Arboriculture website: isa-arbor.org.

Consulting Arborist: An American Society of Consulting Arborists Registered Consulting Arborist is someone who has been trained and tested to have specialized knowledge of trees and trained and tested to provide high quality reports and documentation. You can look up registered consulting arborists at the American Society of Consulting Arborists website: asca-consultants.org

RECOMMENDATIONS: Summary of Tree Protection Measures

The Owner and/or Developer should ensure the project arborist's protection measures are incorporated into the site plans and followed. Tree specific protection measures will be developed when the final grading plans are produced.

1. The project arborist is required to inspect the tree protection fencing prior to grading and/or grubbing for compliance with the required protection zones.
2. Clearance pruning should include removal of all the lower foliage that may interfere with equipment PRIOR to having grading or other equipment on site. The Project Arborist should approve the extent of foliage elevation and oversee the pruning to be performed by a contractor who is an ISA Certified Arborist.
3. Chemical Stress Treatments to be performed by a licensed pesticide applicator under the project arborist supervision should include a (1) tree growth regulator, such as Paclobutrazol; (2) preventative leaf fungicide; and (3) preventative insecticides for leaf feeding insects and boring insects unless otherwise directed by the project arborist.
4. Any and all work to be performed inside the protected root zone fencing shall be supervised by the project arborist.
5. All stumps within the root zone of trees to be preserved shall be ground out using a stump router or left in place. No trunk within the root zone of other trees shall be removed using a backhoe or other piece of grading equipment.
6. Trenching inside the protected root zone shall be by a hydraulic or air spade, placing pipes underneath the roots, or boring deeper trenches underneath the roots.
7. The project arborist will monitor the site during (and after) construction to ensure protection measures are followed and make recommendations for care of the trees on site, as needed.

Follow all of the General Development Guidelines, Appendix 3, for all trees not identified as requiring special preservation measures in the summary and in Appendix 2.

Please contact me at 650-740-3461, or gordon@mannandtrees.com, if you have any questions about this report or any other services we provide.

Report Prepared by:



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Consulting Arborist and Urban Forester
Registered Consulting Arborist #480
ISA Certified Arborist and Municipal Specialist #WE-0151AM
CaUFC Certified Urban Forester #127
ISA Qualified Tree Risk Assessor

Appendix 1 – Aerial images and plans

Appendix 2 – Site Images

Appendix 3 – General Development Guidelines

Appendix 4 – Tree Data – All Trees

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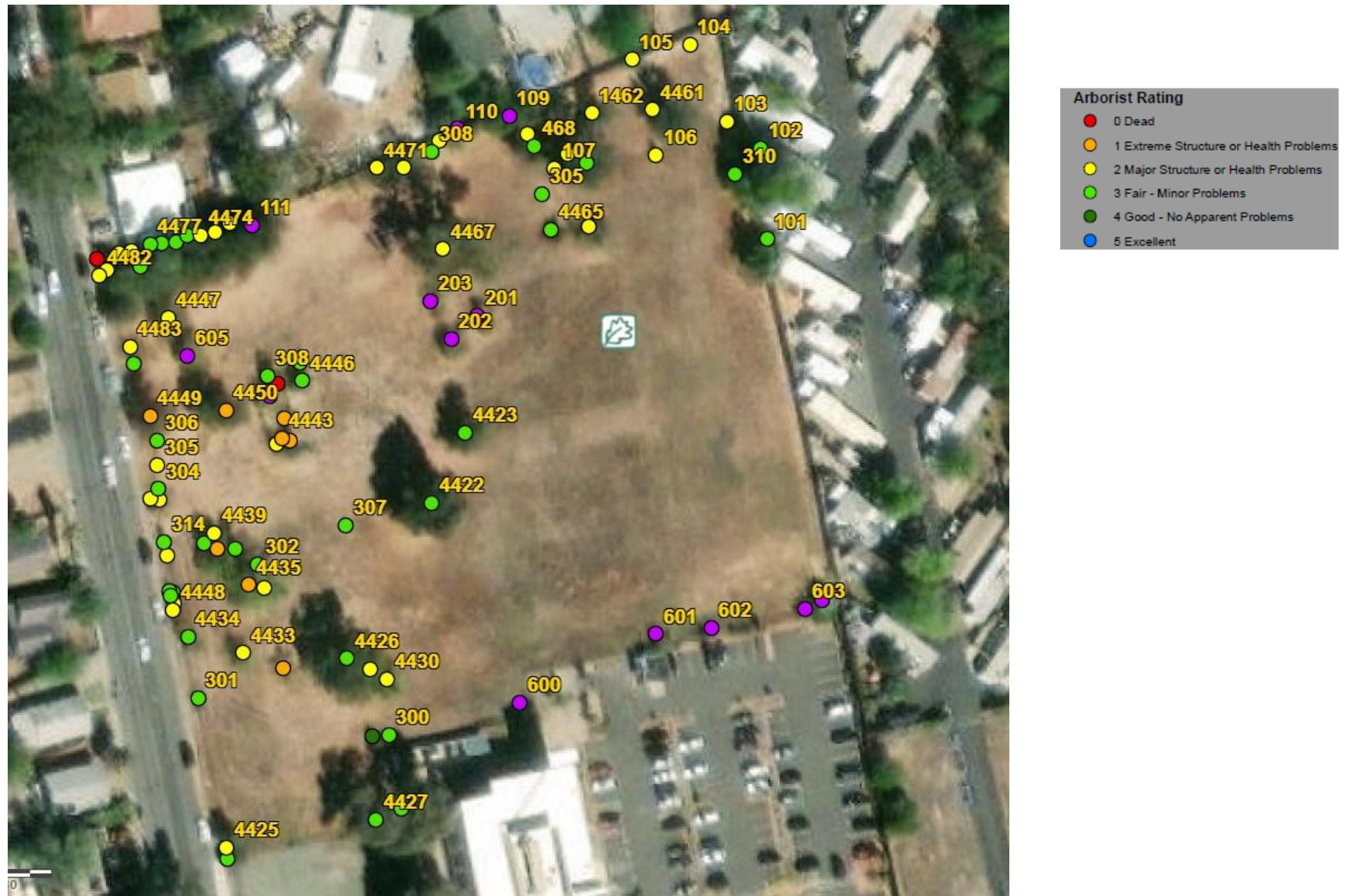
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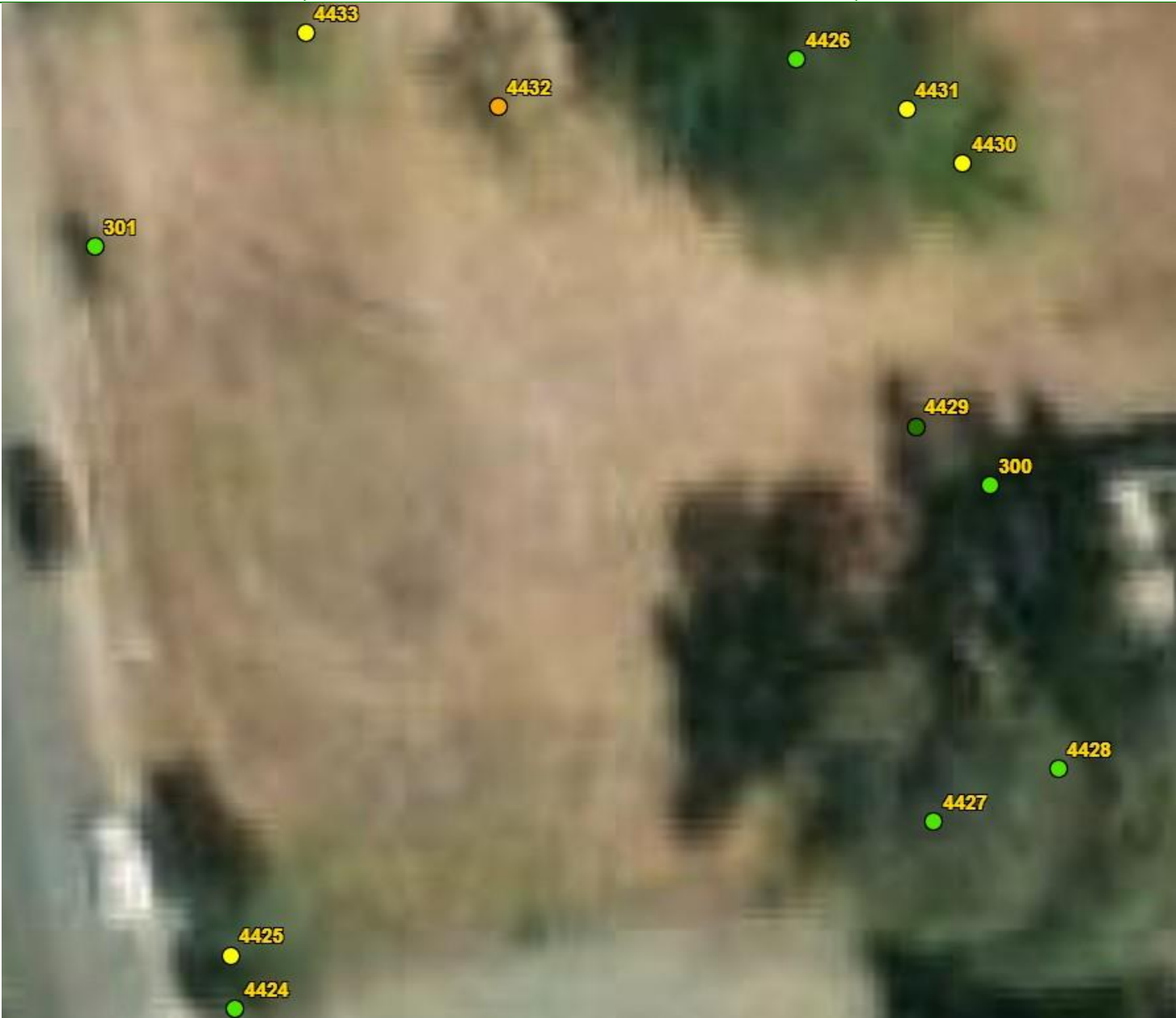
Tree Care Industry Association. (2017). *Tree, Shrub, and Other Woody Plant Management - Standard Practices (Pruning)*. Londonderry: Tree Care Industry Association.

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APPENDIX 1 –TREE LOCATION MAP - shows the need to remove all the unprotected trees on the property no City Street trees are proposed for removal:



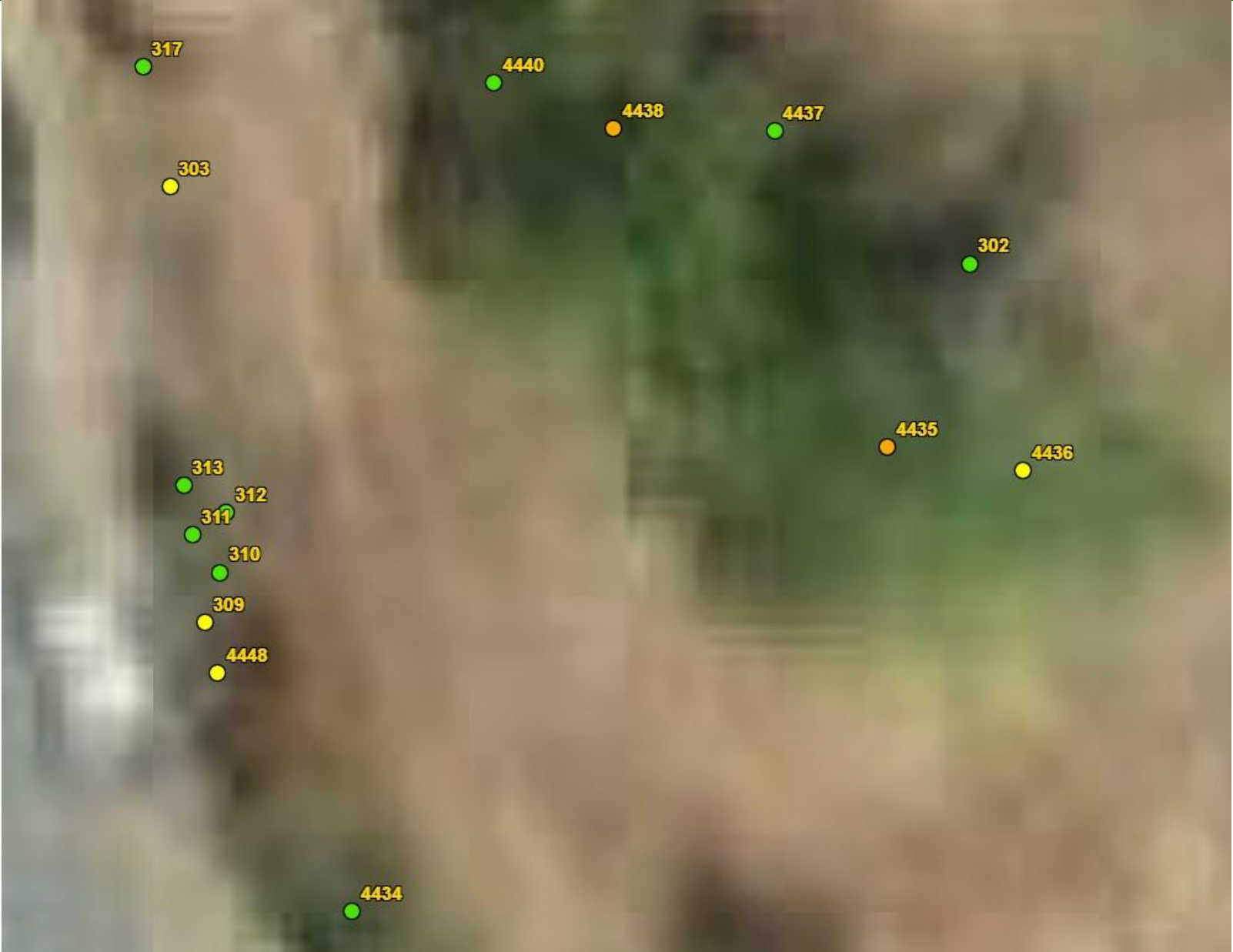
Aerial of entire site with tree #s in approximate locations



Lower left enlarged



Lower right enlarged



Middle left



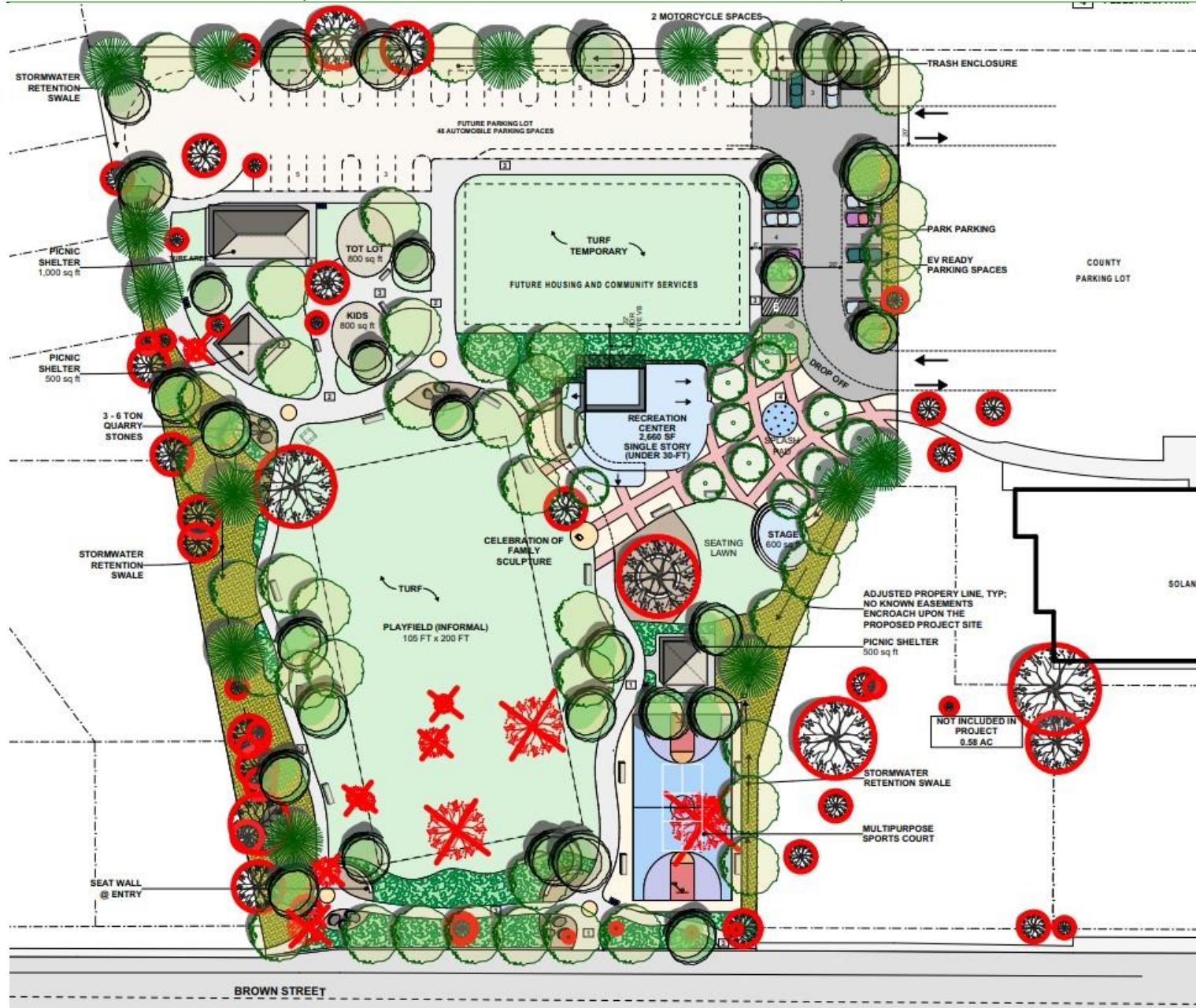
Middle left enlarged



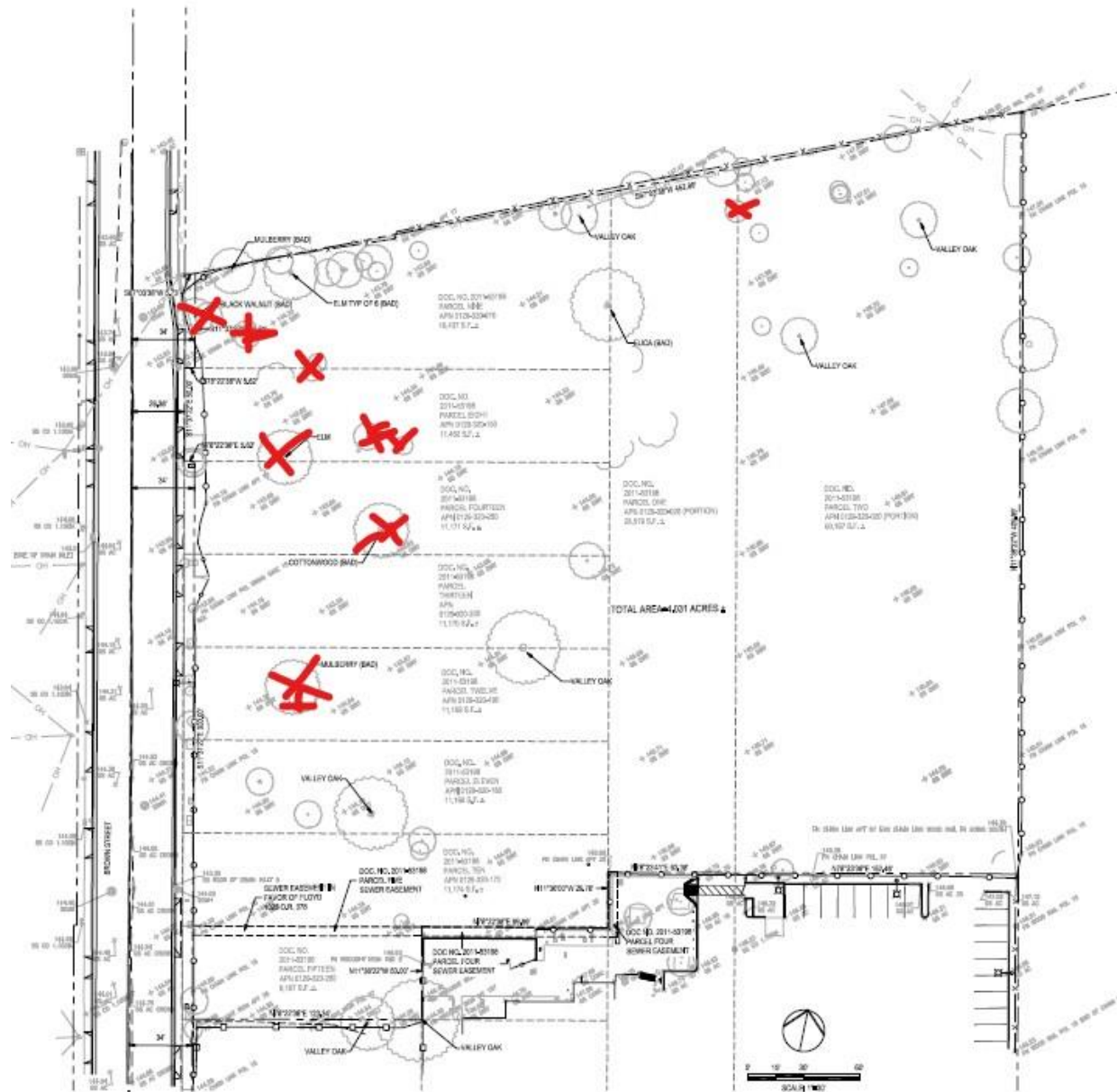
Upper left



Upper trees

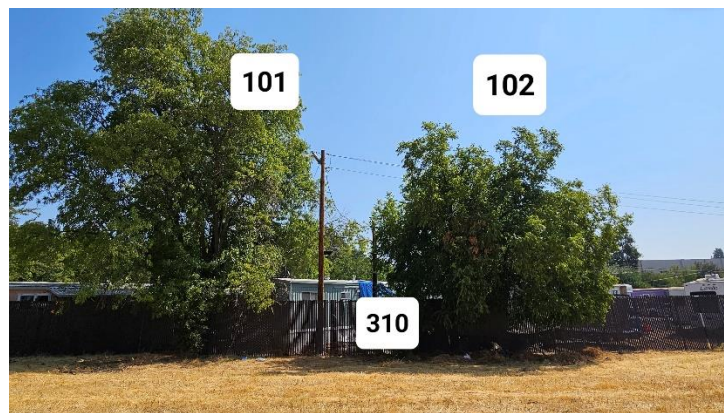
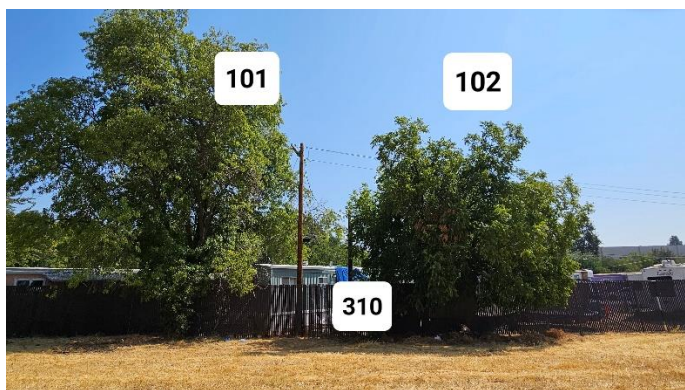


Project plan showing existing trees (red circles) and proposed removals (red Xs)



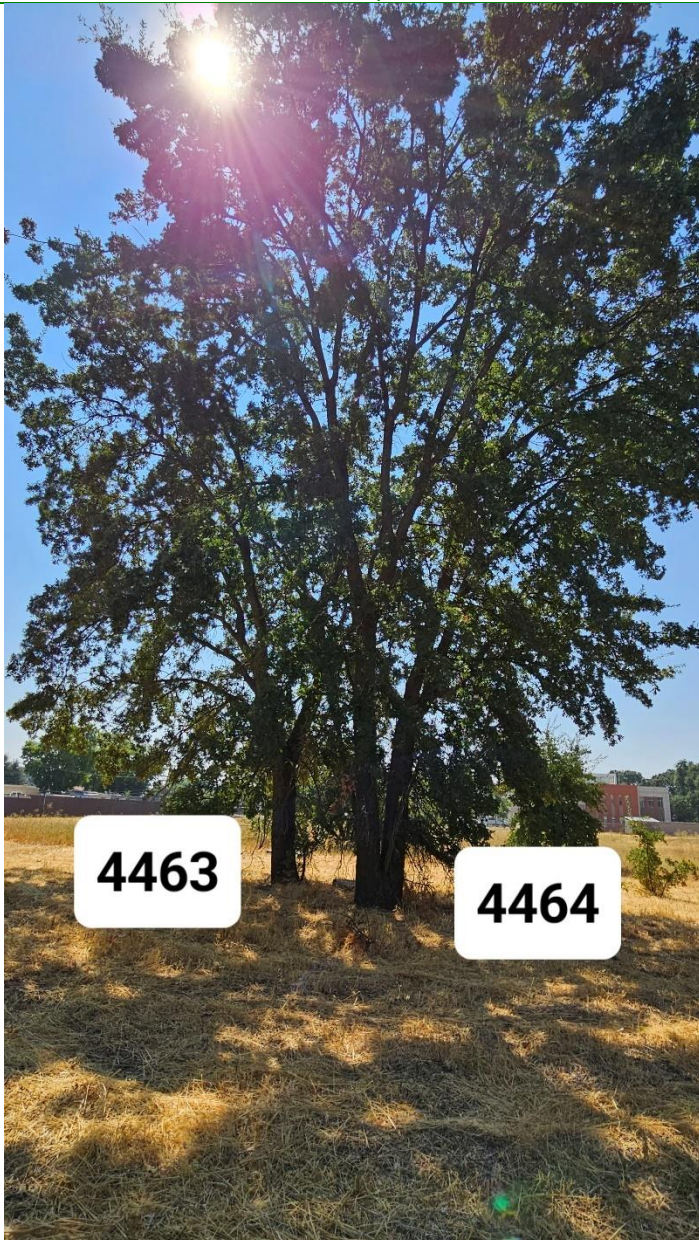
Grading plan showing trees proposed for removal

APPENDIX 2 – SITE IMAGES (21)



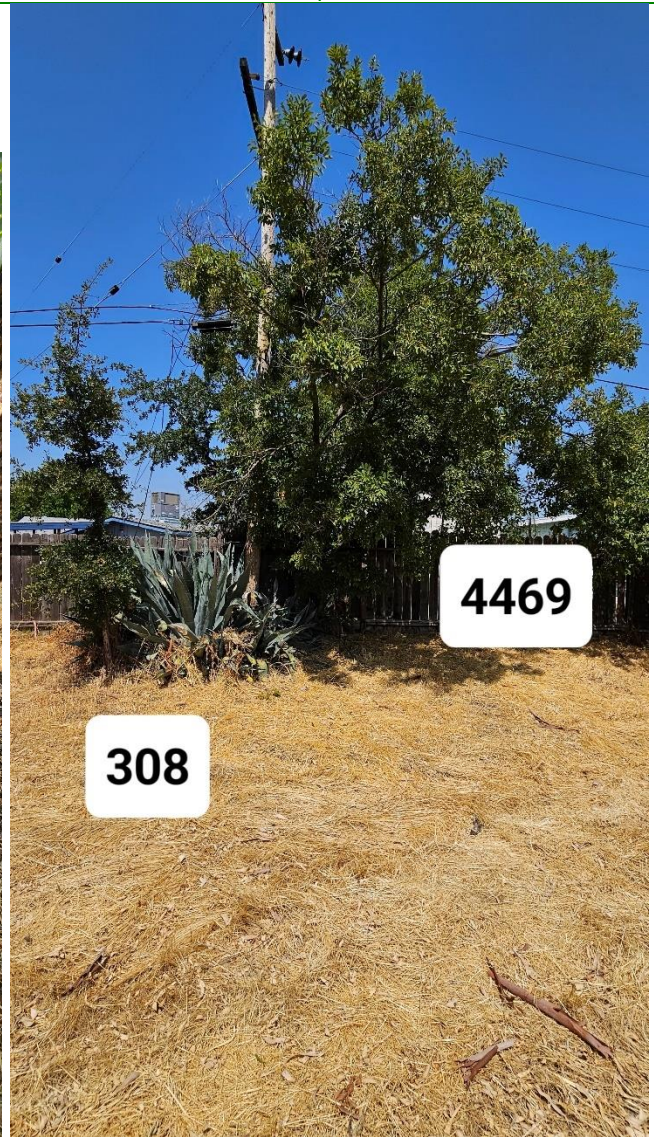














APPENDIX 3 - GENERAL PRACTICES FOR TREE PROTECTION

Definitions

Root zone: The roots of trees grow fairly close to the surface of the soil, and spread out in a radial direction from the trunk of tree. A general rule of thumb is that they spread 2 to 3 times the radius of the canopy, or 1 to 1 ½ times the height of the tree. It is generally accepted that disturbance to root zones should be kept as far as possible from the trunk of a tree.

