

PUBLIC REVIEW DRAFT

NORTH DOWNTOWN SPECIFIC PLAN ENVIRONMENTAL IMPACT REPORT

WALNUT CREEK, CALIFORNIA

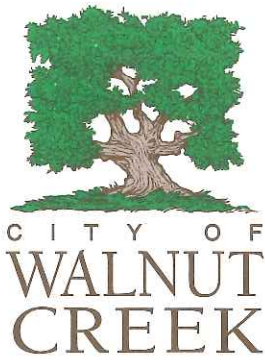


STATE CLEARINGHOUSE NO. 2018012020

LSA

June 2018

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**NOTICE OF AVAILABILITY OF THE DRAFT ENVIRONMENTAL IMPACT REPORT
FOR THE WALNUT CREEK NORTH DOWNTOWN SPECIFIC PLAN PROJECT
(SCH #2018012020)**

PROJECT LOCATION

The North Downtown Specific Plan (Specific Plan or proposed project) Area (Plan Area) is approximately 191 acres in size and is located on the western edge of Walnut Creek, directly north of the traditional Downtown and directly east of the Walnut Creek BART Station. The Plan Area is surrounded by predominantly residential neighborhoods further to the east and to the west across Interstate 680 (I-680), the BART tracks, and by commercial uses further north. Civic Park, City Hall, and the Iron Horse Multi-Use Trail are directly southeast and east of the Plan Area. The Plan Area is located within a larger regional Priority Development Area (PDA) as designated by the Association of Bay Area Governments (ABAG) and the City. The PDA also includes Downtown Walnut Creek and land north of the Plan Area.

PROJECT DESCRIPTION

The Specific Plan will guide land use and development decision-making process for the Plan Area. The land use concept for the Specific Plan envisions a variety of compatible land uses that support the overarching goals and vision for this area. The land use concept focuses on maintaining many of the existing uses in the northern half of the Plan Area while designating areas primarily for mixed-use in the southern half of the Plan Area. The land use designations and locations are compatible with the land use categories found in the General Plan. For each new or revised land use designation, the uses allowed and the standards for development intensity are specified in the Specific Plan.

Full buildout of the Specific Plan is projected to result in an increase in population of approximately 1,519 persons, the addition of approximately 899 housing units, and the addition of approximately 3,546 jobs. Refer to Chapter 3.0, Project Description in the Draft EIR, for a complete description of the Specific Plan development program assumptions and associated approvals

ANTICIPATED SIGNIFICANT IMPACTS

The proposed project would result in potentially significant impacts related to Transportation and Circulation; Air Quality; Greenhouse Gas Emissions; Noise; and Hazards and Hazardous Materials. All impacts (with the exception of Transportation and Circulation) would be reduced to less-than-significant levels through the implementation of identified mitigation measures. Three significant unavoidable impacts related to Transportation and Circulation are identified in the EIR.

PUBLIC REVIEW

The **48-day public review period** for this Draft EIR **begins on June 21, 2018 and ends on August 8, 2018**. The City will take comments on the Draft EIR during a public joint meeting of the Planning Commission and Transportation Commission on July 26, 2018 at 7:00 p.m. in the City Council Chambers, located at 1666 North Main Street, Walnut Creek, CA 94596. Written comments on the Draft EIR should be directed to the following:

City of Walnut Creek
Community and Economic Development Department/Attn: Jeanine Cavalli
1666 North Main Street, Walnut Creek, CA 94596
cavalli@walnut-creek.org

The Public Draft North Downtown Specific Plan and Draft EIR is available for review at the City of Walnut Creek Community and Economic Development Department and on the City's website: www.walnut-creek.org/northdowntown

Signature  Date 6-15-18
Jeanine Cavalli, Senior Planner

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PUBLIC REVIEW DRAFT

**NORTH DOWNTOWN SPECIFIC PLAN
ENVIRONMENTAL IMPACT REPORT**

WALNUT CREEK, CALIFORNIA

STATE CLEARINGHOUSE NO. 2018012020

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Project No. RA11601



June 2018

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TABLE OF CONTENTS

LIST OF ABBREVIATIONS AND ACRONYMS.....	v
1.0 INTRODUCTION.....	1-1
1.1 PURPOSE OF THIS EIR	1-1
1.2 PROPOSED PROJECT	1-1
1.3 EIR SCOPE	1-2
1.4 REPORT ORGANIZATION.....	1-3
2.0 SUMMARY	2-1
2.1 PROJECT UNDER REVIEW	2-1
2.2 SUMMARY OF IMPACTS AND MITIGATION MEASURES	2-1
2.3 SUMMARY TABLE	2-3
3.0 PROJECT DESCRIPTION	3-1
3.1 INTRODUCTION	3-1
3.2 NORTH DOWNTOWN SPECIFIC PLAN VISION.....	3-1
3.3 REGIONAL LOCATION AND GENERAL SETTING	3-1
3.4 INTENDED USES OF THE DRAFT EIR.....	3-2
3.5 REGIONAL AND LOCAL INITIATIVES.....	3-6
3.6 PROJECT GOALS AND OBJECTIVES FOR EIR ANALYSIS.....	3-12
3.7 NORTH DOWNTOWN SPECIFIC PLAN	3-13
3.8 ANTICIPATED ADOPTION AND IMPLEMENTATION	3-24
4.0 SETTING, IMPACTS, AND MITIGATION MEASURES	4-1
4.1 LAND USE AND PLANNING	4.1-1
4.2 TRANSPORTATION AND CIRCULATION.....	4.2-1
4.3 AIR QUALITY	4.3-1
4.4 GREENHOUSE GAS EMISSIONS.....	4.4-1
4.5 NOISE AND GROUNDBORNE VIBRATION	4.5-1
4.6 GEOLOGY, SOILS, AND SEISMICITY	4.6-1
4.7 HYDROLOGY AND WATER QUALITY	4.7-1
4.8 HAZARDS AND HAZARDOUS MATERIALS	4.8-1
4.9 POPULATION, EMPLOYMENT, AND HOUSING	4.9-1
4.10 PUBLIC SERVICES AND RECREATION	4.10-1
4.11 UTILITIES AND SERVICE SYSTEMS	4.11-1
4.12 AESTHETICS.....	4.12-1
5.0 OTHER CEQA CONSIDERATIONS.....	5-1
5.1 GROWTH INDUCEMENT	5-1
5.2 SIGNIFICANT IRREVERSIBLE CHANGES	5-1
5.3 SIGNIFICANT UNAVOIDABLE AND CUMULATIVE IMPACTS.....	5-2
5.4 EFFECTS FOUND NOT TO BE SIGNIFICANT	5-3

6.0 ALTERNATIVES..... 6-1

6.1 PROJECT OBJECTIVES AND IMPACTS 6-2

6.2 NO PROJECT ALTERNATIVE 6-3

6.3 REDUCED DEVELOPMENT ALTERNATIVE 6-5

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE..... 6-8

7.0 REPORT PREPARATION 7-1

7.1 REPORT PREPARERS 7-1

7.2 REFERENCES 7-2

APPENDICES

[Located on compact disc on the inside back cover of this EIR]

- A: NOP and Comment Letters
- B: Transportation Data
- C: Noise Data

FIGURES AND TABLES

FIGURES

Figure 3-1: Project Location and Regional Vicinity Map 3-3

Figure 3-2: Aerial Photograph of the Project Site and Surrounding Land Uses..... 3-4

Figure 3-3: Core Area Priority Development Area Boundary..... 3-9

Figure 3-4: Proposed Land Use Map..... 3-17

Figure 3-5: Proposed Special Districts..... 3-21

Figure 3-6: Proposed Circulation Network..... 3-25

Figure 4.1-1: Existing General Plan Land Use Designations..... 4.1-5

Figure 4.1-2: Existing Zoning Districts 4.1-6

Figure 4.2-1: Study Intersections 4.2-3

Figure 4.2-2: Ygnacio Valley Road Corridor 4.2-10

Figure 4.2-3a: Existing Peak Hour Intersection Traffic Volumes, Lane Configurations and
Traffic Controls..... 4.2-15

Figure 4.2-3b: Existing Peak Hour Intersection Traffic Volumes, Lane Configurations and
Traffic Controls..... 4.2-16