Inner Bark: The bark on large valley oaks and coast live oaks is quite thick, usually 1" to 2". If the bark is knocked off a tree, the inner bark, or cambial region, is exposed or removed. The cambial zone is the area of tissue responsible for adding new layers to the tree each year, so by removing it, the tree can only grow new tissue from the edges of the wound. In addition, the wood of the tree is exposed to decay fungi, so the trunk present at the time of the injury becomes susceptible to decay. Tree protection measures require that no activities occur which can knock the bark off the trees.

Methods Used in Tree Protection:

No matter how detailed Tree Protection Measures are in the initial Arborist Report, they will not accomplish their stated purpose unless they are applied to individual trees and a Project Arborist is hired to oversee the construction. The Project Arborist should have the ability to enforce the Protection Measures. The Project Arborist should be hired as soon as possible to assist in design and to become familiar with the project. He must be able to read and understand the project drawings and interpret the specifications. He should also have the ability to cooperate with the contractor, incorporating the contractor's ideas on how to accomplish the protection measures, wherever possible. It is advisable for the Project Arborist to be present at the Pre-Bid tour of the site, to answer questions the contractors may have about Tree Protection Measures. This also lets the contractors know how important tree preservation is to the developer.

Root Protection Zone (RPZ): Since in most construction projects it is not possible to protect the entire root zone of a tree, a Root Protection Zone is established for each tree to be preserved. The minimum Root Protection Zone is the area underneath the tree's canopy (out to the dripline, or edge of the canopy), plus 1'. The Project Arborist must approve work within the RPZ.

Irrigate, Fertilize, Mulch: Prior to grading on the site near any tree, the area within the Tree Protection fence should be fertilized with 4 pounds of nitrogen per 1000 square', and the fertilizer irrigated in. The irrigation should percolate at least 24" into the soil. This should be done no less than 2 weeks prior to grading or other root disturbing activities. After irrigating, cover the RPZ with at least 12" of leaf and twig mulch. Such mulch can be obtained from chipping or grinding the limbs of any trees removed on the site. Acceptable mulches can be obtained from nurseries or other commercial sources. Fibrous or shredded redwood or cedar bark mulch shall not be used anywhere on site.

Fence: Fence around the Root Protection Zone and restrict activity therein to prevent soil compaction by vehicles, foot traffic or material storage. The fenced area shall be off limits to all construction equipment, unless there is express written notification provided by the Project Arborist, and impacts are discussed and mitigated prior to work commencing.

No storage or cleaning of equipment or materials, or parking of any equipment can take place within the fenced off area, known as the RPZ.

The fence should be highly visible, and stout enough to keep vehicles and other equipment out. I recommend the fence be made of orange plastic protective fencing, kept in place by t-posts set no farther apart than 6'.

In areas of intense impact, a 6' chain link fence is preferred.

In areas with many trees, the RPZ can be fenced as one unit, rather than separately for each tree.

Where tree trunks are within 3' of the construction area, place 2" by 4" boards vertically against the tree trunks, even if fenced off. Hold the boards in place with wire. Do not nail them directly to the tree. The purpose of the boards is to protect the trunk, should any equipment stray into the RPZ.

Elevate Foliage: Where indicated, remove lower foliage from a tree to prevent limb breakage by equipment. Low foliage can usually be removed without harming the tree, unless more than 25% of the foliage is removed. Branches need to be removed at the anatomically correct location in order to prevent decay organisms from entering the trunk. For this reason, a contractor who is an ISA Certified Arborist should perform all pruning on protected trees.²

Expose and Cut Roots: Breaking roots with a backhoe, or crushing them with a grader, causes significant injury, which may subject the roots to decay. Ripping roots may cause them to splinter toward the base of the tree, creating much more injury than a clean cut would make. At any location where the root zone of a tree will be impacted by a trench or a cut (including a cut required for a fill and compaction), the roots shall be exposed with either a backhoe digging radially to the trunk, by hand digging, or by a hydraulic air spade, and then cut cleanly with a sharp instrument, such as chainsaw with a carbide chain. Once the roots are severed, the area behind the cut should be moistened and mulched. A root protection fence should also be erected to protect the remaining roots, if it is not already in place. Further grading or backhoe work required outside the established RPZ can then continue without further protection measures.

Protect Roots in Deeper Trenches: The location of utilities on the site can be very detrimental to trees. Design the project to use as few trenches as possible, and to keep them away from the major trees to be protected. Wherever possible, in areas where trenches will be very deep, consider boring under the roots of the trees, rather than digging the trench through the roots. This technique can be quite useful for utility trenches and pipelines.

Protect Roots in Small Trenches: After all construction is complete on a site, it is not unusual for the landscape contractor to come in and sever a large number of "preserved" roots during the installation of irrigation systems. The Project Arborist must therefore approve the landscape and irrigation plans. The irrigation system needs to be designed so the main lines are located outside the root zone of major trees, and the secondary lines are either laid on the surface (drip systems), or carefully dug with a hydraulic or air spade, and the flexible pipe fed underneath the major roots.

Design the irrigation system so it can slowly apply water (no more than ¼" to ½" of water per hour) over a longer period of time. This allows deep soaking of root zones. The system also needs to accommodate infrequent irrigation settings of once or twice a month, rather than several times a week.

Monitoring Tree Health During and After Construction: The Project Arborist should visit the site at least twice a month during construction to be certain the tree protection measures are being followed, to monitor the health of impacted trees, and make recommendations as to irrigation or other needs. After construction is complete, the arborist should monitor the site monthly for one year and make recommendations for care where needed. If longer term monitoring is required, the arborist should report this to the developer and the planning agency overseeing the project.

² International Society of Arboriculture (ISA), maintains a program of Certifying individuals. Each Certified Arborist has a number and must maintain continuing education credits to remain Certified.

APPENDIX 4 – TREE DATA

Brown Street Park Project Vacaville
Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
101		Yes	Pecan <i>Carya illinoensis</i>	15 est	54		3 Fair - Minor Problems	behind fence 3 inches, extends into property by 22', low branches to 3'	
102		Yes	Green Ash <i>Fraxinus pennsylvanica</i>	est 36	54		3 Fair - Minor Problems	growing behind fence by 5', extends into property by 18', low branches to 5'	
103			Pecan <i>Carya illinoensis</i>	3.2,4.4,3.4	48	8	2 Poor - Major Structure or health problems	3 stems at base, low foliage to 4'	
104			Brazilian Pepper <i>Schinus terebinthifolius</i>	8.4	42	10	2 Poor - Major Structure or health problems	growing at fence under utility wires	
105			Brazilian Pepper <i>Schinus terebinthifolius</i>	4.6 3.9	36	10	2 Poor - Major Structure or health problems	growing at fence under utility wires, 2 stems at base	
106			Pecan <i>Carya illinoensis</i>	2.3 2.9	54	7	2 Poor - Major Structure or health problems	5 stems at base, 2 over 5'	
107			Pecan <i>Carya illinoensis</i>	3.3	54		2 Poor - Major Structure or health problems	trunk wound N 0.5 - 6'	

Tree List page 1 of 14

Brown Street Park Project Vacaville
Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
109			plum grove		54		Unprotected	11 stems along fence from 2 to 5.5" diameter, 40' along fence	Remove 2
110			plum grove		54		Unprotected	4 stems along fence from 2 to 4" diameter, 15' along fence	Remove 2
111			American Elm <i>Ulmus americana</i>	3 to 5	54		Unprotected	grove of 10 stems 3 to 5"	
201			bamboo grove		54		Unprotected		Remove 2
202			bamboo grove		54		Unprotected		Remove 2
203			bamboo grove		54		Unprotected		Remove 2
300			Valley Oak <i>Quercus lobata</i>	1	54	4	3 Fair - Minor Problems	fair vigor.	
301			Valley Oak <i>Quercus lobata</i>	3, 2	54	7	3 Fair - Minor Problems	codominant at grade, might not be the best candidate for transplanting. branches growing through fence. fair vigor.	
302			Valley Oak <i>Quercus lobata</i>	0.5	54	2	3 Fair - Minor Problems	fair vigor. transplanted candidate.	
303			Valley Oak <i>Quercus lobata</i>	1	54		2 Poor - Major Structure or health problems	open vertical bark crack on base and lower trunk. branches growing through metal fence. poor candidate for transplanting.	
304			Valley Oak <i>Quercus lobata</i>	1	54	2	3 Fair - Minor Problems	good base, structure and vigor. good candidate to transplanting.	
305			Valley Oak <i>Quercus lobata</i>	1.2	54		3 Fair - Minor Problems		

Tree List page 2 of 14

Brown Street Park Project Vacaville
Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
306			Valley Oak <i>Quercus lobata</i>	1	54	3	Fair - Minor Problems	good base structure and vigor. good candidate for transplanting.	Remove
307			Valley Oak <i>Quercus lobata</i>	3.5	54	5	Fair - Minor Problems	good base, structure and vigor. good candidate for transplanting.	
308			Valley Oak <i>Quercus lobata</i>	2.2	54	4	Fair - Minor Problems	straight leader	
309		Unknown	Valley Oak <i>Quercus lobata</i>	1	54	3	Poor - Major Structure or health problems	unbalanced base with dead codominant stem at 6 inches. unbalanced stems. bad candidate for transplanting.	
310		Unknown	Valley Oak <i>Quercus lobata</i>	1	54	3	Fair - Minor Problems	fair base, structure and vigor. good candidate for transplanting.	
311		Unknown	Valley Oak <i>Quercus lobata</i>	1	54	3	Fair - Minor Problems	fair base, structure and vigor. good candidate for transplanting.	
312		Unknown	Valley Oak <i>Quercus lobata</i>	1	54	3	Fair - Minor Problems	fair base, structure and vigor. good candidate for transplanting.	
313		Unknown	Valley Oak <i>Quercus lobata</i>	2.5	54	5	Fair - Minor Problems	fair base, structure and vigor. good candidate for transplanting.	Remove
314			Valley Oak <i>Quercus lobata</i>	2.7	54	4	Fair - Minor Problems	3 dead small sprouts S, 2" elm 1' S, vertical growth	

Tree List page 3 of 14

Brown Street Park Project Vacaville
Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
315			Valley Oak <i>Quercus lobata</i>	3	54	6	2 Poor - Major Structure or health problems	2stems at base, vertical growth, 2.5' back of sidewalk	
317		Unknown	Valley Oak <i>Quercus lobata</i>	3.5	54	6	3 Fair - Minor Problems	fair base, structure and vigor. good candidate for transplanting.	
318			Valley Oak <i>Quercus lobata</i>	2.2	36		3 Fair - Minor Problems	small oak under ash 4' inside fence	
319			Valley Oak <i>Quercus lobata</i>	1	54	4	2 Poor - Major Structure or health problems	severely unbalanced trunk, growing through metal fence. poor candidate for transplanting.	
320			Valley Oak <i>Quercus lobata</i>	4.3	54	8	2 Poor - Major Structure or health problems	2 stems at base, 2nd is 2", growing next to plum grove	
321			Valley Oak <i>Quercus lobata</i>	3, 2	54	5	3 Fair - Minor Problems	codominant at grade. good structure and vigor.	
322			Valley Oak <i>Quercus lobata</i>	3	54	5	3 Fair - Minor Problems	good base, structure and vigor. good candidate for transplanting.	
323			Valley Oak <i>Quercus lobata</i>	3, 2"	54	6	2 Poor - Major Structure or health problems	2 stems at base, vertical growth	

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Brown Street Park Project Vacaville
Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
468	3734		Valley Oak <i>Quercus lobata</i>	7.4	54	10	3 Fair - Minor Problems	normal flare, low N lateral at 7',	
500			American Elm <i>Ulmus americana</i>	6	54		0-Dead	standing fully intact	
502			unknown	16	24		0-Dead	dead tree topped at 6-8"	Remove 2
600			Mulberry <i>Morus alba</i>	9	24	12	Unprotected	dbh approximate. 50% dead. poor structure, low vigor.	
601			Mulberry <i>Morus alba</i>	2, 2, 2, 1, 1	24	10	Unprotected	dbh approximate. 50% dead. poor structure, low vigor.	
602			Mulberry <i>Morus alba</i>	2, 1, 1, 1	24	9	Unprotected	dbh approximate. 50% dead. poor structure, low vigor.	
603			Mulberry <i>Morus alba</i>	3, 2, 2, 2	24	10	Unprotected	dbh approximate. crowded multi-stem union at grade with severe bark decay. healthy foliage.	
604			bamboo grove		24	10	Unprotected	10 foot by 10 foot patch of dense bamboo.	Remove 2
605			bamboo grove		54	10	Unprotected	8 foot by 10 foot patch of bamboo.	Remove 2
606			bamboo grove		54		Unprotected	10 foot by 20 foot patch of bamboo.	Remove 2
1462	3738		Valley Oak <i>Quercus lobata</i>	7.8, 7.8, 5.1	54	12	2 Poor - Major Structure or health problems	3 stems at base, appear to be stump aprouts, N stem symmetric, S&SE stems 1-sided	

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Brown Street Park Project Vacaville
Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
4422	3705		Valley Oak <i>Quercus lobata</i>	40.8	6	31	3 Fair - Minor Problems	normal flare, low 14" lateral at base, co dom ay 14', included bark, a few low clearance pruning cuts, low branches to 4', downward growing branches medium crown density,	
4423	3706		Valley Oak <i>Quercus lobata</i>	14.8	54	19	3-Minor Problems	normal flare, trunk bends at 6&11', low branches to 3', medium crown density	
4424		Unknown	Valley Oak <i>Quercus lobata</i>	8.5	6	14	3 Fair - Minor Problems	fair base flare. codominant at 8 inches. appears 1 foot offsite southwest corner of lot. grown into metal fence. low canopy to 3 feet. fair crown balance.	
4425		No	Valley Oak <i>Quercus lobata</i>	9	12	16	2 Poor - Major Structure or health problems	dbh approximate. fair base, metal fence tight against west side. low lateral branches. swollen lower trunk with metal fence through center. vine growing up tree to 3 4ths high. fair crown balance and foliage health.	
4426	3702	No	Valley Oak <i>Quercus lobata</i>	40.1	6	32	3 Fair - Minor Problems	fair base and flare. codominant at 1 foot. 10 inch lateral branch north. 12 inch lateral south, heavy lean. low canopy all directions, as low as 4 feet. medium crown density, fair balance. fair overall structure and vigor.	

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Brown Street Park Project Vacaville
Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
4427	3697		Valley Oak <i>Quercus lobata</i>	25.5	36	35	3 Fair - Minor Problems	good base. long 10 inch lateral branch leans heavy south. 15 inch lateral branch leans west, attached at 13 feet. medium crown density. fair structure and vigor.	
4428	3696		Valley Oak <i>Quercus lobata</i>	29.6	36	36	3 Fair - Minor Problems	good base. codominant at 5 feet, good connection. medium diameter lateral branches growing southeast close to adjacent building. metal wire in lower trunk east. good branching and crown balance. good vigor.	
4429			Valley Oak <i>Quercus lobata</i>	3.9	54	6	4 Good - No Apparent Problems	good base, structure and vigor.	
4430	3703		Black Walnut <i>Juglans hindsii</i>	6.4	54	19	2 Poor - Major Structure or health problems	fair base. trunk and canopy leans heavy southeast. low lateral branches close to grade. healthy foliage, minor visible bark defects.	
4431	3704		Black Walnut <i>Juglans hindsii</i>	7	54	15	2 Poor - Major Structure or health problems	low lateral branches on base, inclusions at connections. severe branch die-back, 60%. sparse/wilting foliage in upper canopy. low vigor.	

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Brown Street Park Project Vacaville
Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
4432	3701		Black Walnut <i>Juglans hindsii</i>	5.8, 5.5	54	13	1 Very Poor - Extreme Structure or Health Problems	codominant at grade, 2 dead stems, severe included/crumbling bark. high branch die-back. sparse/miniaturized foliage. poor structure. low vigor.	Remove
4433	3700		Black Walnut <i>Juglans hindsii</i>	5.6, 5.3, 5,	54	14	2 Poor - Major Structure or health problems	multi-stem at grade. all stems appear to be mature sprouts that have grown off large decayed stump, weak basal attachments. high amount of small branch die-back. poor structure. low vigor.	
4434	3699		Valley Oak <i>Quercus lobata</i>	5.6, 5.2	40	12	3 Fair - Minor Problems	codominant at grade, crowded stems. 2 feet east of metal fence. small low lateral branches. crowded/rubbing canopy branches. fair/poor overall structure. fair vigor.	
4435			Mulberry <i>Morus alba</i>	13.9, 10.5,	45	26	1 Very Poor - Extreme Structure or Health Problems	crowded multi-stem union at grade. large dead stems at grade. severe bark decay and branch die-back throughout tree. sparse foliage, especially in upper canopy. poor structure. low vigor.	Remove
4436	3709		Valley Oak <i>Quercus lobata</i>	7.9	54	21	2 Poor - Major Structure or health problems	fair base. leans severely southeast, understory structure. canopy leans horizontal for sunlight. fair foliage health. poor structure.	Remove

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Brown Street Park Project Vacaville
Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
4437	3710		Valley Oak <i>Quercus lobata</i>	7.3	54	17	3 Fair - Minor Problems	good base. codominant at 7 feet, crowded codominant stems touching one another. fair canopy branching structure. healthy foliage. tree leans slightly northeast.	
4438	3711		Black Walnut <i>Juglans hindsii</i>	9.5, 7.7, 7	54	17	1 Very Poor - Extreme Structure or Health Problems	multi-stem at grade. all stems appear to be mature sprouts that have grown off large decayed stump, weak basal attachments. high amount of dead stems attached at grade. high amount of small branch die-back. poor structure, severe decay in large stems, stems lean heavy. low vigor.	Remove
4439			Valley Oak <i>Quercus lobata</i>	4.5	54	14	2 Poor - Major Structure or health problems	fair base. trunk leans east, corrects at 4 feet. poor trunk taper. sprouts on trunk. high canopy. miniaturized foliage. fair/low vigor.	
4440			Valley Oak <i>Quercus lobata</i>	5.9	54	13	3 Fair - Minor Problems	good base. fair structure. healthy foliage. fair vigor.	
4441			Valley Oak <i>Quercus lobata</i>	4	40	9	2 Poor - Major Structure or health problems	fair base. dense low lateral branches all directions. severely unbalanced canopy main branches. healthy foliage. fair vigor.	

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Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
4442	3707		Cottonwood <i>Populus fremontii</i>	12 over 6"	54	13	1 Very Poor - Extreme Structure or Health Problems	multi-stem at 1 foot, crowded union with cracked/dying bark. 3 large dead codominant stems at grade north. severe amount of branch die-back throughout tree. living lower sprouts have healthy foliage. poor overall structure and vigor.	
4443			Cottonwood <i>Populus fremontii</i>	7.4	54	8	1 Very Poor - Extreme Structure or Health Problems	unbalanced base with dying bark. dead above 6 feet, long dead top. only foliage is sprouts on lower trunk.	
4444			Cottonwood <i>Populus fremontii</i>	4.9	54	11	2 Poor - Major Structure or health problems	unbalanced base with dying bark. trunk and canopy leans heavy northwest. fair foliage health. small branch die-back. low vigor.	
4445			Cottonwood <i>Populus fremontii</i>	5.7	54	8	1 Very Poor - Extreme Structure or Health Problems	unbalanced base with dying bark. dead above 6 feet, long dead top. only foliage is sprouts on lower trunk.	
4446	3727		Brazilian Pepper <i>Schinus terebinthifolius</i>	8.5	30	10	3 Fair - Minor Problems	fair base, structure and vigor. leans slightly south. low canopy to ground.	

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Brown Street Park Project Vacaville
Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
4447	3715		Valley Oak <i>Quercus lobata</i>	17.1	6	16	2 Poor - Major Structure or health problems	slightly swollen base. multi-stem at 1 foot, included bark below connections. crowded main stems. fair canopy balance and foliage health. fair vigor.	Remove
4448		Unknown	Black Locust <i>Robinia pseudoacacia</i>	7.6	15	14	2 Poor - Major Structure or health problems	swollen base. codominant at 8 inches, crowded codominant stems grafting and rubbing. moderate branch die-back throughout. miniaturized foliage. 2 feet west of metal fence near sidewalk.	
4449	3713		American Elm <i>Ulmus americana</i>	18, 11	12		1 Very Poor - Extreme Structure or Health Problems	codominant below grade. extreme elm leaf beetle infestation. fair structure and vigor.	
4450	3712		American Elm <i>Ulmus americana</i>	20	18		1 Very Poor - Extreme Structure or Health Problems	fair structure. extreme elm leaf beetle infestation.	Remove
4461	3839		Valley Oak <i>Quercus lobata</i>	8.8, 8.8, 8.8	54	18	2 Poor - Major Structure or health problems	slightly buried flare, low branches to 5', stems at 12", included bark,	
4463	3836		Valley Oak <i>Quercus lobata</i>	15.4	54		3 Fair - Minor Problems	slightly buried flare, growing 4' E of 4464, 1-sided crown E, 2 co doms and low lateral at 7'	

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Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
4464	3735		Valley Oak <i>Quercus lobata</i>	25.2	6	24	2 Poor - Major Structure or health problems	o dom at base, both stems 1-sided to W & N, and lean outward,	
4465			Valley Oak <i>Quercus lobata</i>	8.1	24	8	3 Fair - Minor Problems	normal flare, low lateral at 3', included bark, low foliage to 1.5'	
4466			Black Walnut <i>Juglans hindsii</i>	8,4,5,5,5,4,	54		2 Poor - Major Structure or health problems	9 stems at base, all 1-sided outward	
4467	3728		Lemon Scented Gum <i>Corimba citriodora</i>	23.5,14.8,2	54	33	2 Poor - Major Structure or health problems	5 stems from base to 24", E stem leans E 45 deg, S stem leans S 45 deg, SE stem leans SE 30 deg, NE stem leans E 75 deg, end wts, old stump at base to N	
4469	3731		Oriental Hackberry <i>Celtis sinensis</i>	10 est	54	17	2 Poor - Major Structure or health problems	growing along fence, agave plant at base, dia estimated, co dom at 3', included bark, next to utility pole, under wires	
4470	3730		Pecan <i>Carya illinoensis</i>	5.7, 5.6, 3,	54	20	2 Poor - Major Structure or health problems	3 stems at base, crowded ; 2" plum & 3" braz pepper 10' S	

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Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
4471	3729		Plum <i>Prunus americana</i>	6.9,5.0,5.1	36	16	2 Poor - Major Structure or health problems	3 stems at base, included bark, 3" leaning almond 10' W, 2" br pepper 12' S, 4" plum along fence 20' W	
4472	3726		American Elm <i>Uimus americana</i>	15.7	6	19	2 Poor - Major Structure or health problems	co dom at 12", N leader headed back, 5" elm 8' W, 4" elm 10' S	
4473	3725		American Elm <i>Uimus americana</i>	17.8,13.6	6	19	2 Poor - Major Structure or health problems	3 stems at base, co doms on both stems at 3', included bark, elm leaf beetle on all elms	
4474	3724		American Elm <i>Uimus americana</i>	7.8	6	16	2 Poor - Major Structure or health problems	normal flare, tree bends 30 deg W at 15', 3 elms 2-4" 5" elm 5' N, 3" elm 7' NE, 6-10' S, elm leaf beetle on all elms	
4476	3722		American Elm <i>Uimus americana</i>	7.2	6	15	3 Fair - Minor Problems	normal flare, upright growth, 6 2-4" sprouts to N 4 2-5" sprouts 15' S in drainage channel, elm leaf beetle on all elms	
4476	3721		American Elm <i>Uimus americana</i>	9.9	6	21	3 Fair - Minor Problems	normal flare, upright growth leans S, elm leaf beetle on all elms	
4477	3720		American Elm <i>Uimus americana</i>	10.3	6	19	3 Fair - Minor Problems	normal flare, upright growth, co dom at 15', leans N, 5" stem 5' SW, elm leaf beetle on all elms	

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Brown Street Park Project Vacaville
Tree List

Tree #	Old Tag #	Offsite	Common Name Species	DBH	Ht Dia Meas at (in)	Canopy Radius (ft)	Condition Rating	Comments	Project Status
4478	3723		American Elm <i>Ulmus americana</i>	9.1	6	18	3 Fair - Minor Problems	normal flare, upright growth, elm leaf beetle on all elms	
4479	3719		Brazilian Pepper <i>Schinus terebinthifolius</i>	15.3	36	29	2 Poor - Major Structure or health problems	normal flare, growing at fence, co dom grafted 4-6', co dom at 7', crown mostly S, several small syems west	
4480	3718		American Elm <i>Ulmus americana</i>	14.4	6	24	3 Fair - Minor Problems	normal flare, upright growth leans S, crown mostly S elm leaf beetle on all elms	Remove
4481	3717		Mulberry <i>Morus alba</i>	16.2	3		2 Poor - Major Structure or health problems	2 stems at base, E stem horizontal S, W stem headed at 15', overhead wires to W, dead stubs in main crotch at 18"	
4482	3716		Valley Oak <i>Quercus lobata</i>	11.4	12		2 Poor - Major Structure or health problems	flare slightly buried, co dom at 2', included bark, growing within support cables for utility pole	Remove
4483	3714		Black Walnut <i>Juglans hindsii</i>	6,6,4,4	54	8	2 Poor - Major Structure or health problems	5 stems at base, 1 W dead, top dieback	

97 trees included in inventory; 10 trees proposed for removal; 9 other trees included such as bamboo, dead, and small groves to be removed;

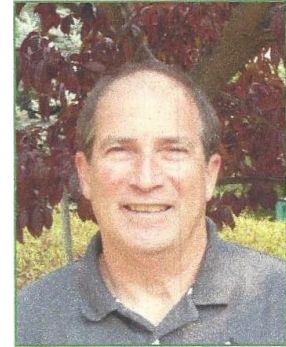
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California Tree and Landscape Consulting, Inc.

GORDON MANN

EDUCATION AND QUALIFICATIONS



- 1977 Bachelor of Science, Forestry, University of Illinois, Champaign.
- 1982 - 1985 Horticulture Courses, College of San Mateo, San Mateo.
- 1984 Certified as an Arborist, WE-0151A, by the International Society of Arboriculture (ISA).
- 2004 Certified as a Municipal Specialist, WE-0151AM, by the ISA.
- 2011 Registered Consulting Arborist, #480, by the American Society of Consulting Arborists (ASCA).
- 2003 Graduate of the ASCA Consulting Academy.
- 2006 Certified as an Urban Forester, #127, by the California Urban Forests Council (CaUFC).
- 2011 TRACE Tree Risk Assessment Certified, continued as an ISA Qualified Tree Risk Assessor (T.R.A.Q.).

PROFESSIONAL EXPERIENCE

- 2016 – Present CALIFORNIA TREE AND LANDSCAPE CONSULTING, INC (CalTLC). Vice President and Consulting Arborist. Auburn. Mr. Mann provides consultation to private and public clients in health and structure analysis, inventories, management planning for the care of trees, tree appraisal, risk assessment and management, and urban forest management plans.
- 1986 - Present MANN MADE RESOURCES. Owner and Consulting Arborist. Auburn. Mr. Mann provides consultation in municipal tree and risk management, public administration, and developing and marketing tree conservation products.
- 2015 – 2017 CITY OF RANCHO CORDOVA, CA. Contract City Arborist. Mr. Mann serves as the City's first arborist, developing the tree planting and tree maintenance programs, performing tree inspections, updating ordinances, providing public education, and creating a management plan,
- 1984 - 2007 CITY OF REDWOOD CITY, CA. City Arborist, Arborist, and Public Works Superintendent. Mr. Mann developed the Tree Preservation and Sidewalk Repair Program, supervised and managed the tree maintenance program, performed inspections and administered the Tree Preservation Ordinance. Additionally, he oversaw the following Public Works programs: Streets, Sidewalk, Traffic Signals and Streetlights, Parking Meters, Signs and Markings, and Trees.
- 1982 - 1984 CITY OF SAN MATEO, CA. Tree Maintenance Supervisor. For the City of San Mateo, Mr. Mann provided supervision and management of the tree maintenance program, and inspection and administration of the Heritage Tree Ordinance.
- 1977 - 1982 VILLAGE OF BROOKFIELD, IL. Village Forester.

Mr. Mann provided inspection of tree contractors, tree inspections, managed the response to Dutch Elm Disease. He developed an in-house urban forestry program with leadworker, supervision, and management duties to complement the contract program.

1979 – Present INTERNATIONAL SOCIETY OF ARBORICULTURE. Member.

- Board of Directors (2015 - Present)
- True Professional of Arboriculture Award (2011) o In recognition of material and substantial contribution to the progress of arboriculture and having given unselfishly to support arboriculture.

1982 - Present WESTERN CHAPTER ISA (WCISA). Member.

- Chairman of the Student Committee (2014 - Present)
- Member of the Certification Committee (2007 - Present)
- Member of the Municipal Committee (2009 - 2014) • Award of Merit (2016) In recognition of outstanding meritorious service in advancing the principles, ideals and practices of arboriculture.
- Annual Conference Chair (2012)
- President (1992 - 1993)
- Award of Achievement and President's Award (1990)
- 1985 - Present CALIFORNIA URBAN FORESTS COUNCIL (CaUFC). Member; Board Member (2010 - Present)

1985 - Present SOCIETY OF MUNICIPAL ARBORISTS (SMA). Member. e Legacy Project of the Year (2015) o In recognition of outstanding meritorious service in advancing the principles, ideals and practices of arboriculture.

- Board Member (2005 - 2007)

2001 - Present AMERICAN SOCIETY OF CONSULTING ARBORISTS. Member. e Board of Directors (2006 - 2013)

- President (2012)

2001 - Present CAL FIRE. Advisory Position.

- Chairman of the California Urban Forestry Advisory Committee (2014 - Present)

2007 – Present AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI): A300 TREE MAINTENANCE STANDARDS

COMMITTEE. SMA Representative and Alternate.

- Alternative Representative for SMA (2004 - 2007; 2012 - Present)
- Representative for SMA (2007 - 2012)

2007 - Present SACRAMENTO TREE FOUNDATION. Member and Employee.

- Co-chairman of the Technical Advisory Committee (2012 - 2018), member 2018- present
- Urban Forest Services Director (2007 - 2009)
- Facilitator of the Regional Ordinance Committee (2007 - 2009)

1988 - 1994 TREE CLIMBING COMPETITION. Chairman.

- Chairman for Northern California (1988 - 1992)
- Chairperson for International (1991 - 1994)

PUBLICATIONS AND LECTURES

Mr. Mann has authored numerous articles in newsletters and magazines such as Western Arborist, Arborist News, City Trees, Tree Care Industry Association, Utility Arborists Association, CityTrees, and Arborists Online, covering a range of topics on Urban Forestry, Tree Care, and Tree Management. He has developed and led the training for several programs with the California Arborist Association. Additionally, Mr. Mann regularly presents at numerous professional association meetings on urban tree management topics.

Assignment Assumptions and Limiting Conditions

1. Consultant assumes that any legal description provided to Consultant is correct and that title to property is good and marketable. Consultant assumes no responsibility for legal matters. Consultant assumes all property appraised or evaluated is free and clear, and is under responsible ownership and competent management.
2. Consultant assumes that the property and its use do not violate applicable codes, ordinances, statutes or regulations.
3. Although Consultant has taken care to obtain all information from reliable sources and to verify the data insofar as possible, Consultant does not guarantee and is not responsible for the accuracy of information provided by others.
4. Client may not require Consultant to testify or attend court by reason of any report unless mutually satisfactory contractual arrangements are made, including payment of an additional fee for such Services as described in the Consulting Arborist Agreement.
5. Unless otherwise required by law, possession of this report does not imply right of publication or use for any purpose by any person other than the person to whom it is addressed, without the prior express written consent of the Consultant.
6. Unless otherwise required by law, no part of this report shall be conveyed by any person, including the Client, the public through advertising, public relations, news, sales or other media without the Consultant's prior express written consent.
7. This report and any values expressed herein represent the opinion of the Consultant, and the Consultant's fee is in no way contingent upon the reporting of a specific value, a stipulated result, the occurrence of a subsequent event or upon any finding to be reported.
8. Sketches, drawings and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys. The reproduction of any information generated by architects, engineers or other consultants and any sketches, drawings or photographs is for the express purpose of coordination and ease of reference only. Inclusion of such information on any drawings or other documents does not constitute a representation by Consultant as to the sufficiency or accuracy of the information.
9. Unless otherwise agreed, (1) information contained in this report covers only the items examined and reflects the condition of those items at the time of inspection; and (2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing or coring. Consultant makes no warranty or guarantee, express or implied that the problems or deficiencies of the plans or property in question may not arise in the future.
10. Loss or alteration of any part of this Agreement invalidates the entire report.

Report Assumptions and Limitations:

This report provides information about the subject trees at the times of the inspection. Trees and conditions may change over time. This report is only valid for the trees with the conditions present at the times of the inspections. All observations were made while standing on the ground. The inspection consisted of visual observations, using a probe to gain additional information about decay and hollow portions of the tree, and if needed, light excavation was performed to observe shallow depth areas below grade at the base of the trees. No further examinations were requested or performed.

Sincere attempts were made to accurately locate the trees and show the trees on the plan. All tree locations were attempted to be shown as observed in the field.

Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist or seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that can fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed.

Treatments, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, landlord-tenant matters, etc. Arborists cannot take such issues into account unless complete and accurate information is given to the arborist. The person hiring the arborist accepts full responsibility for authorizing the recommended treatment or remedial measures.

Trees can be managed, but they cannot be controlled. To live near a tree is to accept some degree of risk. The only way to eliminate all risks is to eliminate all trees. Our company goal is to help clients enjoy life with trees, and grow better trees.

Certificate of Performance

I, Gordon Mann, certify that:

The trees on this site were inspected by Gordon Mann, and another ISA Certified Arborist. I have reviewed the plans, tree details, and site information referred to in this report, and have stated my findings accurately.

I have no current or prospective interest in the vegetation, or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved;

The analysis, opinions and conclusions stated herein are my own and are based on current scientific procedures and facts;

My analysis, opinions, and conclusions were developed, and this report has been prepared according to commonly accepted arboricultural practices;

No one provided significant professional assistance to me, except as indicated within the report;

My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client, or any other party, nor upon the results of the assignment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of the International Society of Arboriculture (ISA) and an ISA Certified Arborist and Municipal Specialist. I am also a Registered Consulting Arborist member in good standing of the American Society of Consulting Arborists. I have been involved in the practice of arboriculture and the care and study of trees for over 45 years.

Signed:



Gordon Mann

Date: September 17, 2023



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad< IS (Mt. Vaca (3812241) OR Allendale (3812148) OR Dixon (3812147) OR Fairfield North (3812231) OR Fairfield South (3812221) OR Elmira (3812138) OR Dozier (3812137) OR Denverton (3812128) OR Birds Landing (3812127))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Acipenser medirostris pop. 1</i> green sturgeon - southern DPS	AFCAA01031	Threatened	None	G2T1	S1	
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
<i>Ambystoma californiense pop. 1</i> California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
<i>Ammodramus savannarum</i> grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
<i>Andrena blennospermatis</i> Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S1	
<i>Aquila chrysaetos</i> golden eagle	ABNKC22010	None	None	G5	S3	FP
<i>Ardea alba</i> great egret	ABNGA04040	None	None	G5	S4	
<i>Asio flammeus</i> short-eared owl	ABNSB13040	None	None	G5	S2	SSC
<i>Astragalus tener var. ferrisiae</i> Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
<i>Astragalus tener var. tener</i> alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S2	SSC
<i>Atriplex cordulata var. cordulata</i> heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
<i>Atriplex depressa</i> brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
<i>Atriplex persistens</i> vernal pool smallscale	PDCHE042P0	None	None	G2	S2	1B.2
<i>Bombus crotchii</i> Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24252	None	Candidate Endangered	G3	S1	
<i>Bombus pensylvanicus</i> American bumble bee	IIHYM24260	None	None	G3G4	S2	
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	



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<i>Branchinecta mesoamericana</i> midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
<i>Buteo regalis</i> ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
<i>Buteo swainsoni</i> Swainson's hawk	ABNKC19070	None	Threatened	G5	S4	
<i>Carex lyngbyei</i> Lyngbye's sedge	PMCYP037Y0	None	None	G5	S3	2B.2
<i>Centromadia parryi ssp. parryi</i> pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
<i>Charadrius montanus</i> mountain plover	ABNNB03100	None	None	G3	S2	SSC
<i>Chloropyron molle ssp. hispidum</i> hispid salty bird's-beak	PDSCR0J0D1	None	None	G2T1	S1	1B.1
<i>Chloropyron molle ssp. molle</i> soft salty bird's-beak	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
<i>Cicuta maculata var. bolanderi</i> Bolander's water-hemlock	PDAP10M051	None	None	G5T4T5	S2?	2B.1
<i>Circus hudsonius</i> northern harrier	ABNKC11011	None	None	G5	S3	SSC
<i>Cirsium hydrophilum var. hydrophilum</i> Suisun thistle	PDAST2E1G1	Endangered	None	G2T1	S1	1B.1
<i>Coastal and Valley Freshwater Marsh</i> Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
<i>Coastal Brackish Marsh</i> Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
<i>Coturnicops noveboracensis</i> yellow rail	ABNME01010	None	None	G4	S2	SSC
<i>Danaus plexippus plexippus pop. 1</i> monarch - California overwintering population	IILEPP2012	Candidate	None	G4T1T2Q	S2	
<i>Delphinium recurvatum</i> recurved larkspur	PDRAN0B1J0	None	None	G2?	S2?	1B.2
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T3	S3	
<i>Downingia pusilla</i> dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
<i>Dumontia oregonensis</i> hairy water flea	ICBRA23010	None	None	G1G3	S1	
<i>Egretta thula</i> snowy egret	ABNGA06030	None	None	G5	S4	



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<i>Elanus leucurus</i> white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
<i>Elaphrus viridis</i> Delta green ground beetle	IICOL36010	Threatened	None	G1	S1	
<i>Emys marmorata</i> western pond turtle	ARAAD02030	Proposed Threatened	None	G3G4	S3	SSC
<i>Eriogonum truncatum</i> Mt. Diablo buckwheat	PDPGN085Z0	None	None	G1	S1	1B.1
<i>Eryngium jepsonii</i> Jepson's coyote-thistle	PDAP10Z130	None	None	G2	S2	1B.2
<i>Extriplex joaquinana</i> San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
<i>Fritillaria liliacea</i> fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
<i>Fritillaria pluriflora</i> adobe-lily	PMLIL0V0F0	None	None	G2G3	S2S3	1B.2
<i>Geothlypis trichas sinuosa</i> saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
<i>Haliaeetus leucocephalus</i> bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
<i>Hesperolinon breweri</i> Brewer's western flax	PDLIN01030	None	None	G2	S2	1B.2
<i>Hibiscus lasiocarpus var. occidentalis</i> woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
<i>Hydrochara rickseckeri</i> Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
<i>Icteria virens</i> yellow-breasted chat	ABPBX24010	None	None	G5	S4	SSC
<i>Isocoma arguta</i> Carquinez goldenbush	PDAST57050	None	None	G1	S1	1B.1
<i>Lasiurus cinereus</i> hoary bat	AMACC05032	None	None	G3G4	S4	
<i>Lasiurus frantzii</i> western red bat	AMACC05080	None	None	G4	S3	SSC
<i>Lasthenia chrysantha</i> alkali-sink goldfields	PDAST5L030	None	None	G2	S2	1B.1
<i>Lasthenia conjugens</i> Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
<i>Lasthenia glabrata ssp. coulteri</i> Coulter's goldfields	PDAST5L0A1	None	None	G4T2	S2	1B.1



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<i>Lateralus jamaicensis coturniculus</i> California black rail	ABNME03041	None	Threatened	G3T1	S2	FP
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i> Delta tule pea	PDFAB250D2	None	None	G5T2	S2	1B.2
<i>Legenere limosa</i> legenere	PDCAM0C010	None	None	G2	S2	1B.1
<i>Lepidium latipes</i> var. <i>heckardii</i> Heckard's pepper-grass	PDBRA1M0K1	None	None	G4T1	S1	1B.2
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S3	
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	PDAP19030	None	Rare	G2	S2	1B.1
<i>Limosella australis</i> Delta mudwort	PDSCR10030	None	None	G4G5	S2	2B.1
<i>Linderiella occidentalis</i> California linderiella	ICBRA06010	None	None	G2G3	S2S3	
<i>Melospiza melodia maxillaris</i> Suisun song sparrow	ABPBXA301K	None	None	G5T3	S2	SSC
<i>Microseris paludosa</i> marsh microseris	PDAST6E0D0	None	None	G2	S2	1B.2
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i> Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
<i>Neostapfia colusana</i> Colusa grass	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
<i>Northern Claypan Vernal Pool</i> Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
<i>Nycticorax nycticorax</i> black-crowned night heron	ABNGA11010	None	None	G5	S4	
<i>Orcuttia inaequalis</i> San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
<i>Plagiobothrys hystriculus</i> bearded popcornflower	PDBOR0V0H0	None	None	G2	S2	1B.1
<i>Pogonichthys macrolepidotus</i> Sacramento splittail	AFCJB34020	None	None	G3	S3	SSC
<i>Puccinellia simplex</i> California alkali grass	PMPOA53110	None	None	G2	S2	1B.2
<i>Rallus obsoletus obsoletus</i> California Ridgway's rail	ABNME05011	Endangered	Endangered	G3T1	S2	FP
<i>Rana boylei</i> pop. 1 foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	G3T4	S4	SSC
<i>Rana draytonii</i> California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC



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<i>Reithrodontomys raviventris</i> salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S3	FP
<i>Saldula usingeri</i> Wilbur Springs shorebug	IIHEM07010	None	None	G2	S2	
<i>Sidalcea keckii</i> Keck's checkerbloom	PDMAL110D0	Endangered	None	G2	S2	1B.1
<i>Sorex ornatus sinuosus</i> Suisun shrew	AMABA01103	None	None	G5T1T2Q	S1S2	SSC
<i>Spergularia macrotheca var. longistyla</i> long-styled sand-spurrey	PDCAR0W062	None	None	G5T2	S2	1B.2
<i>Speyeria callippe callippe</i> callippe silverspot butterfly	IILEPJ6091	Endangered	None	G5T1	S1	
<i>Spirinchus thaleichthys</i> longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
<i>Stuckenia filiformis ssp. alpina</i> northern slender pondweed	PMPOT03091	None	None	G5T5	S2S3	2B.2
<i>Symphyotrichum lentum</i> Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S3	SSC
<i>Trifolium amoenum</i> two-fork clover	PDFAB40040	Endangered	None	G1	S1	1B.1
<i>Trifolium hydrophilum</i> saline clover	PDFAB400R5	None	None	G2	S2	1B.2
<i>Tuctoria mucronata</i> Crampton's tuctoria or Solano grass	PMPOA6N020	Endangered	Endangered	G1	S1	1B.1
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
<i>Viburnum ellipticum</i> oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3





Record Count: 97








CNPS Rare Plant Inventory




Search Results

58 matches found. Click on scientific name for details




Search Criteria: 9-Quad include [3812241:3812148:3812147:3812231:3812221:3812138:3812137:3812128:3812127]




▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
<i>Astragalus tener</i> <i>var. ferrisiae</i>	Ferris' milk- vetch	Fabaceae	annual herb	Apr-May	None	None	G2T1	S1	1B.1	Yes	1994- 01-01	No Photo Available
<i>Astragalus tener</i> <i>var. tener</i>	alkali milk- vetch	Fabaceae	annual herb	Mar-Jun	None	None	G2T1	S1	1B.2	Yes	1994- 01-01	No Photo Available
<i>Atriplex</i> <i>cordulata</i> <i>var.</i> <i>cordulata</i>	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	Yes	1988- 01-01	 © 1994 Robert E. Preston, Ph.D.
<i>Atriplex coronata</i> <i>var. coronata</i>	crownscale	Chenopodiaceae	annual herb	Mar-Oct	None	None	G4T3	S3	4.2	Yes	1994- 01-01	 © 1994 Robert E. Preston, Ph.D.
<i>Atriplex depressa</i>	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1994- 01-01	 © 2009 Zoya Akulova
<i>Atriplex</i> <i>persistens</i>	vernal pool smallscale	Chenopodiaceae	annual herb	Jun-Oct	None	None	G2	S2	1B.2	Yes	2001- 01-01	No Photo Available
<i>Carex lyngbyei</i>	Lyngbye's sedge	Cyperaceae	perennial rhizomatous herb	Apr-Aug	None	None	G5	S3	2B.2		2001- 01-01	 ©2017 Steve Matson

<u><i>Centromadia parryi</i> ssp. <i>parryi</i></u>	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	Yes	2004-01-01	 © 2016 John Doyen
<u><i>Centromadia parryi</i> ssp. <i>rudis</i></u>	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2	Yes	2007-05-22	 © 2019 John Doyen
<u><i>Chloropyron molle</i> ssp. <i>hispidum</i></u>	hispid salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Sep	None	None	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Chloropyron molle</i> ssp. <i>molle</i></u>	soft salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Nov	FE	CR	G2T1	S1	1B.2	Yes	1974-01-01	 © 2014 John Doyen
<u><i>Cicuta maculata</i> var. <i>bolanderi</i></u>	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	None	None	G5T4T5	S2?	2B.1		1974-01-01	 © 2007 Doreen L Smith
<u><i>Cirsium hydrophilum</i> var. <i>hydrophilum</i></u>	Suisun thistle	Asteraceae	perennial herb	Jun-Sep	FE	None	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Delphinium recurvatum</i></u>	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2?	1B.2	Yes	1988-01-01	No Photo Available
<u><i>Downingia pusilla</i></u>	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2		1980-01-01	 © 2013 Aaron Arthur
<u><i>Eleocharis parvula</i></u>	small spikerush	Cyperaceae	perennial herb	(Apr)Jun-Aug(Sep)	None	None	G5	S3	4.3		1980-01-01	 ©2018 Ron Vanderhoff
<u><i>Erigeron biolettii</i></u>	streamside daisy	Asteraceae	perennial herb	Jun-Oct	None	None	G3?	S3?	3	Yes	1994-01-01	 ©2015 Doug Wirtz
<u><i>Eriogonum truncatum</i></u>	Mt. Diablo buckwheat	Polygonaceae	annual herb	Apr-Sep(Nov-Dec)	None	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available

<u><i>Eryngium jepsonii</i></u>	Jepson's coyote-thistle	Apiaceae	perennial herb	Apr-Aug	None	None	G2	S2	1B.2	Yes	2016-09-13	No Photo Available
<u><i>Extriplex joaquinana</i></u>	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1988-01-01	No Photo Available
<u><i>Fritillaria agrestis</i></u>	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3	S3	4.2	Yes	1980-01-01	 © 2016 Aaron Schusteff
<u><i>Fritillaria liliacea</i></u>	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2004 Carol W. Witham
<u><i>Fritillaria pluriflora</i></u>	adobe-lily	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2G3	S2S3	1B.2	Yes	1974-01-01	 © 2015 Steve Matson
<u><i>Gratiola heterosepala</i></u>	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	G2	S2	1B.2		1974-01-01	 ©2004 Carol W. Witham
<u><i>Hespevax caulescens</i></u>	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2017 John Doyen
<u><i>Hesperolinon breweri</i></u>	Brewer's western flax	Linaceae	annual herb	May-Jul	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2014 Neal Kramer
<u><i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i></u>	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	 © 2020 Steven Perry
<u><i>Iris longipetala</i></u>	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May(Jun)	None	None	G3	S3	4.2	Yes	2006-10-12	 © 2014 Aaron Schusteff

<u><i>Isocoma arguta</i></u>	Carquinez goldenbush	Asteraceae	perennial shrub	Aug-Dec	None	None	G1	S1	1B.1	Yes	1994-01-01	No Photo Available
<u><i>Lasthenia chrysantha</i></u>	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	Yes	2019-09-30	 © 2009 California State University, Stanislaus
<u><i>Lasthenia conjugens</i></u>	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	FE	None	G1	S1	1B.1	Yes	1974-01-01	 © 2013 Neal Kramer
<u><i>Lasthenia ferrisiae</i></u>	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2009 Zoya Akulova
<u><i>Lasthenia glabrata</i> ssp. <i>coulteri</i></u>	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	None	None	G4T2	S2	1B.1		1994-01-01	 © 2013 Keir Morse
<u><i>Lathyrus jepsonii</i> var. <i>jepsonii</i></u>	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	None	None	G5T2	S2	1B.2	Yes	1974-01-01	 © 2003 Mark Fogiel
<u><i>Legenere limosa</i></u>	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01	 ©2000 John Game
<u><i>Lepidium latipes</i> var. <i>heckardii</i></u>	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	None	None	G4T1	S1	1B.2	Yes	1994-01-01	 2018 Jennifer Buck
<u><i>Lessingia hololeuca</i></u>	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	None	None	G2G3	S2S3	3	Yes	1994-01-01	 © 2015 Aaron Schusteff
<u><i>Lilaeopsis masonii</i></u>	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	Yes	1974-01-01	No Photo Available

<u><i>Limosella australis</i></u>	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	May-Aug	None	None	G4G5	S2	2B.1		1994-01-01	 © 2020 Richard Sage
<u><i>Lomatium repostum</i></u>	Napa lomatium	Apiaceae	perennial herb	Mar-Jun	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available
<u><i>Meesia triquetra</i></u>	three-ranked hump moss	Meesiaceae	moss	Jul	None	None	G5	S4	4.2		2001-01-01	 Steve Matson 2008
<u><i>Microseris paludosa</i></u>	marsh microseris	Asteraceae	perennial herb	Apr-Jun(Jul)	None	None	G2	S2	1B.2	Yes	2001-01-01	No Photo Available
<u><i>Myosurus minimus</i> ssp. <i>apus</i></u>	little mousetail	Ranunculaceae	annual herb	Mar-Jun	None	None	G5T2Q	S2	3.1		1980-01-01	No Photo Available
<u><i>Navarretia leucocephala</i> ssp. <i>bakeri</i></u>	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G4T2	S2	1B.1	Yes	1994-01-01	 © 2018 Barry Rice
<u><i>Neostapfia colusana</i></u>	Colusa grass	Poaceae	annual herb	May-Aug	FT	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Orcuttia inaequalis</i></u>	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	FT	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Perideridia gairdneri</i> ssp. <i>gairdneri</i></u>	Gairdner's yampah	Apiaceae	perennial herb	Jun-Oct	None	None	G5T3T4	S3S4	4.2	Yes	1974-01-01	 ©2007 Neal Kramer
<u><i>Plagiobothrys hystriculus</i></u>	bearded popcornflower	Boraginaceae	annual herb	Apr-May	None	None	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Puccinellia simplex</i></u>	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2		2015-10-15	No Photo Available
<u><i>Ranunculus lobbii</i></u>	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	Feb-May	None	None	G4	S3	4.2		1974-01-01	No Photo Available
<u><i>Sidalcea keckii</i></u>	Keck's checkerbloom	Malvaceae	annual herb	Apr-May(Jun)	FE	None	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Spergularia macrotheca</i> var. <i>longistyla</i></u>	long-styled sand-spurrey	Caryophyllaceae	perennial herb	Feb-May	None	None	G5T2	S2	1B.2	Yes	2017-06-16	No Photo Available

<u><i>Stuckenia</i></u> <u><i>filiformis</i> ssp.</u> <u><i>alpina</i></u>	northern slender pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	May-Jul	None	None	G5T5	S2S3	2B.2		1994- 01-01	 Dana York (2016)
<u><i>Symphyotrichum</i></u> <u><i>lentum</i></u>	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May- Nov	None	None	G2	S2	1B.2	Yes	1974- 01-01	No Photo Available
<u><i>Trifolium</i></u> <u><i>amoenum</i></u>	two-fork clover	Fabaceae	annual herb	Apr-Jun	FE	None	G1	S1	1B.1	Yes	1974- 01-01	No Photo Available
<u><i>Trifolium</i></u> <u><i>hydrophilum</i></u>	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	2001- 01-01	 © 2005 Dean Wm Taylor
<u><i>Tuctoria</i></u> <u><i>mucronata</i></u>	Crampton's tuctoria or Solano grass	Poaceae	annual herb	Apr-Aug	FE	CE	G1	S1	1B.1	Yes	1974- 01-01	No Photo Available
<u><i>Viburnum</i></u> <u><i>ellipticum</i></u>	oval-leaved viburnum	Viburnaceae	perennial deciduous shrub	May-Jun	None	None	G4G5	S3?	2B.3		1974- 01-01	 © 2006 Tom Engstrom

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Suggested Citation:

California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Website <https://www.rareplants.cnps.org> [accessed 23 January 2024].



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Phone: (916) 414-6600 Fax: (916) 414-6713



In Reply Refer To:

January 23, 2024

Project Code: 2024-0039770

Project Name: Brown Street Master Plam

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see [Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service \(fws.gov\)](https://www.fws.gov/partner/council-conservation-migratory-birds).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

PROJECT SUMMARY

Project Code: 2024-0039770

Project Name: Brown Street Master Plan

Project Type: Recreation - New Construction

Project Description: The approximately 4.1-acre project site is located along Brown Street immediately north of the Solano County Health and Social Services Department in Vacaville, Solano County, California (Assessor's Parcel Numbers [APN]: 0129-320-020, -150, -170, -180, -190, -200, -250, -260 and -270). The project site is currently undeveloped but is accessible from Brown Street to the west.

The City of Vacaville (City) proposes to develop a 4.1-acre site with a new neighborhood park comprising of a variety of outdoor recreational amenities (playfield, multipurpose courts, stage, tot lot, playground, picnic areas, interactive water feature, walking trail, and drinking fountains) including a community center building and a City Housing and Community Services Department office building, and approximately .70 -acres of open space. Regional access to the project site is provided by Interstate 80, on- and off-ramps for which are located approximately 0.6 miles east of the project site along Allison Drive. Local access to the project site is provided by East Monte Vista Avenue and Brown Street.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.36172435,-121.97683444639323,14z>



Counties: Solano County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
California Ridgeway's Rail <i>Rallus obsoletus obsoletus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered

REPTILES

NAME	STATUS
Northwestern Pond Turtle <i>Actinemys marmorata</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

AMPHIBIANS

NAME	STATUS
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened
Western Spadefoot <i>Spea hammondi</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

CRUSTACEANS

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

FLOWERING PLANTS

NAME	STATUS
Contra Costa Goldfields <i>Lasthenia conjugens</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7058	Endangered
San Joaquin Valley Orcutt Grass <i>Orcuttia inaequalis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5506	Threatened
Showy Indian Clover <i>Trifolium amoenum</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6459	Endangered








CRITICAL HABITATS





THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.


YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.