Figure 4.2-4: Existing Bicycle Facilities 4.2-21

Figure 4.2-5: Existing Bus Routes and Service Schedule 4.2-25

Figure 4.2-6: Plan Area Projects 4.2-41

Figure 4.2-7: Approximate Project Trip Distribution 4.2-43

Figure 4.2-8a: Near-Term No Project Peak Hour Intersection Traffic Volumes, Lane
Configurations and Traffic Controls..... 4.2-44

Figure 4.2-8b: Near-Term No Project Peak Hour Intersection Traffic Volumes, Lane
Configurations and Traffic Controls..... 4.2-45

Figure 4.2-9: Plan Area Opportunity Sites 4.2-48

Figure 4.2-10a: Specific Plan Trip Assignment 4.2-49
 Figure 4.2-10b: Specific Plan Trip Assignment 4.2-50
 Figure 4.2-11a: Near-Term with Project Peak Hour Intersection Traffic Volumes, Lane
 Configurations and Traffic Controls 4.2-51
 Figure 4.2-11b: Near-Term with Project Peak Hour Intersection Traffic Volumes, Lane
 Configurations and Traffic Controls 4.2-52
 Figure 4.2-12a: Cumulative No Project Peak Hour Intersection Traffic Volumes, Lane
 Configurations and Traffic Controls 4.2-55
 Figure 4.2-12b: Cumulative No Project Peak Hour Intersection Traffic Volumes, Lane
 Configurations and Traffic Controls 4.2-56
 Figure 4.2-13a: Cumulative with Project Peak Hour Intersection Traffic Volumes, Lane
 Configurations and Traffic Controls 4.2-57
 Figure 4.2-13b: Cumulative with Project Peak Hour Intersection Traffic Volumes, Lane
 Configurations and Traffic Controls 4.2-58
 Figure 4.3-1: TAC Sources within 1,000 feet of the Plan Area 4.3-31
 Figure 4.5-1: Typical A-Weighted Sound Levels 4.5-3
 Figure 4.6-1: Faults Map 4.6-3
 Figure 4.8-1: Hazardous Materials Release Sites 4.8-3

TABLES

Table 2.A: Summary of Impacts and Mitigation Measures from the EIR 2-1
 Table 3-A: Walnut Creek North Downtown Specific Plan Area Projections 3-24
 Table 4.1.A: Existing Land Use Acreage within the Plan Area 4.1-1
 Table 4.1.B: Existing General Plan Land Use Designation within the Plan Area 4.1-3
 Table 4.2.A: Signalized Intersection LOS Criteria 4.2-6
 Table 4.2.B: Unsignalized Intersection LOS Criteria 4.2-6
 Table 4.2.C: Freeway LOS Definitions 4.2-7
 Table 4.2.D: Peak Hour Signalized Intersection LOS – Existing Conditions 4.2-13
 Table 4.2.E: Peak Hour Unsignalized Intersection LOS – Existing Conditions 4.2-17
 Table 4.2.F: Peak Hour Delay Index – Existing Conditions 4.2-18
 Table 4.2.G: Freeway Segment LOS – Existing Conditions 4.2-18
 Table 4.2.H: Freeway Ramps LOS – Existing Conditions 4.2-19
 Table 4.2.I: Walnut Creek BART Station Ridership – 2016 4.2-23
 Table 4.2.J: Access Mode from Home to BART 4.2-24
 Table 4.2.K: Destinations of Walnut Creek Boardings 4.2-24
 Table 4.2.L: Weekday Transit Service 4.2-27
 Table 4.2.M: Weekend Transit Service 4.2-28
 Table 4.2.N: Express Routes Service 4.2-28
 Table 4.2.O: Entitled Project Vehicle Trip Generation 4.2-42
 Table 4.2.P: Specific Plan Vehicle Trip Generation 4.2-47
 Table 4.2.Q: No Project (General Plan) Vehicle Trip Generation 4.2-53
 Table 4.2.R: Peak Hour Signalized Intersection LOS – Near-Term Conditions 4.2-59
 Table 4.2.S: Peak Hour Unsignalized Intersection LOS – Near-Term Conditions 4.2-61
 Table 4.2.T: Peak Hour Delay Index – Near-Term Conditions 4.2-62

Table 4.2.U: Freeway Segment LOS – Near-Term Conditions.....	4.2-63
Table 4.2.V: Freeway Ramp LOS – Near-Term Conditions.....	4.2-64
Table 4.2.W: Peak Hour Signalized Intersection LOS – Cumulative Conditions.....	4.2-66
Table 4.2.X: Peak Hour Unsignalized Intersection LOS – Cumulative Conditions.....	4.2-67
Table 4.2.Y: Peak Hour Delay Index – Cumulative Conditions.....	4.2-68
Table 4.2.Z: Freeway Segment LOS – Cumulative Conditions	4.2-69
Table 4.2.AA: Freeway Ramp LOS – Cumulative Conditions.....	4.2-70
Table 4.2.BB: VMT per Capita in Plan Area.....	4.2-75
Table 4.3.A: Sources and Health Effects of Air Pollutants	4.3-2
Table 4.3.B: San Francisco Bay Area Basin Attainment Status	4.3-9
Table 4.3.C: Ambient Air Quality at the 2975 Treat Boulevard, Concord Monitoring Station	4.3-11
Table 4.3.D: Federal and State Ambient Air Quality Standards.....	4.3-14
Table 4.3.E: Specific Plan Vehicle Miles Traveled and Population Growth.....	4.3-24
Table 4.3.F: Stationary Sources within 1,000 feet of the Plan Area	4.3-28
Table 4.4.A: Global Warming Potential of Greenhouse Gases	4.4-2
Table 4.4.B: 2005 Greenhouse Gas Emissions Inventory.....	4.4-10
Table 4.4.C: Consistency with Climate Action Plan Measures.....	4.4-25
Table 4.4.D: Business-as-Usual Emission Forecast by Sector – 2020 and 2030.....	4.4-38
Table 4.5.A: Definitions of Acoustical Terms	4.5-2
Table 4.5.B: Typical Vibration Source Levels for Construction Equipment.....	4.5-5
Table 4.5.C: Summary of USEPA Noise Levels	4.5-6
Table 4.5.D: Summary of Human Effects in Areas Exposed to 55 dBA L _{dn}	4.5-6
Table 4.5.E: Land Use/Noise Compatibility.....	4.5-8
Table 4.5.F: Short-Term Ambient Noise Monitoring Results, dBA	4.5-9
Table 4.5.G: Meteorological Conditions During Ambient Noise Monitoring.....	4.5-10
Table 4.5.H: Existing Traffic Noise Levels.....	4.5-11
Table 4.5.I: Vibration Source Amplitudes for Construction Equipment	4.5-16
Table 4.5.J: Existing and Cumulative Traffic Noise Levels Without and Plus Specific Plan.....	4.5-19
Table 4.6.A: Soils in the Plan Area	4.6-1
Table 4.6.B: Modified Mercalli Intensity Scale	4.6-5
Table 4.8.A: Summary of Hazardous Materials Release Sites.....	4.8-2
Table 4.9.A: ABAG Projections 2013 Population, Households, and Employment Forecasts for Walnut Creek	4.9-2
Table 4.9.B: Walnut Creek Housing Characteristics, 2007 and 2016.....	4.9-3
Table 4.9.C: Fair Market Rents – Contra Costa County, 2014.....	4.9-3
Table 4.10.A: Walnut Creek School District Enrollment	4.10-4
Table 4.10.B: Acalanes Union High School District Enrollment	4.10-4
Table 6.A: Walnut Creek North Downtown Specific Plan Area Alternative Projections.....	6-4

LIST OF ABBREVIATIONS AND ACRONYMS

°C	Celsius
°F	Fahrenheit
AB 1493	Assembly Bill 1493
AB 197	Assembly Bill 197
AB 32	Assembly Bill 32, California Global Warming Solutions Act
AB 939	Assembly Bill 939 (California's Integrated Waste Management Act of 1989)
ABAG	Association of Bay Area Governments
ACMs	asbestos-containing materials
ACS	American Community Survey
ALS	Advanced Life Support
AM	morning peak hour (related to traffic)
AP Act	California Alquist-Priolo Earthquake Fault Zoning Act
APS	Alternative Planning Strategy
AS	Auto Sales and Service (land use category)
AUHSD	Acalanes Union High School District
AY	Academic Year
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BAT	Best Available Technology
BCDC	San Francisco Bay Conservation and Development Commission
BCT	Best Conventional Technology
Bicycle Plan	Walnut Creek Bicycle Plan
CAAQS	California Ambient Air Quality Standards