IPAC USER CONTACT INFORMATION




Agency: Private Entity
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State: CA
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<u><i>Centromadia parryi</i> ssp. <i>parryi</i></u>	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	Yes	2004-01-01	 © 2016 John Doyen
<u><i>Centromadia parryi</i> ssp. <i>rudis</i></u>	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2	Yes	2007-05-22	 © 2019 John Doyen
<u><i>Chloropyron molle</i> ssp. <i>hispidum</i></u>	hispid salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Sep	None	None	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Chloropyron molle</i> ssp. <i>molle</i></u>	soft salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Nov	FE	CR	G2T1	S1	1B.2	Yes	1974-01-01	 © 2014 John Doyen
<u><i>Cicuta maculata</i> var. <i>bolanderi</i></u>	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	None	None	G5T4T5	S2?	2B.1		1974-01-01	 © 2007 Doreen L Smith
<u><i>Cirsium hydrophilum</i> var. <i>hydrophilum</i></u>	Suisun thistle	Asteraceae	perennial herb	Jun-Sep	FE	None	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Delphinium recurvatum</i></u>	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2?	1B.2	Yes	1988-01-01	No Photo Available
<u><i>Downingia pusilla</i></u>	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2		1980-01-01	 © 2013 Aaron Arthur
<u><i>Eleocharis parvula</i></u>	small spikerush	Cyperaceae	perennial herb	(Apr)Jun-Aug(Sep)	None	None	G5	S3	4.3		1980-01-01	 ©2018 Ron Vanderhoff
<u><i>Erigeron biolettii</i></u>	streamside daisy	Asteraceae	perennial herb	Jun-Oct	None	None	G3?	S3?	3	Yes	1994-01-01	 ©2015 Doug Wirtz
<u><i>Eriogonum truncatum</i></u>	Mt. Diablo buckwheat	Polygonaceae	annual herb	Apr-Sep(Nov-Dec)	None	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available

<u><i>Eryngium jepsonii</i></u>	Jepson's coyote-thistle	Apiaceae	perennial herb	Apr-Aug	None	None	G2	S2	1B.2	Yes	2016-09-13	No Photo Available
<u><i>Extriplex joaquinana</i></u>	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1988-01-01	No Photo Available
<u><i>Fritillaria agrestis</i></u>	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3	S3	4.2	Yes	1980-01-01	 © 2016 Aaron Schusteff
<u><i>Fritillaria liliacea</i></u>	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2004 Carol W. Witham
<u><i>Fritillaria pluriflora</i></u>	adobe-lily	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2G3	S2S3	1B.2	Yes	1974-01-01	 © 2015 Steve Matson
<u><i>Gratiola heterosepala</i></u>	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	G2	S2	1B.2		1974-01-01	 ©2004 Carol W. Witham
<u><i>Hespevax caulescens</i></u>	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2017 John Doyen
<u><i>Hesperolinon breweri</i></u>	Brewer's western flax	Linaceae	annual herb	May-Jul	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2014 Neal Kramer
<u><i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i></u>	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	 © 2020 Steven Perry
<u><i>Iris longipetala</i></u>	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May(Jun)	None	None	G3	S3	4.2	Yes	2006-10-12	 © 2014 Aaron Schusteff

<u><i>Isocoma arguta</i></u>	Carquinez goldenbush	Asteraceae	perennial shrub	Aug-Dec	None	None	G1	S1	1B.1	Yes	1994-01-01	No Photo Available
<u><i>Lasthenia chrysantha</i></u>	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	Yes	2019-09-30	 © 2009 California State University, Stanislaus
<u><i>Lasthenia conjugens</i></u>	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	FE	None	G1	S1	1B.1	Yes	1974-01-01	 © 2013 Neal Kramer
<u><i>Lasthenia ferrisiae</i></u>	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2009 Zoya Akulova
<u><i>Lasthenia glabrata</i> ssp. <i>coulteri</i></u>	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	None	None	G4T2	S2	1B.1		1994-01-01	 © 2013 Keir Morse
<u><i>Lathyrus jepsonii</i> var. <i>jepsonii</i></u>	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	None	None	G5T2	S2	1B.2	Yes	1974-01-01	 © 2003 Mark Fogiel
<u><i>Legenere limosa</i></u>	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01	 ©2000 John Game
<u><i>Lepidium latipes</i> var. <i>heckardii</i></u>	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	None	None	G4T1	S1	1B.2	Yes	1994-01-01	 2018 Jennifer Buck
<u><i>Lessingia hololeuca</i></u>	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	None	None	G2G3	S2S3	3	Yes	1994-01-01	 © 2015 Aaron Schusteff
<u><i>Lilaeopsis masonii</i></u>	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	Yes	1974-01-01	No Photo Available

<u><i>Limosella australis</i></u>	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	May-Aug	None	None	G4G5	S2	2B.1		1994-01-01	 © 2020 Richard Sage
<u><i>Lomatium repostum</i></u>	Napa lomatium	Apiaceae	perennial herb	Mar-Jun	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available
<u><i>Meesia triquetra</i></u>	three-ranked hump moss	Meesiaceae	moss	Jul	None	None	G5	S4	4.2		2001-01-01	 Steve Matson 2008
<u><i>Microseris paludosa</i></u>	marsh microseris	Asteraceae	perennial herb	Apr-Jun(Jul)	None	None	G2	S2	1B.2	Yes	2001-01-01	No Photo Available
<u><i>Myosurus minimus</i> ssp. <i>apus</i></u>	little mousetail	Ranunculaceae	annual herb	Mar-Jun	None	None	G5T2Q	S2	3.1		1980-01-01	No Photo Available
<u><i>Navarretia leucocephala</i> ssp. <i>bakeri</i></u>	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G4T2	S2	1B.1	Yes	1994-01-01	 © 2018 Barry Rice
<u><i>Neostapfia colusana</i></u>	Colusa grass	Poaceae	annual herb	May-Aug	FT	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Orcuttia inaequalis</i></u>	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	FT	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Perideridia gairdneri</i> ssp. <i>gairdneri</i></u>	Gairdner's yampah	Apiaceae	perennial herb	Jun-Oct	None	None	G5T3T4	S3S4	4.2	Yes	1974-01-01	 ©2007 Neal Kramer
<u><i>Plagiobothrys hystriculus</i></u>	bearded popcornflower	Boraginaceae	annual herb	Apr-May	None	None	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Puccinellia simplex</i></u>	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2		2015-10-15	No Photo Available
<u><i>Ranunculus lobbii</i></u>	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	Feb-May	None	None	G4	S3	4.2		1974-01-01	No Photo Available
<u><i>Sidalcea keckii</i></u>	Keck's checkerbloom	Malvaceae	annual herb	Apr-May(Jun)	FE	None	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Spergularia macrotheca</i> var. <i>longistyla</i></u>	long-styled sand-spurrey	Caryophyllaceae	perennial herb	Feb-May	None	None	G5T2	S2	1B.2	Yes	2017-06-16	No Photo Available

<u><i>Stuckenia</i></u> <u><i>filiformis</i> ssp.</u> <u><i>alpina</i></u>	northern slender pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	May-Jul	None	None	G5T5	S2S3	2B.2		1994- 01-01	 Dana York (2016)
<u><i>Symphyotrichum</i></u> <u><i>lentum</i></u>	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May- Nov	None	None	G2	S2	1B.2	Yes	1974- 01-01	No Photo Available
<u><i>Trifolium</i></u> <u><i>amoenum</i></u>	two-fork clover	Fabaceae	annual herb	Apr-Jun	FE	None	G1	S1	1B.1	Yes	1974- 01-01	No Photo Available
<u><i>Trifolium</i></u> <u><i>hydropyllum</i></u>	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	2001- 01-01	 © 2005 Dean Wm Taylor
<u><i>Tuctoria</i></u> <u><i>mucronata</i></u>	Crampton's tuctoria or Solano grass	Poaceae	annual herb	Apr-Aug	FE	CE	G1	S1	1B.1	Yes	1974- 01-01	No Photo Available
<u><i>Viburnum</i></u> <u><i>ellipticum</i></u>	oval-leaved viburnum	Viburnaceae	perennial deciduous shrub	May-Jun	None	None	G4G5	S3?	2B.3		1974- 01-01	 © 2006 Tom Engstrom

Showing 1 to 58 of 58 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Website <https://www.rareplants.cnps.org> [accessed 23 January 2024].



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APPENDIX C

NOISE ANALYSIS

NOISE AND VIBRATION IMPACT ANALYSIS

**BROWN STREET PARK MASTER PLAN PROJECT
VACAVILLE, CALIFORNIA**



February 2024

NOISE AND VIBRATION IMPACT ANALYSIS

BROWN STREET PARK MASTER PLAN PROJECT VACAVILLE, CALIFORNIA

Submitted to:

Ruby Vicencio
Public Works Department
650 Merchant Street
Vacaville, California 95688

Prepared by:

LSA
157 Park Place
Point Richmond, California 94801
(510) 236-6810

Project No. COV2101



February 2024

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LIST OF ABBREVIATIONS AND ACRONYMS

City	City of Vacaville
CNEL	Community Noise Equivalent Level
dB	decibel(s)
dBA	A-weighted decibel(s)
FHWA	Federal Highway Administration
ft	foot/feet
FTA	Federal Transit Administration
FTA Manual	<i>FTA Transit Noise and Vibration Impact Assessment Manual</i>
in/sec	inch/inches per second
L_{dn}	day-night average noise level
L_{eq}	equivalent continuous sound level
L_{max}	maximum instantaneous sound level
PPV	peak particle velocity
project	Brown Street Park Master Plan Project
RMS	root-mean-square
sf	square feet
VdB	vibration velocity decibels

INTRODUCTION

This noise and vibration impact analysis has been prepared to evaluate the potential noise and vibration impacts and reduction measures associated with the proposed Brown Street Park Master Plan Project (project) in Vacaville, California. This report is intended to satisfy the City of Vacaville's (City) requirement for a project-specific noise impact analysis by examining the impacts of the project site and evaluating noise reduction measures that the project may require.

PROJECT LOCATION AND DESCRIPTION

The approximately 3.44-acre project site consists of nine parcels located at 131 Brown Street in the City of Vacaville, Solano County (Assessor's Parcel Numbers [APN]: 0129-320-020, -150, -170, -180, -190, -200, -250, -260 and -270). The project site is located in the center of Vacaville in an area consisting primarily of residential, commercial, and public buildings (see Figure 1, Regional Project Location, and Figure 2, Site Plan).

The proposed project involves development of a Neighborhood Park, Recreation Center, Vacaville Housing and Community Services Department Office Building (VHCSDOB), and open space, as well as associated site improvements.

The development of the property will be as follows:

- **Neighborhood Park:** The proposed 2.63-acre Neighborhood Park would generally be located on the northern half of the project site. An approximately 21,000-square-foot playfield would be in the northwestern area of the park. The approximately 13,050 square-foot playfield would be an irrigated, soil-based native grass field that would be sloped to the north to a planned bioswale. An additional berm would be provided west of the field between it and Brown Street. Adjacent to the playfield would be an approximately 5,422 square foot outdoor multipurpose court. A tot lot, kids' playground (each of which would be approximately 800 square feet in size), and two shade structures (each of which would be approximately 500 square feet in size) would be located in the northeastern portion of the park, close to parking area. Both the tot lot and kids' playground would include play equipment for multiple age groups. An approximately 600 square-stage, seating area, public art installation, and interactive water feature would be located between the Recreation Center and Multipurpose Sports Court on the southwestern portion of the park.
- **Recreation Center:** The one-story Recreation Center Building, which would be 2,500 square feet in size and under 30 feet in height, would be in the center of the project site northeast of the playfield. Approximately 2,250 square feet (75 percent) of the Recreation Center would be dedicated for indoor recreational use. An 800-square-foot outdoor patio would also be provided adjacent to the Recreation Center portion.
- **VHCSDOB:** The VHCSDOB would consist of an approximately 10,000-square-foot, one-story building that would be a maximum of approximately 40 feet in height located on the east end of the project site adjacent to the proposed parking lot. An approximately 5,000-square-foot

portion of the building would include new offices for the Vacaville Housing and Community Services Department (VHCSO) with the remaining 5,000-square-foot portion of the building including office and classroom/meeting space to be shared with VHCSO and community organizations that serve low- to moderate-income Vacaville households. The VHCSO Building would be designed to be ZNE.

- Landscaping: Existing landscaping in the park includes 97 existing trees. As part of the proposed project, approximately 9 trees would be removed to accommodate planned amenities, associated improvements, and the parking lot. However, the proposed project would include installation of new landscaping, including trees, shrubs, grasses, and groundcovers throughout the park. Landscaping would consist of native or drought-tolerant species for water conservation. The turf grass areas would require typical maintenance such as fertilizer and irrigation.

Operations for the Neighborhood Park and Community Center Building would be independent of the VHCSO Building. Details for operations, including hours, lighting, and noise are included below:

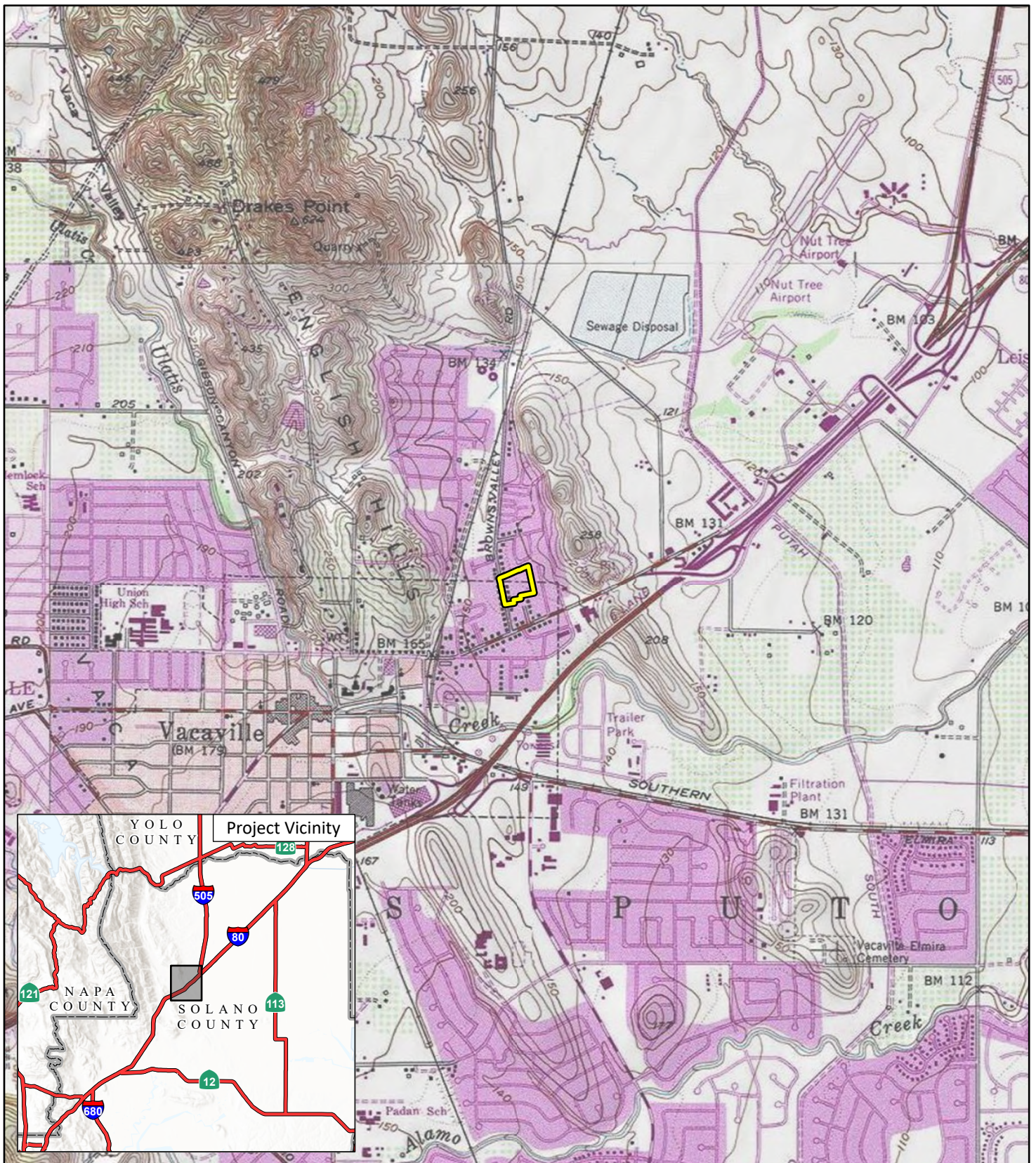
- Neighborhood Park and Community Center Building
 - The community center would be available for events such as cooking classes, with a maximum capacity of 20 to 25. The facility would accommodate 1 to 2 employees. Hours would be from 8:00 a.m. to 10:00 p.m.;
 - Park hours would be from dawn to dusk, like other parks within Vacaville;
 - No lights on would be installed on the play field, however lights would be installed in the park and along the trail like other City parks; and,
 - Amplified sound would be used for outdoor events such as neighborhood theater productions, live music, DJs, etc. Events would be limited to daylight hours.
- VHCSO Building
 - The VHCSO Building would be operated for office activities and will include employee workstations and meeting spaces. The VHCSO Building would accommodate 21 full-time and 2 part-time employees. Hours would be from 8:00 a.m. to 5:30 p.m.; and,
 - The shared spaces will be available for community trainings and workshops. Hours would be from 8:00 a.m. to 10:00 p.m.

EXISTING LAND USES IN THE PROJECT AREA

The project site is surrounded primarily by residential uses. The areas adjacent to the project site include the following uses.

- **North:** Existing single-family residences
- **East:** Existing Paradise Cove Mobile Home Park
- **South:** Solano County Health and Social Services building
- **West:** Existing single-family residences along Brown Street

The closest sensitive receptors to the project site include single-family residences and Paradise Cove Mobile Home Park located immediately north and east of the project site boundary, respectively, approximately 5 feet away.



LSA


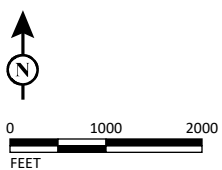
 Area of Potential Effects

FIGURE 1



SOURCE: USGS 7.5' Quad - Elmira (1980), CA

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Brown Street Park Master Plan Project
Project Location



LSA



0 40 80
FEET

SOURCE: Hammond & Playle

I:\COV2101\G\Site_Plan.ai (2/16/2024)

FIGURE 2

Brown Street Park Master Plan Project
Site Plan

NOISE AND VIBRATION FUNDAMENTALS

CHARACTERISTICS OF SOUND

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a sound wave, which results in the tone's range from high to low. Loudness is the strength of a sound, and it describes a noisy or quiet environment; it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity is the average rate of sound energy transmitted through a unit area perpendicular to the direction in which the sound waves are traveling. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

MEASUREMENT OF SOUND

Sound intensity is measured with the A-weighted decibel (dBA) scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound, similar to the human ear's de-emphasis of these frequencies. Decibels (dB), unlike the linear scale (e.g., inches or pounds), are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 dB is 10 times more intense than 0 dB, 20 dB is 100 times more intense than 0 dB, and 30 dB is 1,000 times more intense than 0 dB. Thirty decibels (30 dB) represents 1,000 times as much acoustic energy as 0 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the sound's loudness. Ambient sounds generally range from 30 dB (very quiet) to 100 dB (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound levels dissipate exponentially with distance from their noise sources. For a single point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source (e.g., highway traffic or railroad operations), the sound decreases 3 dB for each doubling of distance in a hard site environment. Line-source sound levels decrease 4.5 dB for each doubling of distance in a relatively flat environment with absorptive vegetation.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and Community Noise Equivalent Level (CNEL) or the day-night average noise level (L_{dn}) based on A-weighted decibels. CNEL is the time-weighted average noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noises occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during relaxation hours. CNEL and L_{dn} are within 1 dBA of each other and are normally interchangeable. The City uses the CNEL noise scale for long-term traffic noise impact assessment.

Other noise rating scales of importance when assessing the annoyance factor include the maximum instantaneous noise level (L_{max}), which is the highest sound level that occurs during a stated time period. The noise environments discussed in this analysis for short-term noise impacts are specified in terms of maximum levels denoted by L_{max} , which reflects peak operating conditions and addresses the annoying aspects of intermittent noise. It is often used together with another noise scale, or noise standards in terms of percentile noise levels, in noise ordinances for enforcement purposes. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first category includes audible impacts, which are increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3 dB or greater because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1 dB and 3 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category includes changes in noise levels of less than 1 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to sound levels higher than 85 dBA. Exposure to high sound levels affects the entire system, with prolonged sound exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of sound exposure above 90 dBA would result in permanent cell damage. When the sound level reaches 120 dBA, a tickling sensation occurs in the human ear, even with short-term exposure. This level of sound is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by a feeling of pain in the ear (i.e., the threshold of pain). A sound level of 160–165 dBA will result in dizziness or a

loss of equilibrium. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying, less developed areas.

Table A lists definitions of acoustical terms, and Table B shows common sound levels and their sources.

Table A: Definitions of Acoustical Terms

Term	Definitions
Decibel, dB	A unit of sound measurement that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in 1 second (i.e., the number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. (All sound levels in this report are A-weighted unless reported otherwise.)
L ₀₁ , L ₁₀ , L ₅₀ , L ₉₀	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1%, 10%, 50%, and 90% of a stated time period, respectively.
Equivalent Continuous Noise Level, L _{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dBA to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, L _{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L _{max} , L _{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time. Usually a composite of sound from many sources from many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, and tonal or informational content, as well as the prevailing ambient noise level.

Source: Source: *Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol* (Caltrans 2013), Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual* (2018).

Table B: Common Sound Levels and Their Noise Sources

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a Few Feet Away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/ Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	—
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	—
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	—
Near Freeway Auto Traffic	70	Moderately Loud	Reference level
Average Office	60	Quiet	One-half as loud
Suburban Street	55	Quiet	—
Light Traffic; Soft Radio Music in Apartment	50	Quiet	One-quarter as loud
Large Transformer	45	Quiet	—
Average Residence without Stereo Playing	40	Faint	One-eighth as loud
Soft Whisper	30	Faint	—
Rustling Leaves	20	Very Faint	—
Human Breathing	10	Very Faint	Threshold of Hearing
—	0	Very Faint	—

Source: Compiled by LSA (2022).

FUNDAMENTALS OF VIBRATION

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may not be discernible, but without the effects associated with the shaking of a building there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as the motion of building surfaces, the rattling of items sitting on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibration of walls, floors, and ceilings that radiate sound waves. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 dB or less. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile-driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with both ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 feet (ft) from the vibration source, although there are examples of ground-borne vibration causing interference out to distances greater than 200 ft. When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. It is assumed for most projects that the roadway surface will be smooth enough that ground-borne vibration from

street traffic will not exceed the impact criteria; however, construction of the project could result in ground-borne vibration that may be perceptible and annoying.

Ground-borne noise is not likely to be a problem because noise arriving via the normal airborne path will usually be greater than ground-borne noise.

Ground-borne vibration has the potential to disturb people and damage buildings. Although it is very rare for train-induced ground-borne vibration to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile-driving to cause vibration of sufficient amplitudes to damage nearby buildings. Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). The RMS is best for characterizing human response to building vibration, and PPV is used to characterize the potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as:

$$L_v = 20 \log_{10} [V/V_{ref}]$$

where “ L_v ” is the vibration velocity in decibels (VdB), “ V ” is the RMS velocity amplitude, and “ V_{ref} ” is the reference velocity amplitude, or 1×10^{-6} inches/second (in/sec) used in the United States.

REGULATORY SETTING

APPLICABLE NOISE STANDARDS

The applicable noise standards governing the project site include the criteria in the City of Vacaville General Plan Noise Element (Noise Element) and the City of Vacaville Municipal Code.

City of Vacaville

General Plan

The City of Vacaville General Plan establishes acceptable noise level criteria for transportation noise sources under Chapter 8, Noise Element. Table C shows the acceptable noise levels for various land use categories and is used when determining a proposed project's noise impact.

The Noise Element provides the City's goals, policies, and actions related to noise. The City has identified the following goals and policies which are applicable to the proposed project:

- **Goal NOI-1:** Maintain an acceptable noise environment in all areas of the city.

Policies

- **Policy NOI-P1.2:** Require that noise created by new transportation and non-transportation noise sources be mitigated, to the extent that is technically and economically feasible, to comply with the noise level standards of Table NOI-3 (Table C of this document).
- **Policy NOI-P1.3:** Allow minor exceptions to the noise level design standards in Table NOI-3 (Table C of this document) in circumstances where mitigation requirements are not technically or economically feasible and not consistent with other City goals, standards, and policies.

- **Goal NOI-2:** Protect noise-sensitive uses from excessive noise.

Policies

- **Policy NOI-P2.1:** Reduce outdoor noise levels in existing residential areas, where economically and aesthetically feasible.
- **Policy NOI-P2.3:** Design subdivisions to minimize the transportation-related noise impacts to adjacent residential areas.
- **Policy NOI-P2.4:** Maintain smooth street surfaces adjacent to land uses that are sensitive to noise intrusion.
- **Policy NOI-P2.5:** Encourage the use of open space, earthen berms, parking, accessory buildings, and landscaping to buffer new and existing development from noise. Use sound

walls only when other methods are not practical or when recommended by an acoustical expert as part of a mitigation program.

- **Policy NOI-P2.6:** Require that the effects of sound walls on noise levels in surrounding areas be considered and taken into account in the design, location, and construction of sound walls.

Actions

- **Action NOI-A2.2:** Review all non-residential development proposals for noise impacts on noise sensitive land uses, such as residences, schools, and hospitals.
- **Goal NOI-4:** Minimize noise from stationary sources.

Policies

- **Policy NOI-P4.1:** Preclude the generation of annoying or harmful noise through conditions of approval on stationary noise sources, such as construction and property maintenance activity and mechanical equipment.
- **Policy NOI-P4.2:** Require the following construction noise control measures:
 - Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
 - Locate stationary noise-generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction area.
 - Utilize “quiet” air compressors and other stationary noise sources where technology exists.
 - Limit hours of operation of outdoor noise sources through conditions of approval.

Table C: Land Use Noise Compatibility Guidelines

Land Use Category	Community Noise Exposure (L _{dn} or CNEL, dBA)			
	Normally Acceptable ¹	Conditionally Acceptable ²	Normally Unacceptable ³	Clearly Unacceptable ⁴
Residential – Low Density Single Family, Duplex, Mobile Home	<60	55-70	70-75	75+
Residential – Multifamily	<65	60-70	70-75	75+
Transient Lodging – Motel, Hotel	<65	60-70	70-80	80+
Schools, libraries, Churches, Hospitals, Nursing Homes	<70	60-70	70-80	80+
Auditoriums, Concert Halls, Amphitheaters	-	<70	65+	-
Sports Arena, Outdoor Spectator Sports	-	<75	70+	-
Playgrounds, Neighborhood Parks	<70	-	67.5-75	72.5+
Gold Courses, Riding Stables, Water Recreation, Cemeteries	<75	-	70-80	80+
Office Building, Business Commercial, and Professional	<70	67.5-77.5	75+	-
Industrial, Manufacturing Utilities, Agriculture	<75	70-80	75+	-

Source: City of Vacaville General Plan.

Notes:

- ¹ Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
- ² New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
- ³ New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.
- ⁴ New construction or development should generally not be undertaken.
- ⁵ These standards are not applicable for development within the airport compatibility review area. Development in the airport compatibility review areas are subject to standards in the applicable airport land use plan.

CNEL = Community Noise Equivalent Level

dBA = A-Weighted decibel

L_{dn} = day-night average noise level

City of Vacaville Municipal Code

Nontransportation (Stationary) Sources. . Section 14.09.240.140, Noise, outlines the acceptable daytime and nighttime noise performance standards for nontransportation noise sources. Two standards apply to nontransportation noise sources: the hourly Leq, dBA, which is an hourly average sound level, and the maximum level, dBA. Table D shows the maximum hourly average and the peak daytime and nighttime noise standards for non-transportation sources when located near sensitive land uses. All uses shall comply with these standards. The noise standards for nontransportation sources shall not apply in the following situations:

- a. To new uses if the ambient noise levels exceed the hourly Leq or the maximum level of the proposed noise generator, unless the additional noise generated would increase the projected, combined noise levels a minimum of three decibels;

- b. To public parks or public playgrounds upon a finding by the decision maker that the location of the facilities within the park or playground reasonably limits the noise impacts upon other land uses;
- c. For nuisance abatement related to residential generated noise sources including, but not limited to, children playing, lawn mowers, barking dogs, and musical equipment;
- d. To residential caretaker units established in conjunction with nonresidential uses;
- e. To construction activity related to public improvement projects where the Director of community Development has determined that full compliance with these standards cannot practically be achieved.

Construction. Section 8.10.060, Public nuisance, restricts construction, repair work or grading within 500 feet from any occupied residence between the hours of seven o'clock p.m. and seven o'clock a.m. Monday through Saturday. No such construction, repair work or grading activities shall be allowed on Sundays or holidays. These restrictions do not apply to:

- 1. City projects;
- 2. An exception granted by the department of public works for emergency work, to offset project delays due to inclement weather, for 24-hour projects, or other similar occurrences; or
- 3. Interior work, construction, repair work or grading activities that are performed by or under the direction of the homeowner at his or her residence on a Sunday or holiday, provided such work shall only be allowed between the hours of eight o'clock a.m. and seven o'clock p.m.

Table D: Maximum Noise Exposure And Generation Levels For Nontransportation Sources

Land Use Category	Noise Level Descriptor	Exterior Noise Levels		Interior Noise Levels	
		Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Residential	Hourly L_{eq} , dBA	50	45	45	35
	Maximum Level, dBA	70	65	-	-
Transient Lodging	Hourly L_{eq} , dBA	-	-	45	35
Hospitals, Nursing Homes	Hourly L_{eq} , dBA	50	45	45	35
Other	Hourly L_{eq} , dBA	-	-	-	-
	Maximum Level, dBA	-	-	-	-

Source: City of Vacaville Municipal Code (2023)

Notes:

dBA = A-Weighted decibel

L_{eq} = equivalent continuous sound level

Federal Transit Administration

Although the City does not have daytime construction noise level limits for activities that occur within the specified hours in Section 11.80.030(D)(7) to determine potential California Environmental Quality Act noise impacts, construction noise was assessed using criteria from the *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) (FTA Manual). Table E shows the Federal Transit Administration's (FTA) Detailed Assessment Construction Noise Criteria based on the composite noise levels per construction phase.

Table E: Detailed Assessment Daytime Construction Noise Criteria

Land Use	Daytime 8-hour L_{eq} (dBA)
Residential	80
Commercial	85
Industrial	90

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

dBA = A-weighted decibels

L_{eq} = equivalent continuous sound level

APPLICABLE VIBRATION STANDARDS

Federal Transit Administration

Vibration standards included in the FTA Manual are used in this analysis for ground-borne vibration impacts on human annoyance. The criteria for environmental impact from ground-borne vibration and noise are based on the maximum levels for a single event. Table F provides the criteria for assessing the potential for interference or annoyance from vibration levels in a building.

Table G lists the potential vibration building damage criteria associated with construction activities, as suggested in the FTA Manual. FTA guidelines show that a vibration level of up to 0.5 in/sec in PPV is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster) and would not result in any construction vibration damage. For non-engineered timber and masonry buildings, the construction building vibration damage criterion is 0.2 in/sec in PPV.

Table F: Interpretation of Vibration Criteria for Detailed Analysis

Land Use	Max L_v (VdB) ¹	Description of Use
Workshop	90	Vibration that is distinctly felt. Appropriate for workshops and similar areas not as sensitive to vibration.
Office	84	Vibration that can be felt. Appropriate for offices and similar areas not as sensitive to vibration.
Residential Day	78	Vibration that is barely felt. Adequate for computer equipment and low-power optical microscopes (up to 20×).
Residential Night and Operating Rooms	72	Vibration is not felt, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power microscopes (100×) and other equipment of low sensitivity.

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

¹ As measured in 1/3-octave bands of frequency over a frequency range of 8 to 80 Hertz.

FTA = Federal Transit Administration

Max = maximum

L_v = velocity in decibels

VdB = vibration velocity decibels

Table G: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
Reinforced concrete, steel, or timber (no plaster)	0.50
Engineered concrete and masonry (no plaster)	0.30
Non-engineered timber and masonry buildings	0.20
Buildings extremely susceptible to vibration damage	0.12

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

FTA = Federal Transit Administration

PPV = peak particle velocity

in/sec = inch/inches per second

OVERVIEW OF THE EXISTING NOISE ENVIRONMENT

The primary existing noise sources in the project area are transportation facilities. Local traffic on the roadways in the vicinity of the project (Brown Street, Monte Vista Avenue, and Interstate-80) is a steady source of ambient noise. In addition, periodic aircraft operations are audible on the project site.