Cal/OSHA	California Occupational Safety and Health Administration
CalEPA	California Environmental Protection Agency
CALGreen Code	California Green Building Standards Code
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CAT	Climate Action Team
CBC	California Building Code
CCCFD	Contra Costa County Fire Protection District
CCCSD	Central Contra Costa Sanitary District
CCCSWA	Central Contra Costa Solid Waste Authority
CCCTA	Contra Costa County Transit Authority (or County Connection)
CCHSHMP	Contra Costa Health Services Hazardous Materials Programs
CCR	California Code of Regulations
CDC	California Department of Conservation
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH ₄	Methane
CIP	Ten-Year Capital Investment Program
Class I Bikeway	Bike Path
Class II Bikeway	Bike Lane
Class III Bikeway	Bike Route

CMA	Congestion Management Agency
CMP	Congestion Management Program
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO ₂	Carbon dioxide
CO ₂ e	CO ₂ equivalents
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibels
DHS	California Department of Health Services
DOF	California Department of Finance
DOT	U.S. Department of Transportation
DTSC	Department of Toxic Substance Control
EBMUD	East Bay Municipal Utility District
EIR	Environmental Impact Report
EMS	Emergency Medical Services
EMT	Emergency Medical Technicians
EOP	Emergency Operations Plan
FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map

GR	General Retail (land use category)
GWP	Global Warming Potential
HCD	California Department of Housing and Community Development
HCM	Highway Capacity Manual
HFCs	Hydrofluorocarbons
HUD	U.S. Department of Housing and Urban Development
I-680	Interstate 680
IPCC	Intergovernmental Panel on Climate Change
ITE	Institute of Transportation Engineers
L_{01} , L_{10} , L_{50} , L_{90}	Fluctuating sound level for 1 percent, 10 percent, 50 percent, and 90 percent of a stated time period
L_{dn}	Day-night equivalent noise level
L_{eq}	Continuous equivalent noise level
LID	Low Impact Development
L_{max}	Maximum instantaneous noise level
L_{min}	Minimum instantaneous noise level
LOS	level of service
LTS	less-than-significant impact
LUST	leaking underground storage tank
mgd	million gallons per day
MGY	million gallons per year
MMI	Modified Mercalli Intensity Scale
MMT	Million metric tons
mph	miles per hour
MPOs	Metropolitan Planning Organizations

MRP	Municipal Regional Permit
MTC	Metropolitan Transportation Commission
MTSO	multi-modal traffic service objective
MU-C	Mixed Use – Commercial Emphasis (land use category)
MU-GT	Mixed Use – Golden Triangle (land use category)
MU-R	Mixed Use-Residential Emphasis (land use category)
M_w	Moment magnitude
MXD/MXD+	trip capture estimation for mixed-use development
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAVD88	North American Vertical Datum of 1988
NCHRP	National Cooperative Highway Research Program
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environment Policy Act
NFIP	National Flood Insurance Program
NMS/YVR	North Main Street/Ygnacio Valley Road
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NO_x	Nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
OF	Office (land use category)
OSHA	Occupational Health and Safety Administration
Pb	lead

PCBs	polychlorinated biphenyls
PCEs	passenger car equivalents
PDA	Priority Development Areas
PFCs	Perfluorocarbons
PG&E	Pacific Gas and Electric Company
Plan Area	North Downtown Specific Plan Area
PM	afternoon peak hour (related to traffic); suspended particular matter (related to air quality)
PM ₁₀	respirable particulate matter
PM _{2.5}	fine particulate matter
PMP	Walnut Creek Pedestrian Master Plan
PPV	peak particle velocity
PR	Pedestrian Retail (land use category)
PU	Public/Semi- Public (land use category)
RCRA	Resource Conservation and Recovery Act of 1976
Regional Water Board	San Francisco Bay Regional Water Quality Control Board
RHNA	Regional Housing Needs Assessment
rms	root mean square
ROG	Reactive organic gases
RTP	Regional Transportation Plan
S	significant impact
SB 221	Senate Bill 221
SB 32	Senate Bill 32, California Global Warming Solutions Act of 2016
SB 350	Senate Bill 350, Clean Energy and Pollution Reduction Act
SB 375	Senate Bill 375

SB 50	Senate Bill 50
SB 610	Senate Bill 610
SB 97	Senate Bill 97
SCS	Sustainable Community Strategies
SDWA	Safe Drinking Water Act
SF ₆	Sulfur Hexafluoride
SHMA	California Seismic Hazards Mapping Act
SO ₂	sulfur dioxide
SO _x	sulfur oxide
Specific Plan	City of Walnut Creek North Downtown Specific Plan
SR 24	State Route 24
State Water Board	State Water Resources Control Board
SU	significant and unavoidable impact
SWPPP	Storm Water Pollution Prevention Plan
TACs	toxic air contaminants
TDM	Transportation Demand Management
TRANSPAC	Transportation Partnership and Cooperation Committee
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	underground storage tanks
UWMP	Urban Water Management Plan
VdB	vibration decibel
VMT	vehicle miles traveled

VOC	volatile organic compound
WCPD	Walnut Creek Police Department
WCSD	Walnut Creek School District
WCTV	Walnut Creek Transit Village
WCWTP	Walnut Creek Water Treatment Plant
WDRs	waste discharge requirements
WHO	World Health Organization
WMP	Waste Management Plan
WMR	Waste Management Report
WSA	Water Supply Assessment
WWTP	wastewater treatment plant

1.0 INTRODUCTION

1.1 PURPOSE OF THIS EIR

In compliance with the California Environmental Quality Act (CEQA), this Environmental Impact Report (EIR) describes the potential environmental consequences associated with implementation of the North Downtown Specific Plan Project (interchangeably referred to herein as the “proposed project” or “Specific Plan”). The City of Walnut Creek (City) is the Lead Agency for this EIR.

This EIR is designed to inform City decision-makers, responsible agencies, and the general public of the proposed project and the potential environmental impacts of project approval and implementation. The Specific Plan will shape land use and development within the North Downtown planning area, thus resulting in a geographic relationship. The Specific Plan includes maps, goals, policies, and actions that are logical parts of a chain of contemplated actions governing future land uses and allowed development. The goals, policies, and actions directly establish rules, regulations, guidelines or other general criteria governing implementation of the Specific Plan. This EIR evaluates the potential impacts associated with the implementation of the Specific Plan and also examines alternatives to the proposed project and recommends mitigation measures to reduce or avoid potentially significant physical impacts.

This document is a program EIR. The preparation, content, and processing of this EIR are covered primarily by CEQA Guidelines Section 15168. A program EIR is one that may be prepared on a series of actions that can be characterized as one large project, and that are related: (1) geographically; (2) as logical parts in the chain of contemplated actions; (3) in connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar effects that can be mitigated in similar ways. This program EIR will facilitate environmental review of subsequent projects occurring within the Plan Area.

1.2 PROPOSED PROJECT

The Specific Plan would guide land use and development decision-making process for the Plan Area. The land use concept for the Specific Plan envisions a compatible variety of land uses that support the overarching goals and vision for this area. The land use concept focuses on maintaining many of the existing uses in the northern half of the Plan Area while designating areas primarily for mixed-use in the southern half of the Plan Area. The land use designations and locations are compatible with the land use categories found in the General Plan. For each new or revised land use designation, the uses allowed and the standards for development intensity are specified in the Specific Plan.

Full buildout of the Specific Plan is projected to result in an increase in population of approximately 1,519 persons, the addition of approximately 899 housing units, and the addition of approximately 3,546 jobs. Refer to Chapter 3.0, Project Description, for a complete description of the Specific Plan development program assumptions and associated approvals.

1.3 EIR SCOPE

A Notice of Preparation (NOP) of the EIR was circulated on January 16, 2018, to help identify the types of impacts that could result from implementation of the Specific Plan, as well as potential areas of controversy. The NOP was mailed to public agencies, organizations, and individuals likely to be interested in the project and its potential impacts. Additionally, a public meeting to introduce the Specific Plan and scoping session for the Draft EIR was held on February 8, 2018. Comments on the NOP were received by the City and considered during preparation of the EIR. Two comment letters regarding the NOP were received, in addition to the verbal comments provided at the scoping session. Copies of the NOP and the comment letters are included in Appendix A.

The following environmental topics are addressed in this EIR:

1. Land Use and Planning
2. Transportation and Circulation
3. Air Quality
4. Greenhouse Gas Emissions
5. Noise and Groundborne Vibration
6. Geology and Soils
7. Hydrology and Water Quality
8. Hazards and Hazardous Materials
9. Population, Employment, and Housing
10. Public Services and Recreation
11. Utilities and Service Systems
12. Aesthetics

The following topics are not evaluated in a separate environmental section of the Draft EIR: Agricultural and Forestry Resources, Biological Resources, Cultural and Tribal Cultural Resources, and Mineral Resources. These topics were determined not to result in significant impacts and are addressed in Chapter 5.0, Other CEQA Considerations.

1.4 REPORT ORGANIZATION

This EIR is organized into the following chapters:

- **Chapter 1.0 Introduction:** Discusses the overall EIR purpose, provides a summary of the proposed project, describes the EIR scope, and summarizes the organization of the EIR.
- **Chapter 2.0 Summary:** Provides a summary of the impacts that would result from implementation of the proposed project, describes mitigation measures recommended to reduce or avoid significant impacts, and describes the alternatives to the proposed project.
- **Chapter 3.0 Project Description:** Provides a description of the project site, the project objectives, the proposed project, and uses of this EIR.
- **Chapter 4.0 Setting, Impacts, and Mitigation Measures:** Describes the following for each environmental technical topic: existing conditions (setting), potential environmental impacts and their level of significance, and mitigation measures recommended to mitigate identified impacts. Potential adverse impacts are identified by levels of significance, as follows: less-than-significant impact (LTS), significant impact (S), and significant and unavoidable impact (SU). The significance of each impact is categorized before and after implementation of any recommended mitigation measures(s). Cumulative impacts are also addressed.
- **Chapter 5.0 Other CEQA Considerations:** Provides an analysis of effects found not to be significant, growth-inducing impacts, unavoidable significant environmental impacts, and significant irreversible changes.
- **Chapter 6.0 Alternatives:** Provides an evaluation of two alternatives to the proposed project in addition to the CEQA-required No Project alternative.
- **Chapter 7.0 Report Preparation:** Identifies preparers of the EIR, references used, and the persons and organizations contacted.
- **Appendices:** The appendices contain the NOP and comment letters on the NOP (Appendix A), technical calculations, and other documentation prepared in conjunction with this EIR.

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2.0 SUMMARY

2.1 PROJECT UNDER REVIEW

This EIR has been prepared to evaluate the environmental consequences of approval and implementation of the North Downtown Specific Plan Project (interchangeably referred to herein as the “proposed project” or “Specific Plan”). The Specific Plan would guide the land use and development decision-making process for the Plan Area. The land use concept for the Specific Plan envisions a compatible variety of land uses that support the overarching goals and vision for the Plan Area. The land use concept focuses on maintaining many of the existing uses in the northern half of the Plan Area while designating areas primarily for mixed-use in the southern half of the Plan Area. The land use designations and locations are compatible with the land use categories found in the General Plan. For each new or revised land use designation, the uses allowed and the standards for development intensity are specified in the Specific Plan. Full buildout of the Specific Plan is projected to result in an increase in population of approximately 1,519 new persons, the addition of approximately 899 housing units, and the addition of approximately 3,546 jobs. Refer to Chapter 3.0, Project Description, for a complete description of the Specific Plan development program assumptions and associated approvals.

2.2 SUMMARY OF IMPACTS AND MITIGATION MEASURES

This summary provides an overview of the analysis contained in Chapter 4.0, Setting, Impacts, and Mitigation Measures. CEQA requires a summary to include discussion of: 1) potential areas of controversy; 2) significant impacts; 3) recommended mitigation measures; 4) alternatives to the project; and 5) cumulative impacts.

2.2.1 Potential Areas of Controversy

Comments on the Notice of Preparation (NOP), and comments raised during the scoping period, included the following issue areas: transportation and circulation, hydrology and water quality, air quality, noise, greenhouse gas emissions, utilities and service systems, and cultural resources. The NOP, comments received in response to the NOP, and a summary of the comments received at the scoping session are included in Appendix A of this EIR.

2.2.2 Significant Impacts

Under CEQA, a significant impact on the environment is defined as “...a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.” Impacts in the following areas would be significant without the implementation of mitigation measures, but would be reduced to a less-than-significant level if the mitigation measures recommended in this report are implemented:

- Air Quality;
- Greenhouse Gas Emissions;

- Noise; and
- Hazards and Hazardous Materials.

2.2.3 Significant and Unavoidable Impacts

Implementation of the proposed project would result in the following significant and unavoidable impacts:

- Implementation of the Specific Plan could worsen Intersection #3, Penniman Way/Lawrence Way/I-680 Northbound from Level of Service (LOS) E with a v/c ratio of 0.92 to LOS F with a v/c ratio of 1.01 in the PM peak hour.
- Implementation of the Specific Plan could cause the average travel speed on eastbound Ygnacio Valley Road in the PM peak hour to decrease from 15.9 miles per hour (mph) to 14.6 mph.
- Implementation of the Specific Plan could add traffic to freeway segments that currently operate below the California Department of Transportation (Caltrans) standard or are projected to operate below the standard without Specific Plan traffic.
- Implementation of the Specific Plan could add traffic to freeway segments that currently operate below the Caltrans standard or are projected to operate below the standard under Cumulative No Project conditions.

2.2.4 Alternatives to the Project

The following alternatives were evaluated within the EIR:

- The CEQA-required **No Project alternative**. This alternative assumes that the Specific Plan would not be adopted and future development within the Plan Area would occur under the 2005 General Plan.
- The **Reduced Development alternative**. This alternative assumes that the growth in the Plan Area would be approximately 40 percent to half the amount identified for the Specific Plan in order to reduce two of the four significant and unavoidable transportation impacts.

2.2.5 Cumulative Impacts

CEQA defines cumulative impacts as “two or more individual effects which, when considered together, as considerable, or which can compound or increase other environmental impacts.” Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential impacts that are individually limited, but cumulatively significant. These impacts can result from the proposed project when combined with other past, present, or reasonably foreseeable future projects.

As discussed in Section 4.2, Transportation and Circulation, and summarized above, cumulative traffic congestion impacts could occur under Cumulative No Project conditions on freeway segments and this impact would be significant and unavoidable.

2.3 SUMMARY TABLE

Information in Table II-1, Summary of Impacts and Mitigation Measures, has been organized to correspond with environmental issues discussed in Chapter IV. The table is arranged in four columns: (1) impacts; (2) level of significance prior to mitigation; (3) mitigation measures; and (4) level of significance after mitigation. Levels of significance are categorized as follows:

- SU Significant and Unavoidable
- S Significant
- LTS Less Than Significant

For a complete description of potential impacts and recommended mitigation measures, please refer to the specific topical discussions in Chapter 4.0.

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Table 2.A: Summary of Impacts and Mitigation Measures from the EIR

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
4.1 LAND USE AND PLANNING			
<i>There are no significant land use and planning impacts.</i>			
4.2 TRANSPORTATION AND CIRCULATION			
TRA-1: The implementation of the Specific Plan is projected to significantly impact intersection #3, Penniman Way/Lawrence Way/I-680 Northbound On-Ramp, in the PM peak hour.	S	TRA-1: The City of Walnut Creek will coordinate with Caltrans to review and adjust the timing of the signal at Penniman Way/Lawrence Way/I 680 Northbound On-Ramp to respond to traffic volume changes over time, to balance the demands of freeway traffic flows and City street traffic flows. However, signal timing adjustments would not necessarily reduce this impact to a less than significant level. Therefore, this impact would remain significant and unavoidable with mitigation.	SU
TRA-2: The implementation of the Specific Plan is projected to significantly impact the average travel speed on eastbound Ygnacio Valley Road in the PM peak hour, causing it to drop from 15.9 mph to 14.6 mph.	S	TRA-2: Ygnacio Valley Road is a regional transportation facility that serves travel demand generated by Walnut Creek and several other communities, including Concord, Clayton, and East Contra Costa County cities. The City of Walnut Creek will continue working with the Contra Costa Transportation Authority, the Metropolitan Transportation Commission, Caltrans, and other jurisdictions to develop and implement regional solutions to traffic congestion along this corridor.	SU
TRA-3: The implementation of the Specific Plan is projected to add traffic to freeway segments that currently operate below the Caltrans standard or are projected to operate below the standard without Specific Plan traffic.	S	TRA-3: The City of Walnut Creek will contribute to regional freeway system improvements such as the Innovate 680 improvements, and the SR 4 widening projects, through sales tax increment funds accruing from new development in the Plan Area. The Innovate 680 project includes seven strategies that are projected to substantially relieve congestion on I-680. The strategies include: 1. Completing the HOV/Express Lanes 2. Cooling Corridor Hot Spots 3. Increasing efficiency of bus service 4. Enhancing travel demand management strategies 5. Providing first mile/last mile connections 6. Implementing innovative operational strategies 7. Preparing the corridor for the future	SU