AMBIENT NOISE MEASUREMENTS

Two long-term (24-hour) noise level measurement were conducted between June 22 and June 23, 2021, using two Larson Davis Spark 706RC Dosimeters. Two short-term (15-minute) noise level measurements were conducted on June 23, 2021, using a Larson Davis LxT. Table H provides a summary of the measured hourly noise levels from the long-term noise level measurements. Hourly noise levels at surrounding sensitive uses are as low as 46.6 dBA L_{eq} during nighttime hours and 55.4 dBA L_{eq} during daytime hours. Noise monitoring data results are provided in Appendix A. Figure 3 shows the noise monitoring locations.

Table H: Existing Noise Level Measurements

Location Number	Location Description	Daytime Noise Levels ¹ (dBA L_{eq})	Evening Noise Levels ² (dBA L_{eq})	Nighttime Noise Levels ³ (dBA L_{eq})	Average Daily Noise Levels (dBA CNEL)	Primary Noise Sources
LT-1	Southwest corner of site, approximately 32 ft from the centerline of Brown Street	62.0–65.1	60.6–64.1	53.2–62.1	66.5	Brown St, Monte Rio Ave, I-80, aircraft overflights, wildlife
LT-2	Northeast corner of site, approximately 400 ft from Brown Street	56.0–59.3	53.9–56.6	48.5–54.9	60.0	Aircraft overflights, I-80, wildlife, Brown St, Monte Rio Ave.
ST-1 ⁴	Near center of project site, approximately 240 ft east of Brown Street.	55.4–57.9	54.0–58.1	46.6–55.5	59.9	Aircraft overflights, I-80, wildlife, Brown St, Monte Rio Ave.
ST-2 ⁴	Northwest corner of project site, approximately 50 ft east of center of Brown Street	58.0–61.0	56.5–61.5	49.2–58.1	62.6	Brown St, I-80, Monte Rio Ave, aircraft overflights, wildlife

Source: Compiled by LSA (2024).

¹ Daytime Noise Levels = noise levels during the hours of 7:00 a.m. to 7:00 p.m.

² Evening Noise Levels = noise levels during the hours of 7:00 p.m. to 10:00 p.m.

³ Nighttime Noise Levels = noise levels during the hours of 10:00 p.m. to 7:00 a.m.

⁴ Short-term measurement data estimated based on corresponding long-term measurement intervals.

CNEL = Community Noise Equivalent Level

L_{eq} = equivalent continuous sound level

dBA = A-weighted decibels


ft = foot/feet


EXISTING AIRCRAFT NOISE


Airport-related noise levels are primarily associated with aircraft engine noise made while aircraft are taking off, landing, or running their engines while still on the ground. The project site is approximately 1.3 miles southwest of Nut Tree Airport (general aviation). Based on a review of the Nut Tree Airport Noise Contours in the Vacaville General Plan (Figure NOI-3), noise impacts related to aircraft operations contribute to the aircraft noise in the project area. The northeast portion of the project site is within the 60 to 65 dBA CNEL contours and the southwest portion of the site is within the 55 to 60 dBA CNEL contours. Noise levels of less than 70 dBA CNEL are considered normally acceptable for playgrounds according to the City's Noise Element. Although aircraft-related noise may be audible on the project site, the proposed project would not expose people working in the project area to excessive noise levels. This impact would be less than significant.



LSA

 Project Site Boundary

 Short-term Noise Monitoring Location

 Long-term Noise Monitoring Location



0 100 200
FEET

SOURCE: Nearmap (2023)

I:\COV2101\GIS\Pro\Brown Street Master Plan Project\Brown Street Master Plan Project.aprx (2/23/2024)

FIGURE 3

Brown Street Park Master Plan Project
Noise Monitoring Locations

PROJECT IMPACT ANALYSIS

SHORT-TERM CONSTRUCTION NOISE IMPACTS

Two types of short-term noise impacts could occur during the construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the site for the proposed project would incrementally increase noise levels on access roads leading to the site. Although there would be a relatively high single-event noise-exposure potential causing intermittent noise nuisance, the effect on longer-term ambient noise levels would be small when compared to existing daily traffic volumes on roadways accessing the project site. Because construction-related vehicle trips would not approach existing daily traffic volumes, traffic noise would not increase by 3 dBA CNEL. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, short-term, construction-related impacts associated with worker commute and equipment transport to the project site would be less than significant.

The second type of short-term noise impact is related to noise generated during construction, which includes site preparation, grading, building construction, paving, and architectural coating on the project site. Construction is completed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table H lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 ft between the equipment and a noise receptor, taken from the Federal Highway Administration (FHWA) *Roadway Construction Noise Model* (FHWA 2006).

In addition to the reference maximum noise level, the usage factor provided in Table I is used to calculate the hourly noise level impact for each piece of equipment based on the following equation:

$$L_{eq}(equip) = E.L. + 10 \log(U.F.) - 20 \log\left(\frac{D}{50}\right)$$

where: $L_{eq}(equip)$ = L_{eq} at a receiver resulting from the operation of a single piece of equipment over a specified time period.

E.L. = noise emission level of the particular piece of equipment at a reference distance of 50 ft.

U.F. = usage factor that accounts for the fraction of time that the equipment is in use over the specified period of time.

D = distance from the receiver to the piece of equipment.

Table I: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%) ¹	Maximum Noise Level (L _{max}) at 50 Feet ²
Auger Drill Rig	20	84
Backhoes	40	80
Compactor (ground)	20	80
Compressor	40	80
Cranes	16	85
Dozers	40	85
Dump Trucks	40	84
Excavators	40	85
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Graders	40	85
Impact Pile Drivers	20	95
Jackhammers	20	85
Paver	50	77
Pickup Truck	40	55
Pneumatic Tools	50	85
Pumps	50	77
Rock Drills	20	85
Rollers	20	85
Scrapers	40	85
Tractors	40	84
Trencher	50	80
Welder	40	73

Source: FHWA Roadway Construction Noise Model User's Guide, Table 1 (FHWA 2006).

Note: Noise levels reported in this table are rounded to the nearest whole number.

¹ Usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.

² Maximum noise levels were developed based on Specification 721.560 from the Central Artery/Tunnel program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.

FHWA = Federal Highway Administration

L_{max} = maximum instantaneous sound level

Each piece of construction equipment operates as an individual point source. Using the following equation, a composite noise level can be calculated when multiple sources of noise operate simultaneously:

$$Leq (composite) = 10 * \log_{10} \left(\sum_{1}^n 10^{\frac{Ln}{10}} \right)$$

Using the equations from the methodology above, the reference information in Table I, and the construction equipment list provided, LSA calculated the composite noise level of each construction phase. The project construction composite noise levels at a distance of 50 feet would range from 74 dBA Leq to 88 dBA Leq, with the highest noise levels occurring during the site preparation and paving phases.

Once composite noise levels are calculated, reference noise levels can then be adjusted for distance using the following equation:

$$Leq \text{ (at distance } X) = Leq \text{ (at 50 feet)} - 20 * \log_{10} \left(\frac{X}{50} \right)$$

In general, this equation shows that doubling the distance would decrease noise levels by 6 dBA, while halving the distance would increase noise levels by 6 dBA.

Table J shows the nearest sensitive uses to the project site, their distance from the center of construction activities, and composite noise levels expected during construction. These noise level projections do not consider intervening topography or barriers. Construction equipment calculations are provided in Appendix B.

Table J: Potential Construction Noise Impacts at Nearest Receptor

Receptor (Location)	Composite Noise Level (dBA L_{eq}) at 50 feet ¹	Distance (feet)	Composite Noise Level (dBA L_{eq})
Residences (North)	88	220	75
Mobile Home Park (East)		230	74
Solano County Health and Social Services building (South)		250	74
Residences (West)		300	72

Source: Compiled by LSA (2024).

¹ The composite construction noise level represents the site preparation and paving phases, which are expected to result in the greatest noise level as compared to other phases.

dBA = A-weighted decibels

L_{eq} = equivalent continuous sound level

While construction noise will vary, it is expected that composite noise levels during construction at the nearest off-site sensitive residential use to the north would reach an average noise level of 75 dBA L_{eq} during daytime hours. These predicted noise levels would only occur when all construction equipment is operating simultaneously and, therefore, are assumed to be rather conservative in nature. While construction-related short-term noise levels have the potential to be higher than existing ambient noise levels in the project area under existing conditions, the noise impacts would no longer occur once project construction is completed.

As stated above, the City's Noise Ordinance regulates noise impacts associated with construction activities. The proposed project would comply with the construction hours specified in the City's Noise Ordinance, which states that construction activities are restricted between the hours of seven o'clock p.m. and seven o'clock a.m. Monday through Saturday. No such construction, repair work or grading activities shall be allowed on Sundays or holidays.

As it relates to off-site uses, construction-related noise impacts would remain below the 80 dBA L_{eq} construction noise level criteria, as established by the FTA for residential land uses for the average daily condition as modeled from the center of the project site and therefore would be considered

less than significant. Best construction practices presented at the end of this analysis shall be implemented to minimize noise impacts to surrounding receptors.

SHORT-TERM CONSTRUCTION VIBRATION IMPACTS

This construction vibration impact analysis discusses the level of human annoyance using vibration levels in RMS (VdB) and assesses the potential for building damages using vibration levels in PPV (in/sec). This is because vibration levels calculated in RMS are best for characterizing human response to building vibration, while calculating vibration levels in PPV is best for characterizing the potential for damage.

Table K shows the PPV and VdB values at 25 ft from the construction vibration source. As shown in Table K, bulldozers and other heavy-tracked construction equipment (expected to be used for this project) generate approximately 0.089 PPV in/sec or 87 VdB of ground-borne vibration when measured at 25 ft, based on the FTA Manual. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project construction boundary (assuming the construction equipment would be used at or near the project setback line).

Table K: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L _v at 25 ft	
	PPV (in/sec)	L _v (VdB) ¹
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.170	93
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer²	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks²	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

¹ RMS vibration velocity in decibels (VdB) is 1 μin/sec.

² Equipment shown in **bold** is expected to be used on site.

μin/sec = microinches per second

ft = foot/feet

FTA = Federal Transit Administration

in/sec = inch/inches per second

L_v = velocity in decibels

PPV = peak particle velocity

RMS = root-mean-square

VdB = vibration velocity decibels

The formulae for vibration transmission are provided below, and Tables L and M provide a summary of off-site construction vibration levels.

$$L_{vDB}(D) = L_{vDB}(25 \text{ ft}) - 30 \log(D/25)$$

$$PPV_{\text{equip}} = PPV_{\text{ref}} \times (25/D)^{1.5}$$

As shown in Table F, above, the threshold at which vibration levels would result in annoyance would be 78 VdB for daytime residential uses. As shown in Table G, the FTA guidelines indicate that for a

non-engineered timber and masonry building, the construction vibration damage criterion is 0.2 in/sec in PPV.

Table L: Potential Construction Vibration Annoyance Impacts at Nearest Receptor

Receptor (Location)	Reference Vibration Level (VdB) at 25 ft ¹	Distance (ft) ²	Vibration Level (VdB)
Residences (North)	87	220	59
Mobile Home Park (East)		230	58
Solano County Health and Social Services building (South)		250	57
Residences (West)		300	55

Source: Compiled by LSA (2024).

¹ The reference vibration level is associated with a large bulldozer, which is expected to be representative of the heavy equipment used during construction.

² The reference distance is associated with the average condition, identified by the distance from the center of construction activities to surrounding uses.

ft = foot/feet

VdB = vibration velocity decibels

Table M: Potential Construction Vibration Damage Impacts at Nearest Receptor

Receptor (Location)	Reference Vibration Level (PPV) at 25 ft ¹	Distance (ft) ²	Vibration Level (PPV)
Residences (North)	0.089	5	0.995
Mobile Home Park (East)		5	0.995
Solano County Health and Social Services building (South)		55	0.027
Residences (West)		70	0.019

Source: Compiled by LSA (2024).

¹ The reference vibration level is associated with a large bulldozer, which is expected to be representative of the heavy equipment used during construction.

² The reference distance is associated with the peak condition, identified by the distance from the perimeter of construction activities to surrounding structures.

ft = foot/feet

PPV = peak particle velocity

Based on the information provided in Table L, vibration levels are expected to approach 59 VdB at the closest residential uses located immediately north of the project site, which is below the 78 VdB threshold for annoyance.

Based on the information provided in Table M, vibration levels are expected to approach 0.995 PPV in/sec at the nearest surrounding structures and would exceed the 0.2 PPV in/sec damage threshold considered safe for non-engineered timber and masonry buildings, which would result in a potentially significant impact. Vibration levels at all other buildings would be lower. Therefore, construction would not result in any vibration damage, and impacts would be less than significant with the incorporation of MM-NOI-1, as detailed below.

- MM-NOI-1** Construction Vibration Damage. Due to the close proximity to surrounding structures, the City of Vacaville (City) Director of Community Development, or designee, shall verify prior to issuance of demolition or grading permits, that the approved plans require that the construction contractor shall implement the following mitigation measures during project construction activities to ensure that damage does not occur at surrounding structures:
- A 15-foot buffer between existing structures and the Project site area shall be clearly delineated with stakes, fencing or other conspicuous boundary markings, to outline the area in which the use of heavy equipment shall be avoided.
 - The use of heavy construction shall be avoided within 15 feet of existing surrounding structures.
 - However, if the use of heavy equipment is required within 15 feet of surrounding structures, the following measures should be employed:
 - Identify structures that are located within 15 feet (ft) of heavy construction activities and that have the potential to be affected by ground-borne vibration. This task shall be conducted by a qualified structural engineer as approved by the City's Director of Community Development, or designee.
 - Develop a vibration monitoring and construction contingency plan for approval by the Director of Community Development, or designee, to identify structures where monitoring would be conducted; set up a vibration monitoring schedule; define structure-specific vibration limits; and address the need to conduct photo, elevation, and crack surveys to document before and after construction conditions. Construction contingencies would be identified for when vibration levels approached the limits.
 - At a minimum, monitor vibration during initial demolition activities. Monitoring results may indicate the need for more or less intensive measurements.
 - When vibration levels approach limits, suspend construction and implement contingencies as identified in the approved vibration monitoring and construction contingency plan to either lower vibration levels or secure the affected structures.

LONG-TERM OFF-SITE TRAFFIC NOISE IMPACTS

As a result of the implementation of the proposed project, off-site traffic volumes on surrounding roadways have the potential to increase. The proposed project trips generated were obtained from

the *Transportation Memorandum for the Brown Street Master Site Plan Project* (LSA 2024). The proposed project is forecasted to generate 193 daily trips. The existing (2012) average daily trips on Brown Street from Monte Vista Avenue to Browns Valley Parkway is approximately 4,700 (Vacaville General Plan and ECAS EIR, 2021). While the current traffic volumes on the adjacent street segment are likely higher, using the 2012 volumes would be considered conservative. The following equation was used to determine the potential impacts of the project:

$$\text{Change in CNEL} = 10 \log_{10} [V_{e+p} / V_{\text{existing}}]$$

where: V_{existing} = existing daily volumes
 V_{e+p} = existing daily volumes plus project
 Change in CNEL = increase in noise level due to the project

The results of the calculations show that an increase of approximately 0.2 dBA CNEL is expected along Brown Street. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment; therefore, the traffic noise increase in the vicinity of the project site resulting from the proposed project would be less than significant. No mitigation is required.

STATIONARY OPERATIONAL NOISE IMPACTS TO OFF-SITE RECEIVERS

Implementation of the proposed project could result in the shifting of noise levels in the vicinity of the project site associated with the following adjusted facilities:

- Playfield
- Walking and Jogging Path
- Multipurpose Sports Court
- Picnic Shelters
- Children's Play Areas
- Splash Pad
- Stage
- Recreation Center

Typical activities at the facilities mentioned above are not expected to generate excessive noise levels and would only occur during daytime hours. Predicted noise levels at the nearest noise-sensitive land uses would be largely masked by ambient traffic noise levels and would not be anticipated to result in a significant increase in ambient noise levels that would exceed the City's noise standards. The stage would be approximately 200 feet from the closest sensitive receptor. To achieve compliance with the City's threshold of 50 dBA at nearby sensitive receptors, noise levels at the stage should not exceed 62 dBA at 50 feet.

Additionally, the proposed recreation center is expected to include heating, ventilation, and air conditioning equipment. It is expected that the equipment installed would comply with the City's noise standards presented in Table D.

LONG-TERM TRAFFIC-RELATED VIBRATION IMPACTS

The proposed project would not generate vibration levels related to on-site operations. In addition, vibration levels generated from project-related traffic on the adjacent roadways are unusual for on-road vehicles because the rubber tires and suspension systems of on-road vehicles provide vibration isolation. Based on a reference vibration level of 0.076 in/sec PPV, structures greater than 20 ft from the roadways that contain project trips would experience vibration levels below the most conservative standard of 0.12 in/sec PPV; therefore, vibration levels generated from project-related traffic on the adjacent roadways would be less than significant, and no mitigation measures are required.

LAND USE COMPATIBILITY

The dominant source of noise in the project vicinity is traffic noise from roadways in the vicinity of the project.

EXTERIOR NOISE ASSESSMENT

To assess exterior noise levels at the proposed uses at the project site, as shown in Table H, LSA gathered long-term noise level measurements. The daily noise levels show that noise levels at the project site approach 67 dBA CNEL closest to Brown Street. An exterior noise level of 70 dBA CNEL or less is acceptable, as specified above. Because exterior noise levels at the project site are considered acceptable, no exterior noise mitigation is required.

REFERENCES

City of Vacaville. 2015. *Vacaville General Plan Noise Element*. August 11.

_____. 2021. *Vacaville General Plan and ECAS Draft EIR*. September 28.

_____. 2023. *Vacaville Municipal Code*. November 14.

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Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual*. Office of Planning and Environment. Report No. 0123. September.

LSA Associates, Inc. 2024. *Transportation Memorandum for the Brown Street Master Site Plan Project*. February 15.

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APPENDIX A

NOISE MONITORING DATA

Noise Measurement Survey – 24 HR

Project Number: COV2101

Project Name: Brown St Master Plan

Test Personnel: Jordan Roberts

Equipment: Larson Davis Spark 706RC

Site Number: LT-1 Dates: 6/22/21 – 6/23/21 Time: From 10:30 AM To 11:00 AM

Site Location: Southwest corner of site, 32 feet from the centerline of Brown St.

Primary Noise Sources: Brown St, Monte Rio Ave, I-80, aircraft overflights, wildlife

Location Photo:



Noise Measurement Survey – 24 HR

Project Number: COV2101
Project Name: Brown St Master Plan

Test Personnel: Jordan Roberts
Equipment: Larson Davis Spark 706RC

Site Number: LT-2 Dates: 6/22/21 – 6/23/21 Time: From 10:50 AM To 11:00 AM

Site Location: Northeast corner of site, approximately 400 ft from Brown St.

Primary Noise Sources: Aircraft overflights, I-80, wildlife, Brown St, Monte Rio Ave.

Location Photo:



APPENDIX B

CONSTRUCTION NOISE CALCULATIONS

Construction Calculations

Phase: Site Preparation

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Dozer	3	82	40	50	0.5	82	83
Tractor	4	84	40	50	0.5	84	86
Combined at 50 feet						86	88
Combined at Receptor 220 feet						73	75
Combined at Receptor 230 feet						73	74
Combined at Receptor 250 feet						72	74
Combined at Receptor 300 feet						71	72

Phase: Grading

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Excavator	1	81	40	50	0.5	81	77
Grader	1	85	40	50	0.5	85	81
Dozer	1	82	40	50	0.5	82	78
Tractor	3	84	40	50	0.5	84	85
Combined at 50 feet						89	87
Combined at Receptor 220 feet						76	74

Phase: Building Construction

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Crane	1	81	16	50	0.5	81	73
Man Lift	3	75	20	50	0.5	75	73
Generator	1	81	50	50	0.5	81	78
Tractor	3	84	40	50	0.5	84	85
Welder / Torch	1	74	40	50	0.5	74	70
Combined at 50 feet						87	86
Combined at Receptor 220 feet						75	73

Phase: Paving

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Tractor	1	84	40	50	0.5	84	80
Drum Mixer	2	80	50	50	0.5	80	80
Paver	1	77	50	50	0.5	77	74
All Other Equipment > 5 HP	2	85	50	50	0.5	85	85
Roller	2	80	20	50	0.5	80	76
Combined at 50 feet						89	88
Combined at Receptor 220 feet						76	75
Combined at Receptor 230 feet						76	74
Combined at Receptor 250 feet						75	74
Combined at Receptor 300 feet						74	72

Phase: Architectural Coating

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor ¹	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA)	
						Lmax	Leq
Compressor (air)	1	78	40	50	0.5	78	74
Combined at 50 feet						78	74
Combined at Receptor 220 feet						65	61

Sources: RCNM

¹ - Percentage of time that a piece of equipment is operating at full power.

dBA – A-weighted Decibels

Lmax- Maximum Level

Leq- Equivalent Level



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APPENDIX D

TRAFFIC MEMORANDUM

MEMORANDUM

DATE: February 15, 2024

To: Gwen Owens, City of Vacaville, Deputy Director of Public Works/Traffic Engineer

FROM: Dean Arizabal, LSA, Principal Transportation Planner

SUBJECT: Transportation Memorandum for the Brown Street Master Site Plan Project (LSA Project No. COV2101)

This transportation memorandum describes and documents potential transportation impacts associated with the implementation of the proposed Brown Street Master Site Plan Project (project). This technical information is provided for project review under the California Environmental Quality Act (CEQA).

PROJECT DESCRIPTION

The City of Vacaville (City) is developing a Master Site Plan with proposed improvements on a 3.44 acre site on the east side of Brown Street north of the Solano County William J. Carroll Government Center at 1119 East Monte Vista Avenue. Figure 1 (all figures are provided in Attachment A) depicts the project location.

The project will be constructed in two phases. Phase 1 includes construction of a 2.63 acre neighborhood park, a 2,500 square foot (sf) recreation center building, and associated site improvements. The neighborhood park will include amenities such as a playfield, basketball court, stage, walking trail, playground, tot lot, and picnic area with seating, shade shelter, and grills. Phase 2 includes a 10,000 sf Vacaville Housing and Community Services Department Office Building (VHCSDOB). Figure 2 illustrates the conceptual site plan.

Two existing driveways on East Monte Vista Drive (an existing right in/right out driveway and a full access driveway) will provide shared access for the existing William J. Carroll Government Center and the project.

TRANSPORTATION ANALYSIS

This section includes an analysis of the project's impacts to the transportation system based on the significance thresholds in Appendix G of the *State CEQA Guidelines* and provides a thorough justification for the conclusions provided herein.

Regulatory Setting

The following is a summary of State, regional, and local regulations that apply to transportation and circulation within the project study area.

State

Senate Bill 743. On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 into law and codified a process that revises the approach to determining transportation impacts and mitigation measures under CEQA. SB 743 directed the Governor’s Office of Planning and Research (OPR) to administer new CEQA guidance for jurisdictions by replacing the focus on automobile vehicle delay and level of service (LOS) or other similar measures of vehicular capacity or traffic congestion in the transportation impact analysis with vehicle miles traveled (VMT). This change shifts the focus of the transportation impact analysis from measuring impacts to drivers, such as the amount of delay and LOS at an intersection, to measuring the impact of driving on the local, regional, and statewide circulation system and the environment. This shift in focus is expected to better align the transportation impact analysis with the statewide goals related to reducing greenhouse gas emissions, encouraging infill development, and promoting public health through active transportation. As a result of SB 743, the California Office of Administrative Law cleared the revised *State CEQA Guidelines* on December 28, 2018, with a statewide implementation date of July 1, 2020. The OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR Technical Advisory)¹ provides a resource for agencies to use at their discretion.

Regional

Solano Transportation Authority. The Solano Transportation Authority (STA) is an association of city and county governments to address regional transportation issues. Its members include seven cities (Benicia, Dixon, Fairfield, Rio Vista, Suisun City, Vacaville, and Vallejo) and the County of Solano. As State designated Congestion Management Agency, the STA is responsible for county wide transportation planning, programming transportation funds, managing and providing transportation programs and services, delivering transportation projects, and setting transportation priorities.

Local

City of Vacaville. The project is in Vacaville. As such, the Transportation Element of the *City of Vacaville General Plan*² and the provisions of City Municipal Code Section 14.13 *Traffic Impact Mitigation*³ are the guidance documents for the citywide transportation system. These guidelines are intended to ensure that the traffic impacts of a development proposal on the existing and/or planned circulation system are adequately addressed. Based on prior coordination with City staff, the proposed project does not require a Traffic Impact Analysis (TIA).

¹ Governor’s Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December. p. 12.

² City of Vacaville. 2020. Transportation Element. *City of Vacaville General Plan*. January. Website: <https://www.ci.vacaville.ca.us/home/showpublisheddocument/14102/637045896849400000> (accessed July 2021).

³ City of Vacaville. 2021. *City of Vacaville Municipal Code*. January. Website: <https://www.codepublishing.com/CA/Vacaville/#!/Vacaville14/Vacaville1413.html#14.13> (accessed July 2021).

Environmental Setting

Existing Circulation System

Key roadways in the project vicinity are as follows:

- **Brown Street** is a two lane, north south roadway along the project frontage (one lane in each direction). Brown Street is classified as a 2 Lane Collector in the Transportation Element of the *City of Vacaville General Plan*.¹ The posted speed limit is 25 miles per hour (mph). Sidewalks are provided on both sides of the street. On street parking is permitted on both sides of the street. Bus stops are located on each side of the street north of East Monte Vista Drive.
- **East Monte Vista Drive** is a four lane, east west roadway (two lanes in each direction) south of the project site. East Monte Vista Drive is classified as a Major Highway in the Transportation Element of the *City of Vacaville General Plan*. The posted speed limit is 30 mph. Sidewalks are provided on both sides of the street. On street parking is not permitted. Bus stops are located on each side of the street east of Brown Street.

Impact Analysis

- a. *Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*

Less Than Significant Impact. To assess the impact of the project on the surrounding circulation system, vehicle trips were generated for typical operations of the project.

Trip generation rates from the San Diego Association of Governments were applied to the proposed neighborhood park. Trip generation rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition,² which is a nationally recognized source for estimating site specific trip generation, were used for the proposed recreation community center (ITE Land Use 495 [Recreational Community Center]) and the proposed VHCSDOB (ITE Land Use 710 [General Office Building]). Table A (provided in Attachment B) presents the trip generation for the project.

As shown on Table A, during Phase 1, the project has the potential to generate 85 daily trips, including 7 trips (4 inbound and 3 outbound) in the a.m. peak hour and 8 trips (4 inbound and 4 outbound) in the p.m. peak hour. During Phase 2, the project has the potential to generate 108 daily trips, including 15 trips (13 inbound and 2 outbound) in the a.m. peak hour and 15 trips (2 inbound and 13 outbound) in the p.m. peak hour. The total project is forecast to generate 193 daily trips, including 22 trips (17 inbound and 5 outbound) in the a.m. peak hour and 23 trips (6 inbound and 17 outbound) in the p.m. peak hour.

The project trip generation does not take into account a reduction for the proximity to transit for the proposed 2,500 sf recreation center building and 10,000 sf VHCSDOB. In addition, the recreation

¹ City of Vacaville. 2020. Transportation Element. *City of Vacaville General Plan*. January. Website: <https://www.ci.vacaville.ca.us/home/showpublisheddocument/14102/637045896849400000> (accessed July 2021).

² Institute of Transportation Engineers. 2021. *Trip Generation Manual*. 11th edition.

center building would be a locally serving facility. Given the proximity of the project to housing, the recreation center building is expected to generate significantly more pedestrian trips than vehicular trips. Furthermore, ITE's Recreational Community Center trip generation rates are based on centers starting at 50,000 sf that provide services such as swimming pools, whirlpools, saunas, tennis courts, volleyball courts, daycare, etc. These services are significantly more than can be offered in a 2,500 sf facility. Therefore, the 193 daily trips are a conservative, worst case estimate of the total number of vehicle trips for the project.

As previously discussed with City staff, a TIA is not required based on the low trip generation of the project (a maximum of 23 peak hour trips). As such, the project is not anticipated to result in any LOS or operational deficiencies to the surrounding circulation system.

The project would not make any changes to the public right of way in the project vicinity or generate a substantial number of daily or peak hour vehicle trips to warrant modifications to any transportation facilities (e.g., vehicular, transit, bicycle, or pedestrian). The project would not preclude alternative modes of transportation or facilities (e.g., transit, bicycle, or pedestrian). Therefore, the project would not conflict with the Transportation Element of the *City of Vacaville General Plan*. No mitigation is required.

b. Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b)?

Less Than Significant Impact. *State CEQA Guidelines* Section 15064.3, subdivision (b) states that transportation impacts for land use projects are to be measured by evaluating the project's VMT or the amount and distance of automobile travel attributable to the project, as outlined in the following:

Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact.

The OPR Technical Advisory and the *Interim SB 743 Implementation Guidelines for the City of Vacaville*¹ both provide guidance for screening land use projects from a detailed VMT analysis and the presumption of a less than significant transportation impact, such as project size, locally serving retail use, and project located in a low VMT area.

The *Interim SB 743 Implementation Guidelines for the City of Vacaville* recommend that projects that generate 110 trips per day or fewer may be assumed to cause a less than significant transportation impact. In addition, locally serving retail uses (less than 50,000 sf) are screened from a VMT analysis.

The project includes 2.63 acre neighborhood park, a 2,500 sf recreation center building, and a 10,000 sf VHCSDOB (office use). As shown in Table A, the neighborhood park and recreation center building are locally serving uses that would generate fewer than 110 daily trips. The neighborhood

¹ Fehr & Peers. 2021. *Interim SB 743 Implementation Guidelines for the City of Vacaville*. January.

park and recreation center building would support and benefit the surrounding residences and community. It is expected that most trips to the neighborhood park and recreation center building would be pedestrian trips rather than vehicular trips and originate from close to the project site. In addition, the ITE's Recreational Community Center trip generation rates may overestimate the project trip generation because these rates were developed from much larger facilities (starting at 50,000 sf) and include much more intense uses (e.g., swimming pools, whirlpools, saunas, tennis courts, volleyball courts, daycare, etc.) than currently proposed. The VHCSDOB would also generate fewer than 110 daily trips. Furthermore, the project trip generation does not take into account a reduction for the proximity to transit. Because the project meets the City's VMT screening criteria, it is not subject to a VMT analysis and is presumed to have a less than significant transportation impact.

As such, the project would not conflict with or be inconsistent with *State CEQA Guidelines* Section 15064.3(b). Potential impacts would be less than significant, and no mitigation is required.

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact. Access to the project is provided by two existing driveways on East Monte Vista Drive (an existing right in/right out driveway and a full access driveway). Access would not change as part of the proposed project. As such, the project would not substantially increase hazards for vehicles due to a geometric design feature or incompatible uses, and impacts would be less than significant. No mitigation is required.

d. Would the project result in inadequate emergency access?

Less Than Significant Impact. Site access would not change as part of the proposed project and would continue to be provided from a right in/right out driveway and a full access driveway on East Monte Vista Drive. Because the project would not modify the existing configuration of the driveway along East Monte Vista Drive, it would not affect emergency access to the site. Therefore, impacts associated with emergency access would be less than significant. No mitigation is required.

Attachments: A: Figures 1 and 2
B: Table A

ATTACHMENT A

FIGURES 1 AND 2

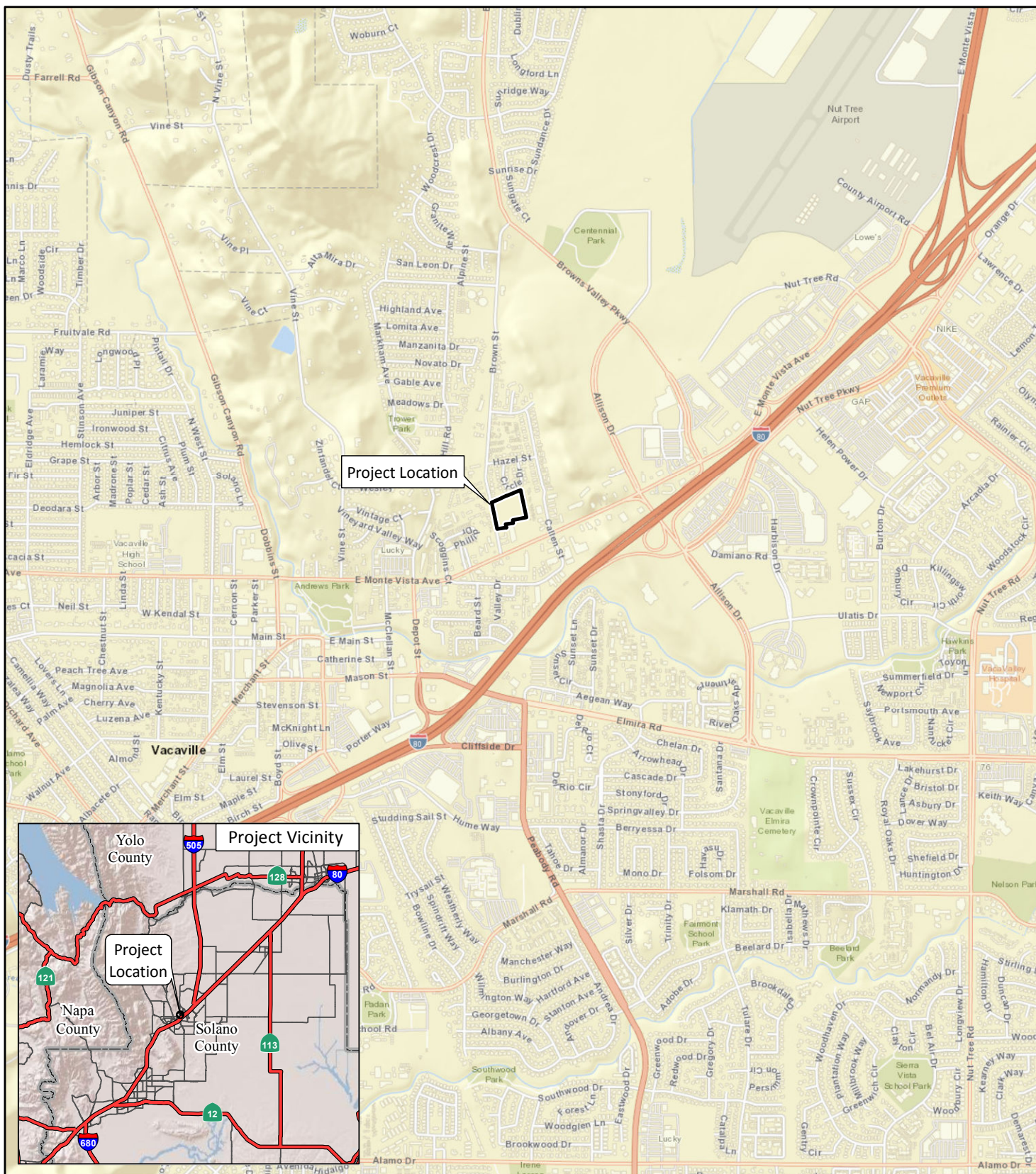
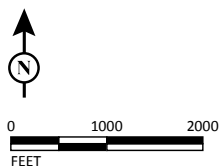


FIGURE 1

LSA

LEGEND

Project Location



SOURCE: ESRI World Street Map (03/20).

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Brown Street Park Master Plan Project
Project Location and Vicinity



LSA

LEGEND

 Site Boundary

E 2



0 50 100
FEET

SOURCE: Basemap - Google Aerial Imagery (4/2022); Design - City of Vacaville (1/2024)

I:\COV2101-ROS\GIS\MXD\Workfiles\bio_workfile_light.mxd (2/13/2024)

Brown Street Park Master Plan Project
Project Site Plan

ATTACHMENT B

TABLE A

Table A: Project Trip Generation

Land Use	Size	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Trip Rates									
Neighborhood Park ¹		tsf	5.00	0.33	0.32	0.65	0.23	0.22	0.45
Recreational Community Center ²		tsf	28.82	1.26	0.65	1.91	1.18	1.32	2.50
General Office ²		tsf	10.84	1.34	0.18	1.52	0.24	1.20	1.44
Project Trip Generation									
Phase 1									
Neighborhood Park	2.630	acres	13	1	1	2	1	1	2
Recreational Community Center	2.500	tsf	72	3	2	5	3	3	6
Total			85	4	3	7	4	4	8
Phase 2									
General Office (VHCSDOB)	10.000	tsf	108	13	2	15	2	13	15
Grand Total (Phases 1 and 2)			193	17	5	22	6	17	23

¹ Trip rates referenced from the San Diego Association of Governments (SANDAG) (Not So) *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002).

² Trip rates referenced from the Institute of Transportation Engineers (ITE) *Trip Generation* Manual, 11th Edition (2021).

Land Use Code 710 General Office Building

Land Use Code 495 Recreational Community Center

tsf = thousand square feet

VHCSDOB = Vacaville Housing and Community Services Department Office Building



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APPENDIX E

CULTURAL RESOURCES STUDY

CULTURAL RESOURCES STUDY

**BROWN STREET MASTER PLAN PROJECT
VACAVILLE, SOLANO COUNTY, CALIFORNIA**



LSA

May 2024

CULTURAL RESOURCES STUDY

BROWN STREET MASTER PLAN PROJECT VACAVILLE, SOLANO COUNTY, CALIFORNIA

Submitted to:

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LSA Project No. COV2101



May 2024

EXECUTIVE SUMMARY

LSA conducted a cultural resources study for the proposed Brown Street Master Plan Project (project) in Vacaville, Solano County, California. Because the project seeks to obtain funding from the U.S. Department of Housing and Urban Development (HUD), the HUD is required to address requirements of Section 106 of the National Historic Preservation Act for this undertaking, as described in the implementing regulations at 36 Code of Federal Regulations (CFR) Part 800. Section 106 requires that federal agencies “take into account” the effect of their undertakings on historic properties. The City of Vacaville (City) is considered the Responsible Entity per 24 CFR 58 and therefore assumes responsibility for Section 106 compliance.

The project is also subject to the requirements of the California Environmental Quality Act (CEQA). CEQA applies to all discretionary projects undertaken or subject to approval by the State’s public agencies (CCR Title 14[3] §15002[i]). CEQA requires that historical resources and unique archaeological resources be taken into consideration during the CEQA planning process (14 CCR §15064.5; Public Resource Code [PRC] §21083.2). The City is the lead review agency for this project under CEQA.

The study consisted of background research (involving a records search at the Northwest Information Center, an online search of State cultural inventories, a review of historical maps and aerial photographs, and an examination of published surficial geology and soils information), a search of the Native American Heritage Commission’s Sacred Lands File and consultation outreach with the local historical society, and an archaeological field survey. These tasks were completed to identify cultural resources in the Area of Potential Effects (APE) that may qualify as historic properties as defined in 36 CFR 800.16(I)(1).

The study identified no cultural resources within the APE. However, there is a high probability of buried pre-contact archaeological resources along the western edge of the APE, as well as a high probability of historic-period resources in the western half of the APE. The high pre-contact sensitivity may be offset, to some extent, by past ground-disturbing activities associated with the historic-period development, but there remains the potential for intact archaeological deposits to be present. The remainder of the APE is estimated to have low to moderate sensitivity for buried pre-contact archaeological resources, and low sensitivity for historic-period archaeological resources. Given the subsurface archaeological sensitivity of the APE, LSA recommends full-time archaeological monitoring of all construction-related ground disturbing activities (including, but not limited to grading, foundation excavations, and storm drain and utility trenching). Monitoring may be scaled back in the eastern (lower sensitivity) portion of the APE at the discretion of the qualified archaeologist in the event of protracted negative results.

LSA Archaeologist Kendra Kolar, M.A., prepared this study. Ms. Kolar meets the Secretary of the Interior’s *Professional Qualifications Standards* for Archaeology (36 CFR Part 61) and is a Registered Professional Archaeologist. She has over 14 years of cultural resources management experience in California and the Pacific Northwest. Ms. Kolar holds a B.A. in Anthropology from the University of California, Berkeley, and an M.A. in Applied Anthropology (Archaeology, Cultural Resource

Management) with a secondary emphasis in Geomorphology/Geology from Oregon State University, Corvallis.

LSA Archaeologist Christopher Morgan, M.A. conducted the pedestrian field survey. Mr. Morgan meets the Secretary of the Interior's *Professional Qualifications Standards* for Archaeology (36 CFR Part 61) and is a Registered Professional Archaeologist. He has over 13 years of experience conducting archaeological surveys, mitigation of culturally sensitive sites, and performing construction and compliance monitoring. One of Mr. Morgan's specialties is the identification of bone recovered from an archaeological context. He has assisted in forensic casework, conducted skeletal analysis for human rights work with the Foundation of Forensic Anthropology of Guatemala (Fundacion Antropologia Forense de Guatemala), conducted zooarchaeological analyses for both historic and prehistoric sites, and continues to assist with bioarchaeological analysis of burials from a Formative Period population in Oaxaca, Mexico, under the auspices of the National Institute of Anthropology and History in Mexico.

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Figure 2: Project Area of Potential Effects

Figure 3: Conceptual Site Plan

Figure 4: Subsurface Archaeological Sensitivity

Appendix B: NAHC Sacred Lands File Search Results and Native American Consultation Documentation

Appendix C: Field Survey Photographs

1.0 INTRODUCTION

The City of Vacaville (City) proposes to develop a new neighborhood park, community center, and Vacaville Housing and Community Services Department (VHCSD) office building at 131 Brown Street in the City of Vacaville, Solano County (see Appendix A, Figures 1 and 2).

The project qualifies as an “undertaking” as defined in 36 Code of Federal Regulations (CFR) Part 800.16(y) and has the potential to affect historic properties (36 CFR Part 800.3(a)). Therefore, the City (on behalf of the U.S. Department of Housing and Urban Development [HUD]) must address Section 106 of the National Historic Preservation Act by taking into account the effect of the undertaking on any district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP). The project is also subject to the requirements of the California Environmental Quality Act (CEQA), which requires that historical resources and unique archaeological resources be taken into consideration during the CEQA planning process (14 California Code of Regulations [CCR] §15064.5; Public Resource Code [PRC] §21083.2). The City is the lead agency for review of the proposed project under CEQA.

This study consisted of background research to gather information about previously identified cultural resources—and the potential for such resources—in the Area of Potential Effects (APE), and a pedestrian field survey to identify cultural resources in the APE. Pursuant to 36 CFR Part 800.2(c) (2), LSA requested a search of the Sacred Lands File for Native American cultural resources that may be impacted by the proposed project.

1.1 PROPOSED PROJECT

Proposed project elements are discussed below and shown in the conceptual site plan (Appendix A, Figure 3).

1.1.1 Neighborhood Park and Community Center

The proposed 2.63-acre Neighborhood Park would generally be located on the northern half of the project site. An approximately 21,000-square-foot playfield would be located in the northwestern area of the park. The playfield would be an irrigated, soil-based native grass field that would be sloped to the north to a planned bioswale. An additional berm would be provided west of the field between it and Brown Street. Adjacent to the playfield would be an approximately 5,422-square-foot outdoor multipurpose court.

A tot lot, kids’ playground (each of which would be approximately 800 square feet in size), and two shade structures (each of which would be approximately 500 square feet in size) would be located in the northeastern portion of the park, close to the parking area. Both the tot lot and kids’ playground would include play equipment for multiple age groups. An approximately 600-square-foot stage, seating area, public art installation, and interactive water feature would be located between the Recreation Center and Multipurpose Sports Court on the southwestern portion of the park.

1.1.2 Recreation Center

The one-story Recreation Center building, which would be 2,500 square feet in size and under 30 feet in height, would be in the center of the project site northeast of the playfield. Approximately 2,250 square feet (75 percent) of the Community Center would be dedicated for indoor recreational use. An 800-square-foot outdoor patio would also be provided adjacent to the Community Center portion of the project.

1.1.3 Vacaville Housing and Community Services Department Office Building

The Vacaville Housing and Community Services Department (VHCD) office building would consist of an approximately 10,000-square-foot, one-story building that would be a maximum of approximately 40 feet in height located on the east end of the project site adjacent to the proposed parking lot. An approximately 5,000-square-foot portion of the building would include new offices for the VHCD with the remaining 5,000-square-foot portion of the building including office and classroom/meeting space to be shared with VHCD and community organizations that serve low- to moderate-income Vacaville households. The VHCD office building would be designed to be zero net emissions.

1.1.4 Landscaping

Existing vegetation includes scattered trees consisting of mainly valley oaks (*Quercus lobata*). As part of the proposed project, a total of 9 trees would be removed to accommodate planned amenities, associated improvements, and the parking lot. However, the proposed project would include the installation of new landscaping, including 22 trees comprising of valley oaks, blue oaks, cottonwoods, California sycamores, and black walnuts. Additionally, shrubs, grasses, and groundcovers would be planted throughout the park. Landscaping would consist of native or drought-tolerant species for water conservation.

1.1.5 Pedestrian Trail

A paved pedestrian trail would be provided around the perimeter of the park, totaling approximately 19,800 square feet.

1.1.6 Access, Circulation, and Parking

Vehicular access to the project would be provided at East Monte Vista Avenue, via the existing surface parking lot for the current Solano County Health and Social Services office.

An approximately 28,891-square-foot, 48-space parking lot would be provided along the eastern border of the APE. The parking lot would be accessed via two driveways from the existing parking lot for the Solano County Health and Social Services building, which is located immediately south of the APE. The parking lot would include 2 Americans with Disabilities Act (of 1990) (ADA) accessible spaces, 2 motorcycle spaces, and 13 electric vehicle (EV) ready spaces. Directional lighting for the parking lot would conform to City standards.

Pedestrian and bicycle access would be provided via connections to the sidewalk along Brown Street and existing pedestrian paths adjacent to the Solano County Health and Social Services building. The

proposed project would replace the existing sidewalk with a 6-foot separated sidewalk along the Brown Street frontage for improved pedestrian access along Brown Street.

1.1.7 Utilities and Infrastructure

The APE is located in an urban area that is currently served by existing utilities, including water, sanitary sewer, storm drainage, electricity, gas, and telecommunications infrastructure. Existing and proposed utility connections are discussed in the following sections.

1.1.7.1 Water

Under existing conditions, records do not show any existing water services provided to the APE. Water service for the proposed project would be provided by the City of Vacaville. The proposed project would include the installation of up to seven new water service connections to the existing 24-inch water line on Brown Street with each service not exceeding 10 inches in diameter.

1.1.7.2 Wastewater

Under existing conditions, records do not show any existing sewer service provided at the APE. The proposed project would include the installation of up to three new wastewater service connections to the existing 12-inch wastewater line on Brown Street with each service not exceeding 8 inches in diameter.

1.1.7.3 Stormwater

Under existing conditions water sheet-flows from the east to west direction into the City of Vacaville's 18-inch stormwater main drainage located on Brown Street. The storm drain system in Brown Street would be extended to the APE with a pipe not to exceed 18 inches and an on-site collection system of 4 to 18 inches would be installed with a likely maximum depth of 5 feet.

Upon construction of the proposed project, approximately 1.25 acres (36 percent) of the project site would be covered by impervious surfaces and approximately 2.19 acres (63 percent) would be covered by pervious surfaces, consisting of landscaped areas with lawns, shrubs, and trees. The proposed project would include approximately 2,200 square feet of bioswales for stormwater treatment expected along the northern, southern, and eastern project site boundaries. The proposed project would include the construction of 4- to 18-inch storm drainpipes, with associated catch basins and/or manholes, throughout the project area that would connect to the bioswales and existing stormwater facilities on Brown Street.

1.1.7.4 Electricity, Gas, and Telecommunications

Electricity and gas service is provided to the APE by Pacific Gas & Electric. The proposed project would include connections to the existing electricity and natural gas lines that run adjacent to the APE on Brown Street. Telecommunications would be provided by AT&T and Comcast.

1.1.8 Construction

The proposed community center and VHCSD office building would be constructed on-slab on-grade foundations ranging from 4 to 6 inches thick with crushed rock or asphalt base ranging from 4 to 8

inches thick. Generally, only minor grading would be required for site preparation. In total, 3 acres of soil would be disturbed during site grading. It is anticipated that a total of 3,000 cubic yards would be cut, and 3,000 cubic yards would be filled. Construction excavations associated with the new buildings and new park facilities are not expected to exceed a depth of 4 feet below current ground surface except for excavations for the bio-retention facilities, which are anticipated to reach a maximum depth of 5 feet. Approximate depth of excavation for proposed joint utilities is expected to range from 3 to 5 feet below ground surface.

2.0 AREA OF POTENTIAL EFFECTS

2.1 AREA OF POTENTIAL EFFECTS

The Area of Potential Effects (APE) is situated at approximately 150 feet elevation in Section 16, Township 6 North, Range 1 West, Mount Diablo Baseline and Meridian, as depicted on the U.S. Geological Survey's *Elmira, Calif.*, 7.5-minute series topographic quadrangle (Appendix A, Figure 1).

The approximately 3.44-acre APE consists of nine parcels located at 131 Brown Street in the City of Vacaville, Solano County (Assessor's Parcel Numbers [APNs]: 0129-320-020, -150, -170, -180, -190, -200, -250, -260 and -270). The APE is surrounded by primarily residential, commercial, and public buildings (Appendix A, Figure 2). The horizontal APE encompasses the locations of the proposed neighborhood park, community center, and Vacaville Housing and Community Services Department office building, as well as associated site improvements. The vertical APE, based on the maximum anticipated depth of construction excavations, extends 5 feet below current ground surface.

2.2 ENVIRONMENT

The APE sits just east of the southern end of the English Hills, a low mountain range bordering the east side of Vaca Valley. Ulatis Creek, a tributary of the Sacramento River, is located approximately 0.3 mile directly south of the APE. Ulatis Creek flows generally east/southeast from the crest of the Vaca Mountains on the west side of Vaca Valley, across the valley and around the southern end of the English Hills, eventually emptying into Cache Slough (which connects to the Sacramento River). Prior to urbanization, the APE would have been situated in prairie dominated by native grasses (*Stipa* spp.) (Küchler 1977). Ulatis Creek would likely have been bordered by a thick riparian forest featuring oaks (*Quercus* spp.) and willows (*Salix* sp.), forming a vegetated corridor through the surrounding grassland floodplain.

2.2.1 Surficial Geology and Soils

The APE sits on Holocene-age alluvial fan deposits (Qhf) (Dawson 2009). Rincon clay loam and Corning gravelly loam soils have developed in the upper portions of these deposits across most of the APE (NRCS 2024). These deep soils develop on old alluvial fans or fan remnants, respectively. The typical profile for Rincon clay loam identifies parent material (C horizon) starting at 40 inches below surface; the Corning gravelly loam profile does not document a basal unaltered or weathered parent material, indicating the C horizon was deeper than the lower limit of the profile (i.e., deeper than 60 inches below surface). Brentwood clay loam is also present, comprising roughly only 2 percent of the APE soils, and is localized along the western boundary of the APE. This soil unit develops on alluvial fans; the typical profile identifies parent material starting 50 inches below surface.

3.0 CULTURAL CONTEXT

3.1 PRE-CONTACT^{1,2}

The Area of Potential Effects (APE) is located within the southern Sacramento Valley, near two of the more archaeologically studied regions in central California: the San Francisco Bay Area and the Sacramento-San Joaquin Delta. Many of the earliest and most influential studies in central California archaeology occurred in these neighboring regions.

The following discussion focuses on archaeological assemblages from Solano County and neighboring Contra Costa County to the south and provides a brief culture history for the area. The time periods discussed have been modified from those of Fredrickson (1974) in accordance with more recent findings by Meyer and Rosenthal (1997).

3.1.1 Lower Archaic (10,000 to 6,000 BP)

The oldest known archaeological component in this region of central California is from the Los Vaqueros Reservoir area in eastern Contra Costa County. Two sites at the reservoir (CCO-637 and -696) have produced artifact assemblages and human burials dated between 9,870 and 6,600 years ago (Meyer and Rosenthal 1997, 1998). These Lower Archaic cultural deposits were buried at depths between 2 and 4 meters below the surface in alluvial fan/floodplain sediments along Kellogg Creek.

The Lower Archaic assemblage at Los Vaqueros included handstones and milling slabs, cobble-core tools, and a wide-stemmed obsidian projectile point. At least three human burials date to this time period, one of which was buried under a stone cairn. Small but diverse floral and faunal assemblages indicate that a variety of animal and plant species were utilized. Acorns (*Quercus* sp.), wild cucumber (*Marah* sp.), and manzanita berries (*Arctostaphylos* sp.) were the dominant plant resources. Obsidian from both the North Coast Ranges and eastern Sierra Nevada was utilized. Overall, the Lower Archaic assemblage from Contra Costa County appears to have affinities with assemblages assigned to the Borax Lake Pattern in the North Coast Ranges and “Millingstone Horizon” assemblages in coastal central and southern California.

3.1.2 Initial Middle Archaic (6,000 to 4,500 BP)

With the exception of isolated human burials (Henn, Jackson, and Schlocker 1972), extensive early Middle Archaic deposits were not known in the Bay-Delta region until 1996 when Meyer and Rosenthal (1997, 1998) identified them during the Los Vaqueros Reservoir project. Site CCO-637, located in a small valley, included deeply buried components found in an alluvial fan adjacent to

¹ The term “pre-contact” as used here is synonymous with the term “prehistory,” meaning the time prior to Euro-American contact with indigenous tribes of California. The term is used to avoid pejorative implications that have previously been the subject of tribal concerns.

² This section adapted from: Wohlgemuth, Eric, Jeff Rosenthal, and Mary Maniery (2003) *Archaeological Survey for the Lower Lagoon Valley Project Vacaville, California*. Far Western Anthropological Research Group, Inc., Davis, California.

Kellogg Creek. The site deposit was contained in a buried soil and included a diverse assortment of habitation debris, residential and processing features, and several human burials.

Several characteristics of this important deposit at CCO-637, including exclusive use of the mortar and pestle, suggest that this assemblage may be affiliated with the Berkeley Pattern, previously placed no further back in time than the Terminal Middle Archaic or Early Period (Fredrickson 1974). Among the distinctive artifacts associated with this component was one of the oldest dated shell bead lots in Central California (4,160 BP) and a unique type of pestle apparently used with a wooden mortar (Meyer and Rosenthal 1997).

3.1.3 Terminal Middle Archaic (4,500 to 2,500 BP)

Several buried sites in Solano and Contra Costa Counties date to the Terminal Middle Archaic period including CC -637 and -696 at Los Vaqueros Reservoir (Meyer and Rosenthal 1997, 1998), CCO-308 in the San Ramon Valley (Fredrickson 1966), and SOL-315 (Wiberg 1992) and SOL-391 (Wohlgemuth and Rosenthal 1999) in Green Valley along with a surface site on a hillside overlooking the southern side of San Pablo Bay (CCO-474/H). Initial use of the shell mound sites along San Francisco Bay also appears to have begun during the Terminal Middle Archaic (Banks and Orlins 1985; Broughton 1997; Lightfoot 1997). The Terminal Middle Archaic is equivalent to the Early Period in Dating Scheme B of Bennyhoff and Hughes (1987), the earliest time period covered by this scheme which was developed from Olivella shell beads found in California and Great Basin archaeological sites.

All of the Terminal Middle Archaic sites in Solano and Contra Costa Counties have produced human remains and most contain intact burials. A variety of artifacts are associated with this time period, including side-notched and stemmed projectile points, rectangular abalone ornaments, shaped and unshaped mortars and pestles, and rectangular Olivella shell beads (Fredrickson 1966; Meyer and Rosenthal 1997). The vibrant Windmiller Culture is well established in the lower Sacramento Valley during this period, but no evidence of its distinctive mortuary pattern has been discovered in Solano County.

While obsidian from the North Coast Ranges and eastern Sierra was utilized in Solano County (Meyer and Rosenthal 1997; Waechter 1992; Wiberg 1996), obsidian from a source in northern Napa Valley was used almost exclusively to make the majority of tools and formed the bulk of the manufacturing residue at CA-SOL-69 and CA-SOL-315 in Green Valley (Wiberg 1992). Nut and berry crops (e.g., acorn, manzanita, and pine nut) appear to be the primary plant resources targeted during this time period. Along the Bay Shore, marine shellfish species were an important subsistence resource (Banks and Orlins 1985; Waechter 1992), as were marine fishes and mammals (Broughton 1997; Simons 1992). Interior sites include a similar assortment of faunal resources, although the focus was on freshwater fish and shellfish species and terrestrial mammals rather than marine species.

3.1.4 Upper Archaic (2,500 to 1,300 BP)

Upper Archaic deposits have been identified throughout the lowland valleys of the North Coast Ranges and along the shores of San Francisco and Suisun Bays. These sites are typically located near freshwater drainages, often in buried contexts (Banks and Orlins 1979, 1981, 1985; Cook and

Elsasser 1956; Fredrickson 1966, 1968; Hammel 1956; Heizer 1950; Holman and Clark 1982; Lightfoot 1997; Meyer and Rosenthal 1997). The Upper Archaic is equivalent to the Early/Middle Transition and the Middle Period in Dating Scheme B (Bennyhoff and Hughes 1987).

Upper Archaic sites are typically composed of well-developed midden deposits containing hundreds of human burials and residential features, reflecting long-term residential villages. The earliest Upper Archaic sites contain classic Berkeley Pattern assemblages, characterized by a well-developed bone tool and ornament industry, numerous saucer and saddle-shaped Olivella shell beads, abalone ornaments and pendants, and unshaped and well-shaped mortars and pestles. Projectile points are typically shouldered lanceolate forms, although side-notched and stemmed points also occur, along with large lanceolate-shaped bifaces. Burials are typically placed in a flexed position with strict orientation patterns identified at different sites (c.f., Fredrickson 1973). In Solano County, obsidian from the Napa Valley appears to have remained an important tool stone.