Table 2.A: Summary of Impacts and Mitigation Measures from the EIR

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRA-3 <i>Continued</i>		The first two strategies above are projected to reduce PM peak period congestion by up to 90 percent. The CCTA is anticipated to release an RFP in 2018 to study and implement all of these strategies. Because Walnut Creek does not control the funding, prioritization, and construction of these projects, this impact would remain significant and unavoidable after mitigation.	
TRA-4: The implementation of the Specific Plan is projected to add traffic to freeway segments that currently operate below the Caltrans standard or are projected to operate below the standard under Cumulative No Project conditions.	S	Refer to Mitigation TRA-3.	SU
4.3 AIR QUALITY			
AIR-1: Construction of individual projects associated with implementation of the Specific Plan would generate air pollutant emissions that could violate air quality standards.	S	<p>AIR-1: Project contractors shall follow Basic Construction Mitigation Measures as recommended by the BAAQMD, including:</p> <ul style="list-style-type: none"> • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt tracked-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 mph. • All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. 	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the EIR

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
AIR-1 <i>Continued</i>		<ul style="list-style-type: none"> A publicly visible sign shall be posted with the telephone number and person to contact at the City of Walnut Creek regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD phone number shall also be visible to ensure compliance with applicable regulations. 	
AIR-2: Construction of new projects associated with implementation of the Specific Plan could result in exposure of sensitive receptors to substantial pollutant concentrations.	S	AIR-2: All proposed development projects associated with implementation of the Specific Plan which would include construction activities within 1,000 feet of a residential dwelling unit, shall conduct a construction health risk assessment to assess emissions from all construction equipment during each phase of construction prior to issuance of building permits. Equipment usage shall be modified as necessary to ensure that equipment use would not result in a carcinogenic health risk of more than 10 in 1 million, an increased non-cancer risk of greater than 1.0 on the hazard index (chronic or acute), or an annual average ambient PM _{2.5} increase greater than 0.3 micrograms per cubic meter (µg/m ³).	LTS
AIR-3: Implementation of the Specific Plan could result in exposure of sensitive receptors to substantial pollutant concentrations.	S	AIR-3: For residential or other sensitive use projects proposed within 500 feet of I-680, and/or any of the stationary sources identified in Table 4.3.F, the City of Walnut Creek shall require an evaluation of potential health risk exposure. The applicant for a sensitive use project within the Plan Area shall prepare a report using the latest BAAQMD permit data and roadway risk estimates to determine impacts to future residents. The report shall outline any measures that would be incorporated into the project necessary to reduce carcinogenic health risk of to less than 10 in 1 million, reduce the non-cancer risk of to less than 1.0 on the hazard index (chronic or acute), and ensure the annual average ambient PM _{2.5} increase is less than 0.3 µg/m ³ . Measures to reduce impacts could include upgrading air filtration systems of fresh air supply, tiered plantings of trees, and site design to increase distance from source to the receptor.	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the EIR

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
4.4 GREENHOUSE GAS EMISSIONS			
<p>GHG-1: Construction of proposed projects associated with the Specific Plan would produce substantial greenhouse gas emissions.</p>	<p>S</p>	<p>GHG-1a: Implement Mitigation Measure AIR-1.</p> <p>GHG-1b: Project contractors shall ensure the following measures are implemented through all construction contracts and specifications for projects associated with the proposed Specific Plan:</p> <ul style="list-style-type: none"> • The idling time of diesel powered construction equipment shall be minimized to 2 minutes. • Low volatile organic compounds (i.e., reactive organic gases) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings) shall be used. • All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of nitrogen oxide (NOx) and particulate matter. • All contractors shall use equipment that meets the most recent CARB certification standard for off-road heavy-duty diesel engines. • The project contractor shall use construction equipment that utilizes cleaner fuel and equipment, including equipment upgrades and/or equipment that uses renewable electricity and fuels. • The project contractor shall prepare a waste plan prior to the issuance of building permits. The waste plan should show that it complies with State and local law and appropriate agencies should review the waste plan prior to approval. 	<p>LTS</p>

Table 2.A: Summary of Impacts and Mitigation Measures from the EIR

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
GHG-2: Long-term operation of the projects associated with the Specific Plan could generate substantial greenhouse gas emissions from area and mobile sources as well as indirect emissions from sources associated with energy consumption, potentially in conflict with the City's Climate Action Plan.	S	GHG-2: Prior to approval, the Specific Plan shall include policies to require implementation and compliance with the following applicable CAP measures. Individual projects proposed under the Specific Plan would also be required to show consistency with the CAP. Inclusion of the following CAP measures as Specific Plan policies is considered to be applicable, feasible, and effective in reducing greenhouse gas emissions generated by the project: <ul style="list-style-type: none"> • Work with partners to educate and inform the community about ways to improve energy efficiency, including behavioral changes, appliance purchases and rebates, maintenance practices, and more. • Reduce landfilled waste and increase promotion of recycling and composting through an expanded public education campaign, community-wide incentives, and continued partnership with the Bay Area's Green Business Program. • Investigate local partnerships or creation of a forum to promote and equip local green businesses (for example, through the Chamber of Commerce). 	LTS
4.5 NOISE AND GROUNDBORNE VIBRATION			
NOI-1: The Specific Plan allows the development of residential land uses in an area that is considered a conditionally acceptable noise environment based on the City's Noise and Land Use Compatibility Guidelines for residential land uses.	S	NOI-1: In order to comply with the City's noise and land use compatibility standards, prior to project approval, new development proposed under the Specific Plan shall require an acoustical analysis for all noise-sensitive projects located in an area with noise levels greater than 65 dBA L _{dn} . All new residential land uses shall be designed to maintain an interior standard of 50 dBA L _{dn} in bedrooms and 55 dBA L _{dn} in other rooms. Noise reduction measures to achieve this noise level could include forced air ventilation so that windows can remain closed and/or upgraded wall and window assemblies.	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the EIR

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
<p>NOI-2: Construction activities associated with implementation of the Specific Plan could create significant short-term vibration impacts on nearby sensitive land uses.</p>	<p>S</p>	<p>NOI-2: Any projects associated with the Specific Plan that would require pile driving located within 100 feet of any structure, shall develop a vibration control plan by the project applicant and approved by the City prior to initiating any pile driving activities. The plan shall be implemented before, during, and after pile driving activity. The plan shall consider all potential vibration-inducing activities that would occur and require implementation of sufficient measures to prevent exposure of nearby sensitive receptors to vibration levels in excess of the FTA threshold of 94 VdB (0.2 in/sec PPV). The plan shall identify minimum setback requirements for pile driving activities for the purpose of preventing damage to nearby structures and preventing negative human response. The setback requirements shall be established based on the proposed construction activities and locations and the maximum allowable vibration levels identified for the site. Factors to be considered include the specific nature of the vibration producing activity, local soil conditions, and the fragility/resiliency of the nearby structures.</p> <p>When the final schedule of pile driving activities has been determined, all sensitive receptors within 300 feet of pile driving activities shall be notified of dates in which these activities would take place.</p>	<p>LTS</p>
<p>NOI-3: Noise from construction activities associated with new development within the Plan Area would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.</p>		<p>NOI-3: The following standard measures to minimize construction noise impacts shall be implemented by all development projects proposed under the Specific Plan:</p> <ul style="list-style-type: none"> • Equip all internal combustion engine driven equipment with intake and exhaust mufflers which 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 project area. • Utilize "quiet" air compressors and other stationery noise sources where technology exists. 	<p>LTS</p>

Table 2.A: Summary of Impacts and Mitigation Measures from the EIR

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
NOI-3 <i>Continued</i>		<ul style="list-style-type: none"> • When necessary, temporary noise control blanket barriers should shroud pile drivers or be erected in a manner to shield the adjacent land uses. Such noise control blanket barriers can be rented and quickly erected. • Foundation pile holes should be pre-drilled to minimize the number of impacts required to seat the pile. The pre-drilling of foundation pile holes is a standard construction noise control technique. Pre- drilling reduces the number of blows required to seat the pile. • Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a tele- phone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule. • Ensure that all general construction related activities are restricted to 7:00 a.m. and 6:00 p.m. Monday through Friday. No construction activities shall be permitted on Saturday, Sunday, or holidays. 	
4.6 GEOLOGY AND SOILS			
<i>There are no significant geology or soils impacts.</i>			
4.7 HYDROLOGY AND WATER QUALITY			
<i>There are no significant hydrology or water quality impacts.</i>			

Table 2.A: Summary of Impacts and Mitigation Measures from the EIR

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
4.8 HAZARDS AND HAZARDOUS MATERIALS			
<p>HAZ-1: Construction activities associated with future development projects could result in accidental releases of hazardous materials.</p>	S	<p>HAZ-1a: If the site of a future development project within the Plan Area is suspected to contain hazardous building materials, the project applicant shall submit a comprehensive assessment report to the Bureau of Building, signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials (ACMs), lead-based paint, polychlorinated biphenyls (PCBs), and any other building materials or stored materials classified as hazardous materials by State or federal law. If lead-based paint, ACMs, PCBs, or any other building materials or stored materials classified as hazardous materials are present, the project applicant shall submit specifications prepared and signed by a qualified environmental professional, for the stabilization and/or removal of the identified hazardous materials in accordance with all applicable laws and regulations. The project applicant shall implement the approved recommendations and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable regulatory agency.</p> <p>HAZ-1b: If the site of a future development project within the Plan Area is suspected to be contaminated or potentially contaminated based on the results of past environmental investigations of the site or nearby properties, known historic land uses on-site or in the site vicinity (e.g., gas stations/auto service facilities, dry cleaners, industrial or agricultural land uses, or placement of fill material), or listing of the site or nearby properties on the State Water Resources Control Board GeoTracker database or the Department of Toxic Substances Control Envirostor database, the project applicant shall submit a Phase I Environmental Site Assessment report, and Phase II Environmental Site Assessment report if recommended by the Phase I report, for the project site for review and approval by the City. The report(s) shall be prepared by a qualified environmental assessment professional and include recommendations for remedial action, as appropriate, for hazardous materials. Any remedial activity shall be conducted under the oversight of an appropriate regulatory agency. The project applicant shall implement the agency-approved cleanup plan and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable regulatory agency.</p>	LTS

Table 2.A: Summary of Impacts and Mitigation Measures from the EIR

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
4.9 POPULATION, EMPLOYMENT, AND HOUSING			
<i>There are no significant population, employment, or housing impacts.</i>			
4.10 PUBLIC SERVICES AND RECREATION			
<i>There are no significant public services or recreation impacts.</i>			
4.11 UTILITIES AND SERVICE SYSTEMS			
<i>There are no significant utilities or service systems impacts.</i>			
4.12 AESTHETICS			
<i>There are no significant aesthetics impacts.</i>			

Source: LSA, 2018.

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3.0 PROJECT DESCRIPTION

This chapter describes the proposed City of Walnut Creek (City) North Downtown Specific Plan¹ (Specific Plan or proposed project), which is being evaluated within this Draft EIR. This chapter provides an overview of the proposed project's regional location and general setting; intended uses of the Draft EIR; a description of the project's relationship to regional and local initiatives; project objectives for this EIR analysis; a description of the Specific Plan; and a description of the anticipated adoption and implementation of the Specific Plan.

3.1 INTRODUCTION

The North Downtown Specific Plan Area (Plan Area) is located along the western edge of Walnut Creek, directly north of the traditional downtown and directly east of the Walnut Creek Bay Area Rapid Transit (BART) Station, and currently includes a mix of predominantly retail, automobile sales and services, and offices uses, as well as a smaller amount of housing and public uses. The Plan Area includes some of the City's main thoroughfares, including Ygnacio Valley Road, California Boulevard, Main Street, Broadway, and Civic Drive. Many of the City's public buildings are located in or around the Plan Area including City Hall, the Library, a California Department of Motor Vehicles office, a Social Security Office, a County Fire Station, the Leshner Center for the Performing Arts, an AT&T facility, and the Post Office. The Plan Area is surrounded by predominantly residential neighborhoods to the north and to the east, Interstate 680 (I-680) and BART tracks to the west, and commercial activity to the south.²

On April 4, 2006, the City adopted the Walnut Creek General Plan 2025, a wholesale revision to the City's long-term policy document. The 2025 General Plan includes a number of policies and actions that are relevant to the Plan Area and are listed in section 3.5 of this chapter.

3.2 NORTH DOWNTOWN SPECIFIC PLAN VISION

The vision of the Specific Plan is that the Plan Area will become better connected and integrated with Walnut Creek's traditional downtown, the BART station, Civic Park, Iron Horse Trail, surrounding neighborhoods, and the region. The City aims to create an important jobs center and location for automobile sales and service, while also allowing the area to continue to evolve into a vibrant mixed-use district that integrates housing, retail, restaurant, civic, hospitality, arts, and entertainment uses into cohesive neighborhoods.

3.3 REGIONAL LOCATION AND GENERAL SETTING

The City of Walnut Creek is located at the foot of Mount Diablo in Contra Costa County, approximately 23 miles east of San Francisco. The City is surrounded by Pleasant Hill and Concord to the north, Lafayette to the west, Alamo to the south, and Mount Diablo to the east. The Plan Area consists of 191 acres located on the western edge of the City. This document shows the regional and local context of

¹ Raimi + Associates, 2017. *Draft North Downtown Specific Plan*. Prepared for the City of Walnut Creek. December 27.

² Raimi + Associates, 2016. *North Downtown Specific Plan Existing Conditions Report*. October 19.

the Specific Plan (shown in Figure 3-1), and Figure 3-2 shows an aerial photograph of the Plan Area and surrounding land uses.