Subsistence remains indicate that acorns and other large nuts and seeds were an important part of the diet, with a growing emphasis on small-seeded resources (Meyer and Rosenthal 1997). Faunal assemblages continue to reflect either marine or terrestrial species, depending mostly on the location of the site (Broughton 1997; Fredrickson 1966, 1968; Meyer and Rosenthal 1997; Wiberg 1992), with marine shellfish occurring in appreciable amounts in interior valley sites (Fredrickson 1966, 1968).

3.1.5 Emergent Period (1,200 to 200 BP)

The distinctive cultural pattern of the Emergent Period, the Augustine Pattern, is marked by the appearance, for the first time, of small arrow-sized projectile points, beautifully trimmed show mortars, flanged pestles, flanged steatite pipes, and bird-bone tubes with chevron designs. The Emergent Period is equivalent to the Middle/Late Transition and the Late Period in the Dating Scheme B chronology (Bennyhoff and Hughes 1987).

Emergent Period deposits have been documented in most interior valleys and bayshore locations, as well as in upland contexts, where habitation and task-specific sites have been reported (Atchley 1994; Baker 1987; Banks and Orlins 1979; Bramlette 1989; Fredrickson 1966, 1968; Holson et al. 1993; Lillard, Heizer, and Fenenga 1939; Meyer and Rosenthal 1997; Wills 1994). Buried sites dating to the Emergent Period have been found in some of the interior valleys (Fredrickson 1966; Meyer and Rosenthal 1997; Wiberg 1996), although most of the recorded sites are located at the surface. Typically, these sites consist of well-developed midden deposits containing both cremated and intact human burials, and residential features, including house floors.

It was also during the Emergent Period that bedrock mortar milling stations were first established in the Bay Area, beginning around 1,300 years ago (Meyer and Rosenthal 1997). Portable mortars and pestles continued to be used, although smaller ones were preferred. Changes in the size of these tools may have been in response to a dramatic increase in the use of small-seeded plant resources (Meyer and Rosenthal 1997). Olivella and clam shell disc beads are frequently found with Emergent Period burials and in midden deposits. Bead manufacturing debris has been found, suggesting that at least some of these beads were made locally (Meyer and Rosenthal 1997; Wiberg 1996). Obsidian from the Napa Valley was used almost exclusively, arriving in the form of small, un-modified pebbles

or large flake blanks, later made into serrated arrow points (Meyer and Rosenthal 1997; Wiberg 1996).

Large mammals appear to have taken a more prominent role in the diet, as did small-seeded resources. Marine shellfish and marine fishes were moved inland in much larger quantities during the Emergent Period (Baker 1987; Fredrickson 1968; Meyer and Rosenthal 1997). Large villages composed of hundreds of people are thought to have been located in the Delta region while small hamlets composed of one or two extended families were located in many of the smaller valleys.

3.2 ETHNOGRAPHY³

Several ethnohistorical and ethnographic accounts provide descriptions of the native inhabitants of the southern Sacramento Valley (Kroeber 1925, 1932; Maloney 1943, 1944; McKern 1922, 1923; Powers 1877). When Europeans first entered central California, the area west of the Sacramento River and north of Suisun Bay was occupied by a series of linguistically and culturally related native groups. These groups had no common name, collective identity, or political unity, but did speak dialects of the same historically related language. Their linguistic and cultural similarities led Powers (1877) to call the groups “Patwin,” a native word meaning “people,” that several groups used in reference to themselves (Johnson 1978: 350). The Patwin are Southern Wintuan speakers, a language belonging to the Penutian language family, which also includes Miwok, Maidu, Costanoan, and Yokuts.

The Patwin were organized into tribelets consisting of a primary village and several smaller associated villages. Numerous village locations are reported for the Patwin (Johnson 1978: Figure 1). In the Sacramento Valley, villages were located along the Sacramento River and all major drainages that drain the eastern and southern slopes of the Coast Ranges, including Putah, Ulatis, and Suisun Creeks. As described by Kroeber (1925: 354),

The valley people evidently had their permanent villages on the river itself—that is, in the marsh belt—but appear to have left this during the dry half of the year to live on the adjacent plains, mostly by the side of drainages.

The APE is located within the traditional territory of the Ululato group of Patwin, whose principal village is thought to have been along Ulatis Creek where it extends through present-day downtown Vacaville (Johnson 1978).

Permanent Patwin villages was usually organized such that the chief’s house was at the center, and the dance house rested at either the northern or southern margins of the community. The sweat house, or sudatory, was either to the west or east of the dance house with its door facing the dance house. The menstrual hut lay as far away from the ceremonial dance house as possible, usually at

³ This section adapted from: Wohlgemuth, Eric, Jeff Rosenthal, and Mary Maniery (2003) *Archaeological Survey for the Lower Lagoon Valley Project Vacaville, California*. Far Western Anthropological Research Group, Inc., Davis, California, and Area West Environmental, Inc. (2011) *Final Environmental Impact Report, Alamo Creek and Ulatis Creek Detention Basins Project*. Section 4-5, Volume 2 of 2. Orangevale, California.

the opposite side of the village. Family dwellings were not arranged in any particular grouping, and any vacant spot within the village was considered suitable for house construction (McKern 1923).

Permanent houses were typically earthen covered, semi-subterranean structures with an elliptical (River Patwin, including the Ululato) or circular (Hill Patwin) form (Johnson 1978:357). Houses usually sheltered more than one household, each occupying their own side of the dwelling. Characteristically, Patwin houses were greater than 20 feet in diameter and had only one door, which faced either east or west. A fire pit was located at the center of the house between the two main support beams under a smoke hole left open in the earthen roof. Temporary shelters were often occupied seasonally when families were away from the permanent winter village. These simple constructions, primarily used as shelter from the summer sun and infrequent rains, were little more than a brush covered shed composed of four corner posts and a flat roof (McKern 1923).

The Patwin utilized a variety of animals including deer, pronghorn, elk, rabbit, and various species of fish and birds. Deer, ducks (*Aythya* spp.), geese (*Anserini*), quail, and mud hen were caught in various nets. Fish species including chub (*Scomber japonicus*), salmon (*Oncorhynchus* sp.), sturgeon (*Acipenser* sp.), hardhead (*Mylopharodon conocephalus*), trout (*Salmo* sp.), and steelhead (*Oncorhynchus mykiss*) were also taken with nets. Decoys were used to hunt ducks and deer. Deer head decoys were worn by a hunter so that he could approach or attract his prey, at which time the animal was speared or shot with an arrow. Other animals, including most raptors and carnivores, were hunted for their feathers or pelts, which were used in ceremonial regalia or for utilitarian purposes.

Salt was extracted from “salt grass” by burning the grass and then collecting the residue, which appeared as a blackish “cake.” Tobacco was collected from along the river and smoked in a long wooden pipe. The Sacramento Valley plain yielded numerous plant species which were collected for seeds, including sunflower (*Helianthus* sp.), clover (*Trifolium* sp.), and red maids (*Calandrinia ciliata*) (Johnson 1978:355). Acorns were a staple among the Patwin and were harvested from the Valley Oak, pulverized, leached in a sand basin, and baked into bread in a leaf-lined pit. Freshwater mussels (*Anodonta californiensis*) were collected from along the banks of major drainages, as were blackberries (*Rubus ursinus*), wild grapes (*Vitis californica*), and tule roots. Brodiaea bulbs were also collected seasonally and either baked or boiled.

On October 23, 1821, the Ululato were visited by an expedition of more than 70 men headed by Luis Arguello, Commandant of the Presidio of San Francisco. Arguello also visited several other Patwin villages on his way up the Sacramento Valley. The expedition intended to convert and missionize the interior Native American population, but these groups were already decimated due to missionization and disease following contact with Europeans (Beck and Haase 1974, Milliken 1995). This is illustrated in baptism records for Mission San Francisco de Asis (Mission Dolores). In 1821, 215 Ululato (probably comprising the majority of the remaining tribelet) were baptized at the mission. Just 67 Ululato were baptized over the following decade, the last in 1833 (Milliken 1995). When the missions were secularized beginning in 1834, surviving Ululato probably went to work for Mexican ranch owners in the Bay Area. Modern Patwin are mainly members of two federally recognized political entities: the Cortina Band of Wintun Indians and the Rumsey Indian Rancheria of Wintun.

3.3 HISTORY⁴

Historic-period settlement of the area surrounding Vacaville began in 1842 with the construction of Peña Adobe by Juan Felipe Peña. The adobe was the headquarters of the Los Puntos land grant, deeded to Peña and Juan Manuel Vaca in 1845 by Governor Pio Pico. In 1850, Vaca deeded nine square miles of land northeast of his home to William McDaniel with the stipulation that he lay out a town, to be named Vacaville, on a square mile block (Young 1965:17-21). By 1851, 580 people had settled in the county. The population of the region was sparse, but within a few years, the Vacaville area grew, not only in population, but in importance as an economic center of the county (Limbaugh and Payne 1978:35; Young 1965:17-21). The California Pacific Railroad (later part of the Southern Pacific Railroad), which ran from Vallejo to Sacramento, was constructed just southwest of Vacaville in 1868. A spur line extended into Vacaville, which aided the developing horticultural industry in the area. Livestock and wheat production were the principal economic products in the county until the early 1880s. In the late 1880s, wheat and cattle ranching declined, and focus shifted to orchard crops. By 1888, over half of the deciduous fruit produced in California came from Solano County. With substantial population growth in the Vaca and nearby Lagoon Valleys during the last part of the 19th century, there was an increase in wagon traffic on the rough roadways, creating a need for new and improved roads. In 1909, a new highway was constructed in Solano County generally following the alignment of the 19th century wagon route called Vacaville-Suisun Road. The Vacaville region continued to grow and ship fruit to all parts of the country into the early 20th century.

Following World War I, the orchard industry declined due to drought and unfavorable economic conditions brought on by the Great Depression. Beginning in the 1920s, established families, such as the Peñas and Buckinghams, began to subdivide and sell off their land. By the early 1950s, most of the orchards that once covered most of the Vaca and Lagoon Valleys were gone, and much of the region reverted to pastureland or was converted to commercial land incorporated into the City of Vacaville.

During World War II, the Vacaville region rebounded dramatically. Conveniently located along a major highway, with its proximity to the Bay Area and military installations, it provided a favorable community for war workers. To the south of Vacaville, Fairfield-Suisun Air Base (Travis Air Force Base) was established in 1942. The base became a major military airport and supply transport facility to the Pacific. By the end of World War II, the base was the largest aerial port on the west coast (Limbaugh and Payne 1978:275-276; Travis Air Force Base n.d.). The City continued to grow as more businesses were attracted to the area. Today, Vacaville claims distinction as the home of several large life-science companies, including Genentech, Alza, and Chiron, as well as a retail destination with a well-known eponymously named outlet mall (City of Vacaville 2022).

⁴ This section adapted from: JRP Historical Consulting Services (2004) *Historic Resources Evaluation Report: Lagoon Valley Project, Vacaville, Solano County, California*. JRP, Davis, California, and Area West Environmental, Inc. (2011) *Final Environmental Impact Report, Alamo Creek and Ulatis Creek Detention Basins Project*. Section 4-5, Volume 2 of 2. Orangevale, California.

4.0 LEGISLATIVE AND REGULATORY CONTEXT

4.1 NATIONAL HISTORIC PRESERVATION ACT

The National Historic Preservation Act (NHPA) of 1966 establishes the role and responsibilities of the federal government in historic preservation. Toward this end, the NHPA directs agencies (1) to identify and manage historic properties under their control; (2) to undertake actions that will advance the act's provisions, and avoid actions contrary to its purposes; (3) to consult with others while carrying out historic preservation activities; and (4) to consider the effects of their actions on historic properties.

4.1.1 Section 106

Section 106 of the NHPA requires federal agencies to (1) take into account the effects of their undertakings on historic properties; and (2) afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on potential effects. The regulations that implement Section 106 and outline the historic preservation review process are at 36 Code of Federal Regulations (CFR) Part 800.

Some degree of review under Section 106 must be conducted for all federal, federally assisted, federally licensed, or federally funded projects. If a project is subject to federal jurisdiction and the project is an undertaking as defined at 36 CFR Part 800.16(y) with the potential to cause effects on historic properties (36 CFR Part 800.3(a)), Section 106 of the NHPA must be addressed to take into account the effect of the undertaking on any district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP) (i.e., historic properties).

4.1.2 National Register of Historic Places

Authorized by Section 101 of the NHPA, the NRHP is the nation's official list of cultural resources worthy of preservation. NRHP-listed properties consist of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture. Properties listed in or eligible for listing in the NRHP are considered in land use planning and environmental review, and effects to such properties are primarily addressed under Section 106.

The criteria for determining a resource's NRHP eligibility are defined at 36 CFR Part 60.4 and are as follows:

- ... the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and
- A) That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B) That are associated with the lives of persons significant in our past; or

- C) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D) That have yielded, or may be likely to yield, information important in prehistory or history.

Under Criteria A, B, and C, the NRHP places an emphasis on a property appearing as it did during its period(s) of significance to convey its historical importance; under Criterion D, properties convey significance through the information they contain.

The period of significance for a property is “the length of time when a property was associated with important events, activities, persons, or attained the characteristics which qualify it for National Register Listing” (NPS 1997a:42). The period of significance begins with the date of the earliest important land use or activity that is reflected by historic characteristics tangible today. The period closes with the date when events having historical importance ended. The period of significance for an archaeological property is the “broad span of time about which the [property] is likely to provide information; it is often the period associated with a particular cultural group” (Ibid.). Archaeological properties may have more than one period of significance.

The National Register Bulletin *How to Apply the National Register Criteria for Evaluation* states that in order for a property to qualify for NRHP listing, it must meet at least one NRHP criterion by (1) being associated with an important historic context, *and* (2) retaining historic integrity of those features necessary to convey its significance (NPS 1997b). The historic context of a resource will define the theme(s), geographical limits, and period of significance by which to evaluate a resource’s significance (NPS 1997b:7).

Generally, cultural properties must be 50 years of age or more to be eligible for NRHP listing. According to the National Park Service (1997b:2), “properties that have achieved significance within the past 50 years shall not be considered eligible” unless such properties are “of exceptional importance.”

4.1.2.1 Historical Integrity

In addition to meeting one or more of the significance criteria, a cultural resource must retain its historical integrity to be considered eligible for NRHP listing. Historical integrity is defined as its authenticity or the resource’s ability to convey its significance. The evaluation of integrity must be grounded in an understanding of a resource’s physical features and its environment, and how these relate to its significance. “The retention of specific aspects of integrity is paramount for a property to convey its significance” (NPS 1997b:44). There are seven aspects of integrity to consider when evaluating a cultural resource: location, design, setting, materials, workmanship, feeling, and association (NPS 1997b:44-45).

- *Location* is the place where the historic property was constructed or the place where the historic event occurred. The actual location of a historic property, complemented by its setting, is particularly important in recapturing the sense of historic events and persons.
- *Design* is the combination of elements that create the form, plan, space, structure, and style of a property. Design includes such elements as organization of space, proportion, scale, technology, ornamentation, and materials.
- *Setting* is the physical environment of a historic property. Setting refers to the character of the place in which the property played its historical role. Physical features that constitute the setting of a historic property can be either natural or manmade, including topographic features, vegetation, paths or fences, or relationships between buildings and other features or open space.
- *Materials* are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
- *Workmanship* is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. It is the evidence of the artisan's labor and skill in constructing or altering a building, structure, object, or site.
- *Feeling* is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, taken together, convey the property's historic character.
- *Association* is the direct link between an important historic event or person and a historic property.

For archaeological resources, the term “integrity” is used to describe the level of preservation or quality of information contained within a district, site, or excavated assemblage. Integrity is relative to the specific significance which the resource conveys. Although it is possible to correlate the seven aspects of integrity with standard archaeological site characteristics, those aspects are often unclear for evaluating the ability of an archaeological resource to convey significance under Criterion D. Under Criterion D, the integrity of archaeological resources is judged according to the ability of the site to yield scientific and cultural information that can be used to address important research questions (Little et al. 2000:35-42).

4.1.2.2 Eligibility

Resources that have a significant association with an important historic context, meet the age guidelines, and possess integrity will generally be considered eligible for NRHP listing.

4.2 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA) applies to all discretionary projects undertaken or subject to approval by the state's public agencies (California Code of Regulations [CCR] Title 14(3) §15002(i)). CEQA states that it is the policy of the State of California to “take all action necessary to

provide the people of this state with... historic environmental qualities...and preserve for future generations examples of the major periods of California history” (Public Resources Code [PRC] §21001(b), (c)). Under the provisions of CEQA, “A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment” (CCR Title 14(3) §15064.5(b)).

CEQA §15064.5(a) defines a “historical resource” as a resource which meets one or more of the following criteria:

- Listed in, or eligible for listing in, the California Register of Historical Resources (CRHR);
- Listed in a local register of historical resources (as defined at PRC §5020.1(k));
- Identified as significant in a historical resource survey meeting the requirements defined at PRC §5024.1(g); or
- Determined to be a historical resource by a project's lead agency (CCR Title 14(3) §15064.5(a)).

A historical resource consists of “Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California...Generally, a resource shall be considered by the lead agency to be ‘historically significant’ if the resource meets the criteria for listing in the [CRHR]” (CCR Title 14(3) §15064.5(a)(3)).

4.2.1 California Register of Historical Resources

The California Register of Historical Resources (CRHR) is a guide to cultural resources that must be considered when a government agency undertakes a discretionary action subject to CEQA. The CRHR helps government agencies identify and evaluate California’s historical resources (California OHP 2001a:1), and indicates which properties are to be protected, to the extent prudent and feasible, from substantial adverse change (PRC §5024.1(a)). Any resource listed in, or eligible for listing in, the CRHR is to be taken into consideration during the CEQA process (California OHP 2001b:7).

The CRHR was modeled after the NRHP, and its significance and integrity criteria are parallel with those of the NRHP. A resource eligible for the NRHP is eligible for the CRHR. The NRHP criteria, however, have been modified for state use by the California Office of Historic Preservation to include a range of historical resources which better reflect the history of California (California OHP 2001c:69-70; 2006:1). There are three instances in which a resource not eligible for the NRHP may be eligible for the CRHR: moved resources; reconstructed resources; and resources achieving significance in the past 50 years (California OHP 2006):

- *Moved buildings, structures, or objects.* A moved building, structure, or object that is otherwise eligible may be listed in the CRHR if it was (1) moved to prevent its demolition at its former

location; and (2) if the new location is compatible with the original character and use of the historical resource.

- *Reconstructed buildings.* A building less than 50 years old may be listed in the CRHR if it embodies traditional building methods and techniques that play an important role in a community's historically rooted beliefs, customs, and practices (e.g., a Native American roundhouse).
- *Historical resources achieving significance within the past 50 years.* Resources less than 50 years old may be listed in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance.

4.2.1.1 Significance Criteria

A cultural resource is evaluated under four CRHR criteria to determine its historical significance. A resource must be significant in accordance with one or more of the following criteria:

1. Is associated with events that have made a significant contribution to the broad pattern of
2. California's history and cultural heritage;
3. Is associated with the lives of persons important in our past;
4. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
5. Has yielded, or may be likely to yield, information important in prehistory or history.

4.2.1.2 Age

In addition to meeting one or more of the above criteria, the CRHR requires that sufficient time must have passed to allow a "scholarly perspective on the events or individuals associated with the resource." Fifty years is used as a general estimate of the time needed to understand the historical importance of a resource (California Office of Historic Preservation 2006:3; CCR Title 14(11.5) §4852 (d)(2)). The State of California Office of Historic Preservation recommends documenting, and taking into consideration in the planning process, any cultural resource that is 45 years or older.

5.0 STUDY METHODS AND RESULTS

To prepare this study, LSA conducted records searches (including at the Northwest Information Center [NWIC] and Native American Heritage Commission [NAHC]), reviewed historical maps and aerial photographs, examined published surficial geology and soils information, and conducted a field survey. LSA also initiated Native American consultation on behalf of the City of Vacaville and reached out to the Solano County Historical Society for information. The results of these tasks are summarized below and were used to assess the potential for undiscovered archaeological deposits in the Area of Potential Effects (APE).

5.1 RECORDS SEARCH

A cultural resources records search was conducted on February 8, 2024, by staff at the NWIC of the California Historical Resources Information System to identify previous archaeological site records and cultural resource studies within the APE and vicinity. The NWIC, an affiliate of the Office of Historic Preservation (OHP), is the official State repository of cultural resources records and reports for Solano County. The search encompassed the APE and surrounding 0.5-mile radius.

As part of the records search, LSA also reviewed the following State and local inventories for cultural resources within and adjacent to the APE:

- *California Historical Resources (California Office of Historic Preservation 2022a)*. This inventory includes state Historical Landmarks and Points of Historical Interest, as well as properties listed in the California Register of Historical Resources and National Register of Historic Places;
- *Built Environment Resources Directory (BERD) (California Office of Historic Preservation 2022b)*. The directory includes non-archaeological cultural resources reviewed for eligibility to the National Register of Historic Places and the California Historical Landmarks Program.

5.1.1 Northwest Information Center

No previous cultural resource studies overlap the current APE; 28 cultural resource studies were previously conducted within a 0.5-mile radius of the APE. The latter include archaeological and built environment surveys, extended Phase 1 investigations, archaeological and built environment resource evaluations and determinations of eligibility, management plans for the treatment of discovered archaeological resources, a geoarchaeological study, Historic Property Survey Reports, and OHP documentation.

No cultural resources were previously recorded within the APE although 19 are documented within a 0.5-mile radius of the APE. None of these are in proximity to the APE. Most of the recorded resources are clustered at least 0.3 mile southwest of the APE, in the historical center of Vacaville and along Ulatis Creek. These resources—consisting of a pre-contact archaeological site and 14 historic-period resources (archaeological sites, structures or buildings, and a row of palm trees)—reflect the long-term focused use of that area that began with Native populations and continued through the historic period. Three other historic-period buildings and structures are located more

than 0.3 mile northwest and south of the APE. The historic Vaca Valley Railroad Route District sits ca. 0.13 mile west of the APE.

5.1.2 State Inventories

A review of on-line State inventories did not identify any previously recorded cultural resources within the APE.

5.2 MAP AND AERIAL PHOTOGRAPH REVIEW

In order to assess the potential for historic-period archaeological deposits, LSA reviewed historical topographic maps and aerial photographs to identify past buildings or structures within the APE; the results are provided in Table A. To summarize, the APE remained undeveloped until the 1940s or early 1950s, when buildings were constructed along the east side of Brown Street within the APE. Another building and a road were built in the center of the APE by 1968. By 1984, some of the buildings along Brown Street had been removed, along with the road in the center of the APE. Only the building in the center of the APE remained by 1993, and this was removed by 2005.

Table A: Historical Map and Aerial Photograph Review

Map/Photograph	Results
1859 General Land Office Plat Map <i>Township 6 North/Range 1 West, Mount Diablo Meridian</i>	The APE is shown as part of Rancho Los Puntos (not surveyed).
1908 Vacaville USGS topographic quadrangle (1:62,500)	Nothing is depicted within the APE. Roads following the alignments of what are now Brown Street and E. Monte Vista Ave. are shown, which are bordered by a few buildings outside of the APE.
1917 Elmira USGS topographic quadrangle (1:31,680)	Same as previous.
1941 Vacaville USGS topographic quadrangle (1:62,500)	Greater development is shown in the APE vicinity, including more buildings outside the APE along what are now Brown Street and E. Monte Vista Ave.
1953 Elmira USGS topographic quadrangle (1:24,000)	Even more buildings are shown along what is now E. Monte Vista Ave. and along a dead-end road extending north into what is the current Solano County Health and Social Services Department complex. Both sides of "Browns Valley Road" (present-day Brown Street) are lined with buildings, including several within the western boundary of the APE.
1968 Elmira USGS topographic quadrangle (1:24,000)	Same as previous map with the addition of more roads in the vicinity of the APE (Circle Drive to the north and an unnamed street that extends through the present-day mobile home park east of the APE).
1973 Elmira USGS topographic quadrangle (1:24,000)	No change from previous map.
1980 Elmira USGS topographic quadrangle (1:24,000)	No change from previous map.
1957 aerial photograph	This photo shows the development within the western boundary of the APE previously noted on the 1953 USGS map.
1968 aerial photograph	This photo shows the dead-end road, previously noted on the 1953 USGS map, continuing north and bisecting the APE. A building is visible on the east side of this road, near the southern boundary of the APE.

Table A: Historical Map and Aerial Photograph Review

Map/Photograph	Results
1984 aerial photograph	Some buildings remain in the northwest corner of the APE, as well as the building noted on the 1968 aerial photo in the center near the southern boundary. The road bisecting the APE is no longer visible.
1993 aerial photograph	No buildings are visible in the APE except for the one in the center near the southern boundary. The APE appears vegetated with grass and scattered trees, and is criss-crossed by footpaths.
2005 aerial photograph	No buildings are visible in the APE.

Source: Compiled by LSA (2024).

USGS = U.S. Geological Survey

5.3 GEOARCHAEOLOGICAL SENSITIVITY

Large-scale environmental changes significantly altered the landscape in the San Francisco Bay Area-Delta region over the past 15,000 years. This has important implications for the archaeological record since humans have been in the region since at least 10,000 B.P., and many of these changes have resulted in the burial and/or submergence of large segments of the landscape that were once available for human use and occupation (Meyer and Rosenthal 2007:7; ASC 2013:43). Thus, much of the evidence relating to past occupation of the region is also buried (Caltrans 2017:4-1).

Assessing the potential for buried pre-contact archaeological evidence requires understanding the nature of the surficial geology in the vicinity. Fundamentally, there is an inverse relationship between landform age and the potential for buried precontact archaeological deposits. Pleistocene-age landforms (1.8 million years to 11,800 cal B.P.) generally predate human occupation of the region; archaeological deposits on these landforms, if present, would be expected at or near the surface. In contrast, landforms that formed during the Holocene (ca. 11,800 years ago to the present) may contain buried surfaces (paleosols) that would have been available in the past for human habitation (Meyer and Rosenthal 2007). Studies from different regions in California indicate that the potential for Holocene landforms to contain buried pre-contact archaeological deposits can be refined based on other environmental variables, including landform type, topographic location, and proximity to a natural water source (Meyer 2013; Meyer and Rosenthal 2007, 2008; Rosenthal et al. 2003:71-79).

As described earlier in this study, the APE sits on alluvial fan deposits that were deposited during the Holocene. Based on the age and type of this landform, the APE has potential for containing buried pre-contact archaeological resources. Buried site sensitivity modelling from a nearby project suggests a high likelihood of buried sites within the western half of the APE. Sensitivity mapping shows East Monte Vista Avenue, less than 500 feet south of the APE, in an area of high sensitivity (Hildebrandt et al. 2012: 74). This sensitivity increases further south toward Ulatis Creek. The map extent does not include the APE, but comparison of the sensitivity mapping with soils data indicates a correlation that can be extrapolated to the APE. Specifically, the areas assigned the highest levels of site sensitivity correspond to the mapped distribution of Brentwood clay loam—a soil unit that extends into the western edge of the APE. The remainder of the APE is estimated to have low to moderate buried site sensitivity based on the older age of the underlying landform indicated by the

soil types present. Rincon clay loam comprises roughly 66 percent of the APE; it is estimated to be early Holocene in age (Ibid.: 54) and would consequently be expected to have a lower probability of buried sites. Corning gravelly loam comprises roughly 32 percent of the APE. Like Rincon clay loam, Corning gravelly loam forms on old alluvial fans and could be expected to have a similar level of sensitivity.

5.4 INTERESTED PARTIES CONSULTATION

LSA submitted a request to the Native American Heritage Commission (NAHC) to search the Sacred Lands File (SLF) for Native American cultural resources that may be impacted by the proposed project. In addition, LSA conducted consultation outreach with the Solano County Historical Society regarding the potential for the project to affect historic properties in the APE. The results of the SLF search and consultation correspondence are provided in Appendix B.

5.4.1 Native American Heritage Commission

LSA submitted a request to the NAHC to search the SLF for Native American cultural resources that may be impacted by the proposed project. The NAHC maintains the SLF database and is the official State repository of Native American sacred-site location records in California.

Ms. Pricilla Torres-Fuentes, NAHC Cultural Resources Analyst, responded to the SLF search request on February 7, 2024, stating that the results were negative and that there were no known Native American cultural resources in the APE (Appendix B). She noted, however, that “the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area.” Ms. Torres-Fuentes provided a list of Native American individuals to contact for additional information regarding the potential for cultural resources in the APE.

The City of Vacaville, as the designated Responsible Entity, will conduct Section 106 Native American consultation. On behalf of the City, LSA initiated the consultation process on March 1, 2024, by sending notification letters (on City letterhead) via USPS Certified Mail to the tribes on the NAHC contact list. LSA sent follow-up emails on April 24, 2024, to tribes that had not yet responded to the initial notification letters. The following is a summary of the results of this outreach received to date (consultation documentation is provided in Appendix B).

- On April 25, 2024, Sharon Chan (City of Vacaville) received a letter from Yvonne Perkins (Tribal Historic Preservation Officer for the Yocha Dehe Wintun Nation) stating that the tribe does have a cultural interest and formally requests consultation.

5.4.2 Historical Society Outreach

On March 8, 2024, LSA sent an email inquiry with a map depicting the APE to the Solano County Historical Society in Vacaville. After no response was received, LSA called and left a voicemail on April 30, 2024. No response has been received to date.