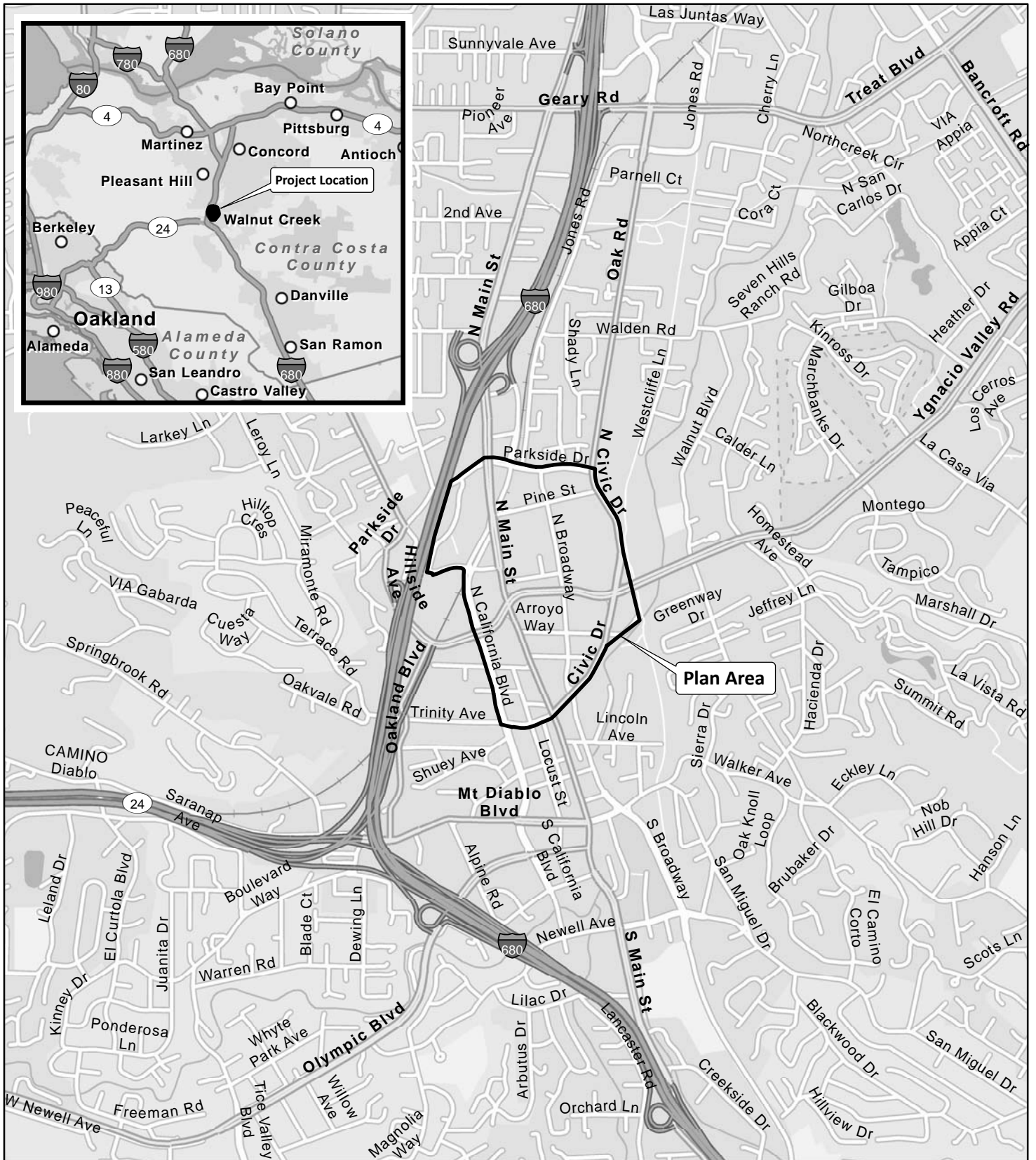
3.4 INTENDED USES OF THE DRAFT EIR

This Draft EIR is designed to fully inform City decision-makers, in addition to other responsible agencies and the general public, of the potential environmental effects associated with implementation of the Specific Plan. This Draft EIR has been prepared in accordance with CEQA (PRC Section 21000 et seq.) and the CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 et seq.). As provided in the CEQA Guidelines, for projects subject to CEQA, public agencies are charged with the duty to substantially lessen or avoid significant environmental impacts where feasible. In discharging this duty, the public agency has an obligation to balance a variety of public objectives, taking into account economic, environmental, and social issues. This Draft EIR is an informational document that informs the public agency decision-makers and the public of the potential significant environmental effects and the ways in which those impacts could be reduced to less-than-significant levels, whether through the imposition of mitigation measures or through the implementation of specific alternatives to the project as proposed.

This document is a Program EIR. The preparation, content, and processing of this EIR are covered primarily by CEQA Guidelines Section 15168. A Program EIR is one that may be prepared on a series of actions that can be characterized as one large project, and that are related: (1) geographically; (2) as logical parts in the chain of contemplated actions; (3) in connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar effects that can be mitigated in similar ways.

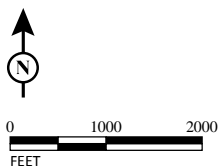
The Specific Plan satisfies each of these criteria. The Specific Plan will shape land use and development within the Plan Area, thus resulting in a geographic relationship. The Specific Plan includes maps, goals, policies, and actions that are logical parts of a chain of contemplated actions governing future land uses and allowed development. The goals, policies, and actions directly establish rules, regulations, guidelines or other general criteria governing implementation of the Specific Plan. The Specific Plan will be carried out under the authority and approval of the City of Walnut Creek. Many of the specific projects and actions carried out pursuant to implementation of the Specific Plan would have similar environmental impacts which could be mitigated in similar ways.

This Program EIR is intended to act as an analytical superstructure for subsequent, more detailed analyses associated with individual project applications consistent with the Specific Plan. One of the City's goals in preparing the current document is to minimize the amount of new information that would be required in the future at the "project level" of planning and environmental review by dealing as comprehensively as possible in this document with cumulative impacts, regional considerations, and similar big-picture issues.



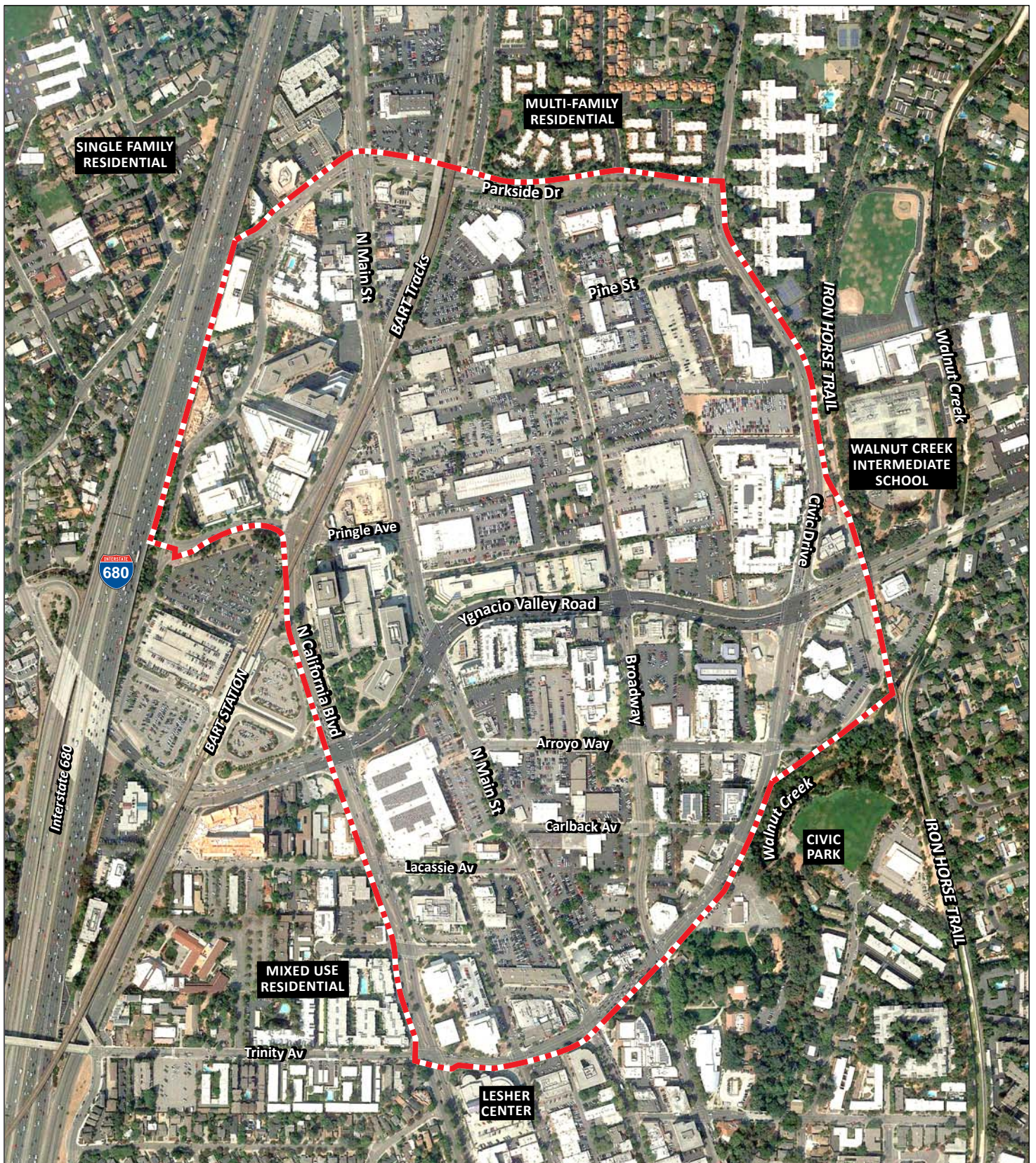
LSA

FIGURE 3-1



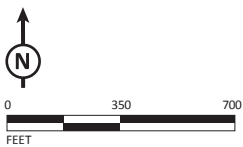
SOURCE: ESRI STREETMAP NORTH AMERICA (2012).

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LSA

FIGURE 3-2



 Plan Area

SOURCES: GOOGLE EARTH, 8/31/17; LSA 2018.