5.5 ARCHAEOLOGICAL FIELD SURVEY

On February 26, 2024, LSA Archaeologist Christopher Morgan conducted a pedestrian survey of the APE. Photos from the survey are provided in Appendix C.

At the time of survey, the entire APE was overgrown with thick vegetation consisting primarily of tall grasses. The vegetation completely obscured the soil, resulting in zero surface visibility. Wild cane clumps and multiple scattered older trees indicated the APE had been neglected for some time. No cultural resources were observed.

6.0 STUDY FINDINGS AND RECOMMENDATIONS

6.1 FINDINGS

This study consisted of background research (involving a records search at the Northwest Information Center, an online search of State cultural inventories, a review of historical maps and aerial photographs, and an examination of published surficial geology and soils information), a search of the Native American Heritage Commission (NAHC) Sacred Lands File and consultation outreach with the local historical society, and an archaeological field survey.

The background research identified no previous cultural resources studies or recorded cultural resources within the Area of Potential Effects (APE). A review of historical maps and aerial photographs revealed development along Brown Street in the western portion of the APE by 1953, as well as a structure in the center of the APE that was built by 1968. These were removed by 1993 and 2005, respectively.

No evidence of archaeological resources was noted during the archaeological survey. At the time of survey, dense vegetation covered the entire APE, completely obscuring the soil and resulting in zero surface visibility.

6.1.1 Archaeological Sensitivity

Based on the age and type of landform underlying the APE, there is potential for pre-contact archaeological resources to be encountered during proposed construction. Nearby site sensitivity modelling suggests there is a high probability of buried pre-contact archaeological resources along the western edge of the APE. This high sensitivity may be offset, to some extent, by past ground-disturbing activities associated with historic-period development in this part of the APE (discussed below); however, there remains the potential for intact archaeological deposits to be present. The remainder of the APE is estimated to have low to moderate sensitivity (see Appendix A, Figure 4).

The APE has high sensitivity for historic-period archaeological resources given the presence of buildings along Brown Street in the western portion of the APE by 1953, as well as a structure in the approximate center of the APE by 1968.

6.2 RECOMMENDATIONS

The study identified no historic properties within the APE. There is the possibility of encountering archaeological resources during project construction, however. The western half (approximately) of the APE appears to have high sensitivity for buried pre-contact and historic-period archaeological resources. The remaining APE has low to moderate sensitivity for buried pre-contact archaeological resources. LSA therefore recommends full-time archaeological monitoring of all construction-related ground-disturbing activities (including, but not limited to grading, foundation excavations, storm drain and utility trenching). Monitoring may be scaled back in the eastern (lower sensitivity) portion of the APE at the discretion of the qualified archaeologist in the event of protracted negative results.

Recommendations are provided below should unanticipated archaeological deposits or human remains be encountered during construction activities when an archaeologist is not present.

6.2.1 Inadvertent Discovery of Archaeological Deposits

If deposits of pre-contact or historic-period archaeological materials are encountered during project activities, all work within 50 feet of the discovery shall be redirected. The qualified archaeologist should assess the situation, immediately notify and consult with the City of Vacaville, and make recommendations for the treatment of the discovery. Project personnel should not collect or move any archaeological materials. Archaeological materials can include flaked-stone tools (e.g., projectile points, knives, and choppers) or obsidian, chert, basalt, or quartzite toolmaking debris; bone tools; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, bones, and other cultural materials); and stone-milling equipment (e.g., mortars, pestles, and handstones). Pre-contact archaeological sites often contain human remains. Historic-period materials can include wood, stone, concrete, or adobe footings, walls, and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, metal, and other refuse.

It is recommended that impacts to archaeological cultural resources be avoided by project activities. Should an unanticipated archaeological deposit be encountered during ground disturbance in the APE, all ground-disturbing activities within 50 feet should be redirected, and protective fencing should be placed to ensure the area is not inadvertently impacted by construction activities. The City shall, in consultation with local California tribal groups (if appropriate), make reasonable effort to avoid or minimize adverse effects and follow the procedures as specified in 36 Code of Federal Regulations (CFR) Section 800.13(b)(3). If treatment is required, a plan should be developed in consultation with the City to mitigate, avoid, or minimize impacts to cultural resources. Treatments may consist of, but are not necessarily limited to, systematic recovery and analysis of archaeological deposits; recording the resource; preparation of a report of findings; accessioning recovered archaeological materials at an appropriate curation facility; and community outreach. All reports produced as part of the evaluation and treatment of cultural resources identified during the project shall be submitted to the City for review and comment. All final documents should be submitted to the Northwest Information Center (NWIC).

6.2.2 Accidental Discovery of Human Remains

In the event that human remains are encountered at any time during project work, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Solano County Coroner has made a determination of origin and disposition pursuant to California Public Resources Code (PRC) Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner would notify the Native American Heritage Commission (NAHC) within 24 hours. The NAHC would determine and notify a Most Likely Descendant (MLD) per PRC Section 5097.98. With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD's recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials,

preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.

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APPENDIX A

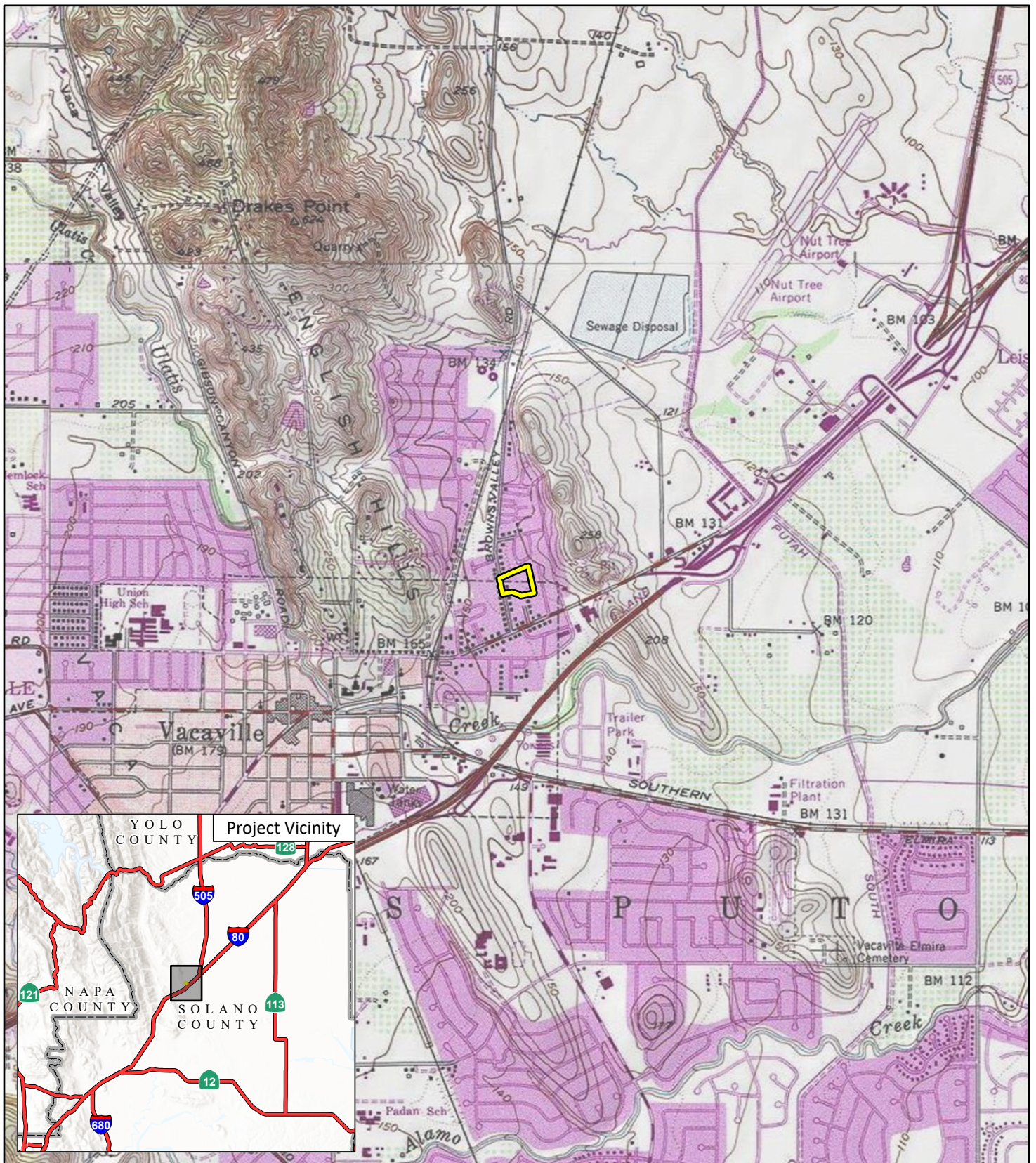
PROJECT FIGURES

Figure 1: Project Location

Figure 2: Project Area of Potential Effects

Figure 3: Conceptual Site Plan

Figure 4: Subsurface Archaeological Sensitivity



LSA


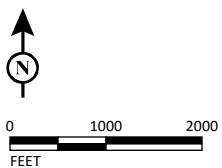
 Area of Potential Effects (APE)

FIGURE 1



SOURCE: USGS 7.5' Quad - Elmira (1980), CA

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Brown Street Master Plan Project
Project Location



LSA


 Area of Potential Effects (APE)

FIGURE 2



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FEET

SOURCE: Nearmap (6/28/2023)

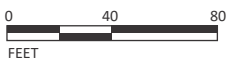
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Brown Street Master Plan Project
Project Area of Potential Effects



FIGURE 3

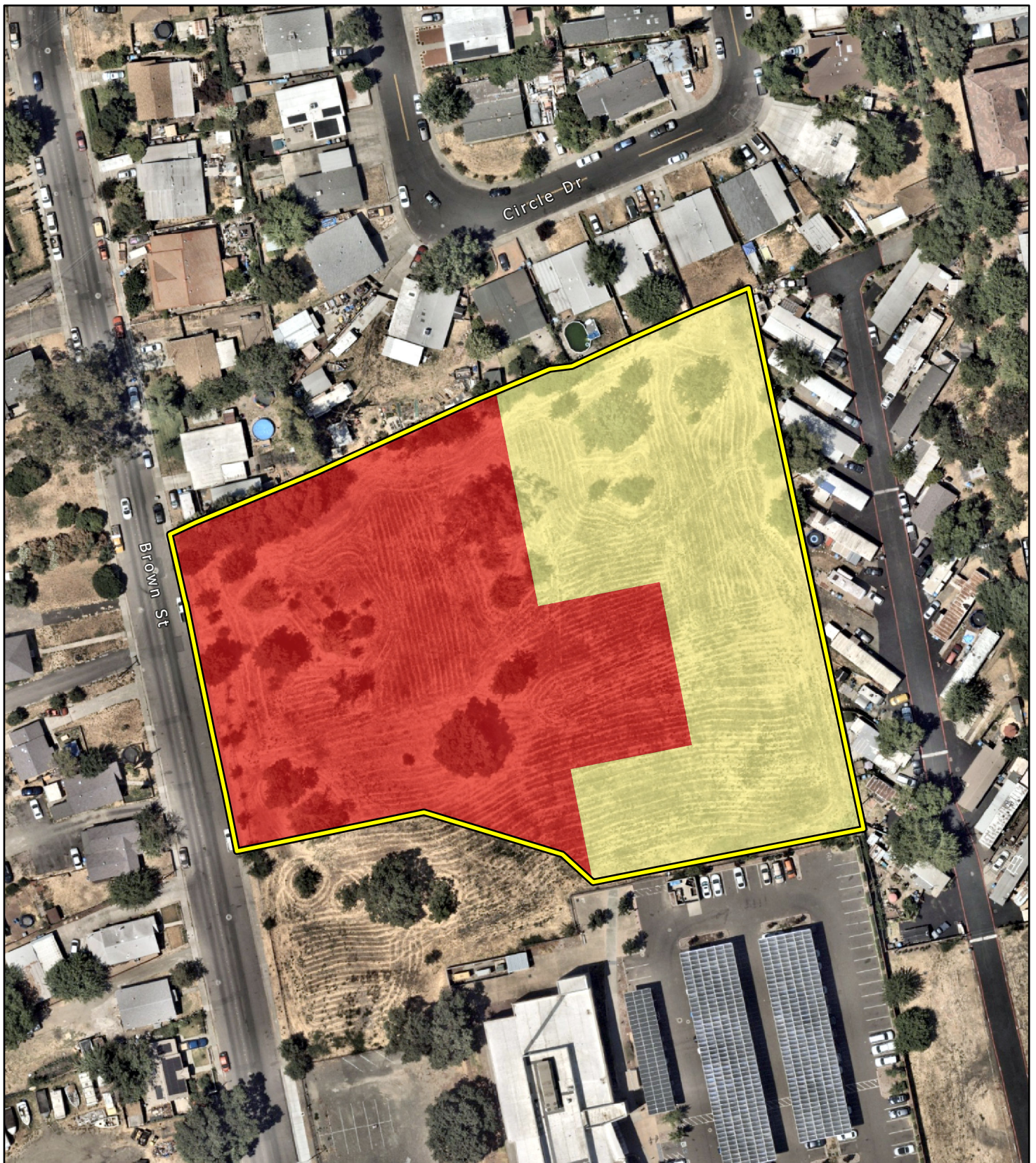
LSA



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Brown Street Park Master Plan
Conceptual Site Plan



LSA

- Area of Potential Effects (APE)
- High Subsurface Sensitivity
- Low to Moderate Subsurface Sensitivity

FIGURE 4



0 50 100
FEET

SOURCE: Nearmap (6/28/2023)

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Brown Street Master Plan Project
Subsurface Archaeological Sensitivity

APPENDIX B

NAHC SACRED LANDS FILE SEARCH RESULTS AND NATIVE AMERICAN CONSULTATION DOCUMENTATION

NATIVE AMERICAN HERITAGE COMMISSION

February 7, 2024

Jaimi Starr
LSAVia Email to: Jaimi.Starr@lsa.net

Re: Brown Street Master Plan Project, Solano County

Dear Ms. Starr:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

*Pricilla Torres-Fuentes*Pricilla Torres-Fuentes
Cultural Resources Analyst

Attachment

CHAIRPERSON
Reginald Pagaling
ChumashVICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki,
NomlakiSECRETARY
Sara Dutschke
MiwokPARLIAMENTARIAN
Wayne Nelson
LuiseñoCOMMISSIONER
Isaac Bojorquez
Ohlone-CostanoanCOMMISSIONER
Stanley Rodriguez
KumeyaayCOMMISSIONER
Laurena Bolden
SerranoCOMMISSIONER
Reid Milanovich
CahuillaCOMMISSIONER
VacantEXECUTIVE SECRETARY
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nahc@nahc.ca.gov
NAHC.ca.gov

Native American Heritage Commission
Native American Contact List
Solano County
2/7/2024

County	Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
Solano	Cachil Dehe Band of Wintun Indians of the Colusa Indian Community	F	Jennie Mitchum, Cultural Preservation Director	3730 Highway 45 Colusa, CA, 95932	(530) 458-6303		jmitchum@colusa-nsn.gov	Wintun	Colusa, Glenn, Lake, Napa, Sacramento, Solano, Sutter, Yolo	6/6/2023
	Cachil Dehe Band of Wintun Indians of the Colusa Indian Community	F	Wayne Mitchum Jr., Chairman	3730 Highway 45 Colusa, CA, 95932	(530) 458-6512		asmelser@colusa-nsn.gov	Wintun	Colusa, Glenn, Lake, Napa, Sacramento, Solano, Sutter, Yolo	6/6/2023
	Cortina Rancheria - Kietzel Dehe Band of Wintun Indians	F	Charlie Wright, Chairperson	P.O. Box 1630 Williams, CA, 95987	(530) 473-3274	(530) 473-3301		Wintun	Colusa, Napa, Solano, Yolo	
	Guidville Rancheria of California	F	Bunny Tarin, Tribal Administrator	PO Box 339 Talmage, CA, 95481	(707) 462-3682		admin@guidville.net	Pomo	Alameda, Contra Costa, Lake, Marin, Mendocino, Napa, Sacramento, o, San Joaquin, Solano, Sonoma	6/21/2023
	Guidville Rancheria of California	F	Michael Derry, Historian	PO Box 339 Talmage, CA, 95481	(707) 391-1665		historian@guidville.net	Pomo	Alameda, Contra Costa, Lake, Marin, Mendocino, Napa, Sacramento, o, San Joaquin, Solano, Sonoma	6/21/2023
	Wilton Rancheria	F	Cultural Preservation Department,	9728 Kent Street Elk Grove, CA, 95624	(916) 683-6000		cpd@wiltonrancheria-nsn.gov	Miwok	Alameda, Alpine, Amador, Contra Costa, El Dorado, Mono, Nevada, Placer, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, Yolo, Yuba	8/7/2023
	Wilton Rancheria	F	Dahilton Brown, Executive Director of Administration	9728 Kent Street Elk Grove, CA, 95624	(916) 683-6000		dbrown@wiltonrancheria-nsn.gov	Miwok	Alameda, Alpine, Amador, Contra Costa, El Dorado, Mono, Nevada, Placer, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, Yolo, Yuba	8/7/2023
	Wilton Rancheria	F	Herbert Griffin, Executive Director of Cultural Preservation	9728 Kent Street Elk Grove, CA, 95624	(916) 683-6000		hgriffin@wiltonrancheria-nsn.gov	Miwok	Alameda, Alpine, Amador, Contra Costa, El Dorado, Mono, Nevada, Placer, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, Yolo, Yuba	8/7/2023
	Yocha Dehe Wintun Nation	F	Anthony Roberts, Chairperson	P.O. Box 18 Brooks, CA, 95606	(530) 796-3400		thpo@yochadehe.gov	Patwin	Colusa, Lake, Napa, Sacramento, Solano, Sutter, Yolo	11/6/2023
	Yocha Dehe Wintun Nation	F	Leland Kinter, Tribal Treasurer	P.O. Box 18 Brooks, CA, 95606	(530) 908-2902		lkinter@yochadehe.gov	Patwin	Colusa, Lake, Napa, Sacramento, Solano, Sutter, Yolo	11/6/2023
	Yocha Dehe Wintun Nation	F	Yvonne Perkins, THPO, Cultural Resources Chairman	P.O. Box 18 Brooks, CA, 95606	(530) 796-3400		thpo@yochadehe.gov	Patwin	Colusa, Lake, Napa, Sacramento, Solano, Sutter, Yolo	11/6/2023
	Yocha Dehe Wintun Nation	F	James Kinter, Tribal Secretary	P.O. Box 18 Brooks, CA, 95606	(530) 908-7564		jkinter@yochadehe.gov	Patwin	Colusa, Lake, Napa, Sacramento, Solano, Sutter, Yolo	11/6/2023

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Brown Street Master Plan Project, Solano County.

Record: PR03-2024-000598
Report Type: List of Tribes
Counties: Solano
NAHC Group: All

SECTION 106 NATIVE AMERICAN CONSULTATION ASSISTANCE RECORD

Native American Consultation for the Proposed: Brown Street Master Plan Project (COV2101)

Date LSA Requested Sacred Lands File Search: 1/17/2024

Date Native American Heritage Commission Replied: 2/7/2024

Results of Sacred Lands File Search: Negative

Date designated groups/individuals were contacted: 3/1/24 via certified mail; 4/24/24 follow-ups via email; 5/8/24 2nd follow-ups via email

Groups Contacted	Date LSA contacted Tribes	Date of follow-ups	Date and Results of Responses
Cachil Dehe Band of Wintun Indians of the Colusa Indian Community Jennie Mitchum, Cultural Preservation Director	3/1/24	4/24/24; 5/8/24	
Cachil Dehe Band of Wintun Indians of the Colusa Indian Community Wayne Mitchum Jr., Chairman	3/1/24	4/24/24; 5/8/24	
Cortina Rancheria - Kletsel Dehe Band of Wintun Indians Charlie Wright, Chairperson	3/1/24	4/24/24; 5/8/24	
Guidiville Rancheria of California Bunny Tarin, Tribal Administrator	3/1/24	4/24/24; 5/8/24	
Guidiville Rancheria of California Michael Derry, Historian	3/1/24	4/24/24; 5/8/24	
Wilton Rancheria Cultural Preservation Department,	3/1/24	4/24/24; 5/8/24	
Wilton Rancheria Dahlton Brown, Executive Director of Administration	3/1/24	4/24/24; 5/8/24	
Wilton Rancheria Herbert Griffin, Executive Director of Cultural Preservation	3/1/24	4/24/24; 5/8/24	
Yocha Dehe Wintun Nation Anthony Roberts, Chairperson	3/1/24	4/24/24; 5/8/24	4/25/24: Response received via letter from Yvonne Perkins, Tribal Historic Preservation Officer stating that the tribe does have a cultural interest and formally requests consultation. <i>Please see attached PDF letter</i>
Yocha Dehe Wintun Nation Leland Kinter, Tribal Treasurer	3/1/24	4/24/24	

Groups Contacted	Date LSA contacted Tribes	Date of follow-ups	Date and Results of Responses
Yocha Dehe Wintun Nation Yvonne Perkins, THPO, Cultural Resources Chairman	3/1/24	4/24/24	
Yocha Dehe Wintun Nation James Kinter, Tribal Secretary	3/1/24	4/24/24	



CITY OF VACAVILLE

PUBLIC WORKS DEPARTMENT



650 Merchant Street • Vacaville, CA 95688 • CityofVacaville.gov • 707.449.5170

March 1, 2024

Yocha Dehe Wintun Nation
Yvonne Perkins, THPO, Cultural Resources Chairman
P.O. Box 18
Brooks, CA, 95606

Subject: Notification of Native American Consultation per Section 106 for the Brown Street Master Plan Project in Vacaville, California

Dear Ms. Perkins,

This letter serves as notification of initiation of Section 106 consultation per the National Historic Preservation Act.

The Brown Street Master Plan Project (project) has been initiated by the City of Vacaville (City). The project site is located in the center of Vacaville in an area consisting primarily of residential, commercial, and public buildings. The approximately 3.44-acre project site consists of nine parcels located at 131 Brown Street in the City of Vacaville, Solano County (Assessor's Parcel Numbers [APN]: 0129-320-020, -150, -170, -180, -190, -200, -250, -260 and -270). A project location map is attached (Figure 1).

The proposed project involves development of a Neighborhood Park, Recreation Center, Vacaville Housing and Community Services Department Office Building (VHCSDOB), and open space, as well as associated site improvements.

A Sacred Lands File (SLF) search for this project was requested from the Native American Heritage Commission (NAHC). The search results received on February 7, 2024, resulted in negative findings. The NAHC also recommended contacting several Native American Tribes, including yours, for additional information concerning cultural resources in the area.

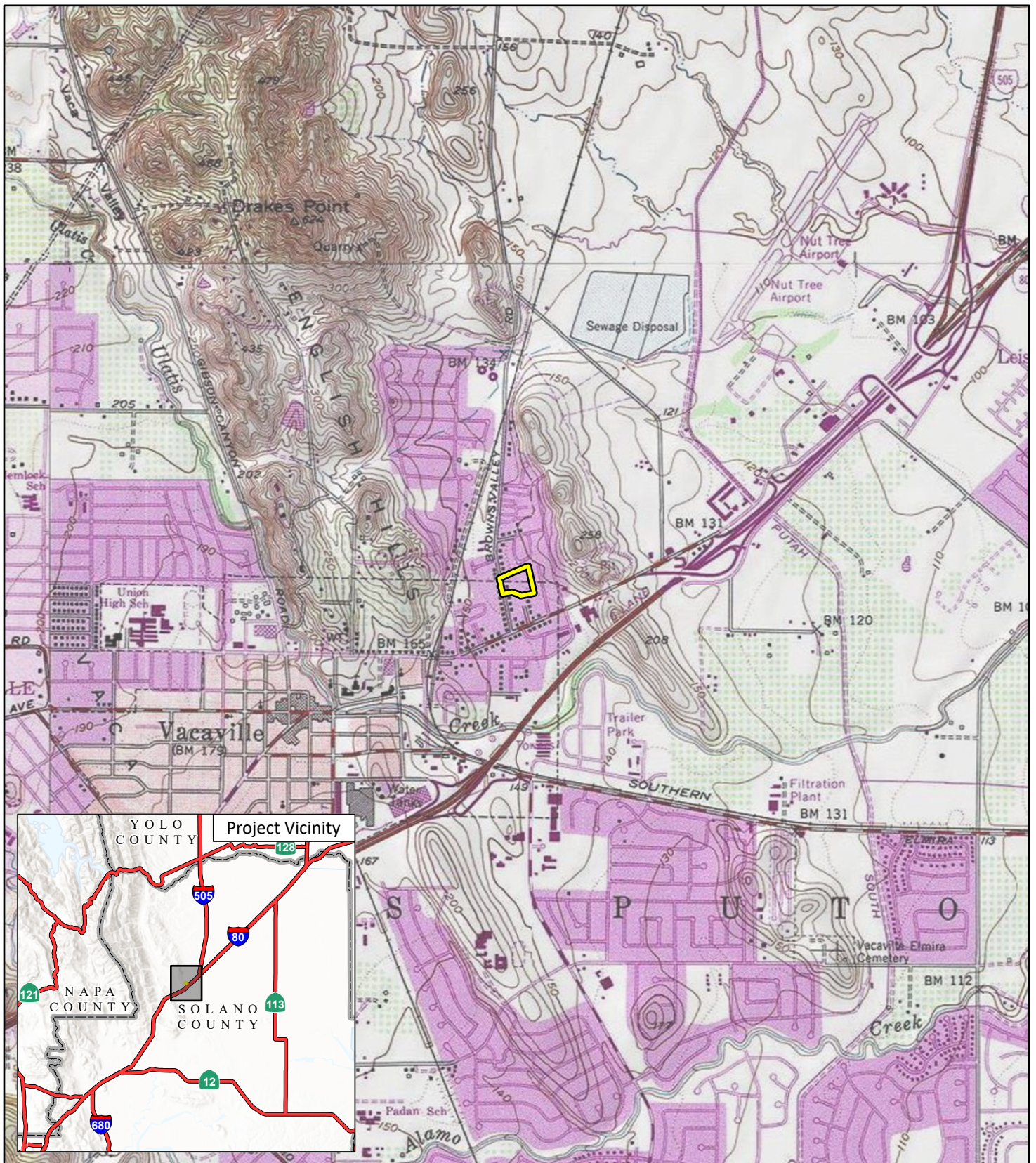
The Northwest Information Center, located at Sonoma State University responded to a record search on February 8, 2024. The record search shows that no prior studies have been conducted within the project area and no cultural resources have been recorded within the project area.

For the purpose of avoiding project impacts to cultural resources in and adjacent to the current project, we are asking that you please share any information or concerns you may have about such resources. It would be greatly appreciated if you would respond to this request within 30 days. Please contact me by phone at (707) 449-5395 or by email at Sharon.Chan@cityofvacaville.com if you feel that you have information regarding this request. We look forward to hearing your concerns regarding the project's potential effect on any resources of which you are aware.

Sincerely,

Sharon W. Chan, Assistant Engineer
City of Vacaville, Public Works Department

Attachment: Figure 1 – Project Location



LSA


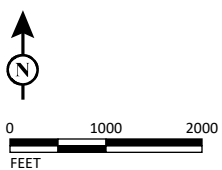
 Area of Potential Effects (APE)

FIGURE 1



SOURCE: USGS 7.5' Quad - Elmira (1980), CA

I:\COV2101\GIS\Pro\Brown Street Master Plan Project\Brown Street Master Plan Project.aprx (2/22/2024)

Brown Street Master Plan Project
Project Location



YOCHA DEHE
CULTURAL RESOURCES

RECEIVED

APR 25 2024

CITY OF VACAVILLE
PW ADMINISTRATION

April 12, 2024

City of Vacaville
Attn: Sharon Chan
650 Merchant Street
Vacaville, CA 95688

RE: Brown Street Master Plan Project YD-03062024-03

Dear Ms Chan:

Thank you for the project notification regarding cultural information on or near the proposed Brown Street Master Plan Project. We appreciate your effort to contact us and wish to respond.

The Cultural Resources Department has reviewed the project and concluded that it is within the aboriginal territories of the Yocha Dehe Wintun Nation. Therefore, we have a cultural interest and authority in the proposed project area and would like to initiate a formal consultation with the lead agency. At the time of consultation, please provide our Cultural Resources Department with a project timeline, detailed project information and the latest cultural study for the proposed project.

To coordinate a date and time for the consultation meeting, please contact:

CRD Administrative Staff
Yocha Dehe Wintun Nation
Office: (530) 796-3400
Email: THPO@yochadehe.gov

Please refer to identification number YD-03062024-03 in any correspondence concerning this project.

Thank you for providing us the opportunity to comment.

Sincerely,

DocuSigned by:

8DD0BD089ED6438...
Tribal Historic Preservation Officer

APPENDIX C

FIELD SURVEY PHOTOGRAPHS



Photo C-1. View south (from the northwest corner) of the APE with county buildings in the background. Brown Street is visible on photo right.



Photo C-2. View east (from the western boundary) of the APE with mobile home park in the background.



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