North Downtown Specific Plan EIR
Aerial Photograph of the Project Site and Surrounding Land Uses

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CEQA Guidelines Section 15152 provides that, where a first-tier EIR has “adequately addressed” the subject of cumulative impacts, such impacts need not be revisited in second- and third-tier documents. Furthermore, second- and third-tier documents may limit the examination of impacts to those that “were not examined as significant effects” in the prior EIR or “[a]re susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means.” In general, [s]ignificant environmental effects have been “adequately addressed” if the lead agency determines that:

- a. They have been mitigated or avoided as a result of the prior environmental impact report and findings adopted in connection with that prior environmental impact report; or
- b. They have been examined at a sufficient level of detail in the prior environmental impact report to enable those effects to be mitigated or avoided by site specific revisions, the imposition of conditions, or by other means in connection with the approval of the later project.

This Specific Plan EIR will serve as a vehicle for evaluating future projects within the Plan Area and determining whether they require project-specific environmental analysis. When site-specific projects are proposed within the Plan Area, the City may require Initial Studies when applications are submitted for site-specific approvals in order to determine how much, if any, new information will be required for environmental review. The analyses for site-specific projects will generally focus on impacts that cannot be “avoided or mitigated” by mitigation measures that either: (1) were adopted in connection with the 2025 General Plan or Specific Plan; (2) were formulated based on information in this Draft EIR, subsequent EIRs, or the EIR prepared for the 2025 General Plan; or (3) were included in the City’s Standard Condition of Approvals.

According to CEQA Guidelines Section 15168(c)(5), “[a] program EIR will be most helpful in dealing with subsequent activities if it deals with the effects of the program as specifically and comprehensively as possible.” Later environmental documents (EIRs, Mitigated Negative Declarations, Negative Declarations, or Addendums) can incorporate by reference materials from the Program EIR regarding regional influences, secondary impacts, cumulative impacts, broad alternatives, and other factors (CEQA Guidelines Section 15168[d][2]). These later documents need only focus on new impacts that have not been considered before (CEQA Guidelines Section 15168[d][3]).

State CEQA Guidelines Section 15168(c), entitled “Use with Later Activities,” provides, in pertinent part, as follows:

Subsequent activities in the program must be examined in the light of the Program EIR to determine whether an additional environmental document must be prepared:

1. If a later activity would have effects that were not examined in the Program EIR, a new Initial Study would need to be prepared leading to either an EIR or a Negative Declaration.
2. An agency shall incorporate feasible mitigation measures and alternatives developed in the Program EIR into subsequent actions in the program.

3. Where the subsequent activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the Program EIR.

The City prepared an EIR for the City of Walnut Creek General Plan 2025 (which was certified on April 4, 2006).³ The Specific Plan Draft EIR “tiers” off that prior EIR (which is incorporated by reference herein and available for review at the City of Walnut Creek Community and Economic Development Department, 1666 North Main Street, Walnut Creek) for the analysis of several environmental topics. The City of Walnut Creek is evaluating citywide conditions in separate Subsequent EIRs to the 2025 General Plan for the Locust Street/Mt. Diablo,⁴ Shadelands Gateway,⁵ Walnut Creek BART Transit Village,⁶ and West Downtown⁷ areas, and information from those efforts are also included in this EIR.

3.4.1 Notice of Preparation

The City of Walnut Creek is the Lead Agency of environmental review of this Draft EIR. A Notice of Preparation (NOP) was submitted to appropriate agencies to identify any issues of concern prior to preparation of this Draft EIR. The NOP was published on January 16, 2018, and was distributed to local, regional, and State agencies and posted on the City’s website. A scoping meeting was held on February 8, 2018. Comments received by the City were taken into account during the preparation of the Draft EIR. The NOP and written comments received on the NOP are included in Appendix A.

3.4.2 Review by Other Agencies

The City of Walnut Creek is also responsible for submitting the Draft EIR to responsible public agencies, adjacent jurisdictions, and the State Clearinghouse.

3.5 REGIONAL AND LOCAL INITIATIVES

Regional and local initiatives, plans and planning policies that pertain to the Specific Plan are described in this section.

3.5.1 Regional Initiatives

Regional initiatives are described below.

3.5.1.1 Sustainable Communities Strategy

The Sustainable Communities Strategy (SCS) is the Senate Bill (SB) 375-directed process managed by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission

³ Design, Community & Environment, 2006. *Walnut Creek General Plan 2025 Final EIR*. Prepared for the City of Walnut Creek.

⁴ ROMA Design Group, 2010. *Locust Street/Mt. Diablo Boulevard Specific Plan*. Prepared for the City of Walnut Creek. July 20.

⁵ RRM Design Group, 2014. *Shadelands Gateway Specific Plan*. Prepared for the City of Walnut Creek. June 17.

⁶ Walnut Creek Transit Lifestyles Associates, et al., 2013. *Walnut Creek Transit Village Design Guidelines*. Prepared for the City of Walnut Creek. February 20.

⁷ Placeworks, 2014. *Draft West Downtown Specific Plan*. Prepared for the City of Walnut Creek. November 19.

(MTC). Plan Bay Area⁸ is the Bay Area's SCS, which provides an imperative to reduce greenhouse gas emissions by creating more livable, equitable, and environmentally sustainable communities. It addresses land use, transportation, housing, economics, and sustainability in a regional development plan for the Bay Area, with a focus on walkability and transit-oriented development.

Plan Bay Area was prepared and is being implemented in close consultation with local governments and communities, who maintain land use control over areas within their jurisdiction. An important component of Plan Bay Area is the establishment of Priority Development Areas (PDAs). The City Council of a given city can nominate PDAs within its jurisdiction, representing an area where there is a commitment to developing more housing, amenities, and services to meet community needs in a walkable, transit-oriented setting. PDAs are required to be within an existing community; to be near existing or planned fixed transit service such as BART or high-frequency, rapid bus service; and to have an approved TOD Plan in place.

The Core Area is designated as a planned PDA (shown in Figure 3-3). The Core Area boundary encompasses the Plan Area and, therefore, is eligible for grants to help fund future projects. The transit oriented vision for the Walnut Creek Core Area encourages housing and commercial mixed-use development near the Walnut Creek BART station and seeks to reduce traffic congestion by promoting alternative modes of transportation.

3.5.2 City of Walnut Creek Initiatives

The following outlines City of Walnut Creek initiatives, plans and policy documents.

3.5.2.1 Walnut Creek General Plan 2025

The Walnut Creek 2025 General Plan was an update to the Vision 2005 General Plan. The 2025 General Plan provides a vision of what the City should be over the next 20 years. While the General Plan does not include comprehensive guidance for the entire Plan Area, the following policies and actions are most relevant to the Plan Area, as follows:

Chapter 2 Quality of Life

- Action 2.1.4: Promote tourism and day visits to the city.
- Policy 2.6: For areas designated for commercial or business use, plan for adequate sites that allow for expansion of local businesses.
- Action 7.3.5: Encourage the establishment of childcare centers near the Walnut Creek and Pleasant Hill BART Stations.

Chapter 4 Built Environment

- Policy 3.1: Create opportunities for mixed-use developments

⁸ Association of Bay Area Governments and Metropolitan Transportation Commission, 2017. *Plan Bay Area 2040*. March.

- Action 3.1.2: Require that office development in the Golden Triangle and new development in the Mixed Use – Residential land use categories provide housing components.
- Policy 10.1: Support the development of medium- and high-density office, residential, and local serving retail near and around the Walnut Creek and Pleasant Hill BART stations (Core Area).
 - Action 10.1.1: Apply land use designations that encourage transit-oriented development around the BART stations and in the Core Area.

Chapter 5 Transportation

- Policy 2.2: Cooperate with East Bay Regional Parks and other jurisdictions to improve connections to regional trails.
- Policy 2.3: Maintain and enhance the City's position as a major regional center for automobile sales.
- Policy 5.1: Promote bicycle use as an alternative way to get to work, school, shopping, recreation facilities, and transit stops.
- Policy 6.1: Provide safe and attractive pedestrian routes along arterials and collectors leading to schools, along arterials or collectors that carry high traffic volumes, on all downtown streets, along major streets leading to the downtown, and on all streets leading to transit facilities.
- Policy 8.5: Link high-density residential developments, employment centers, and shopping areas via transit, bikeways, and walkways.
- Policy 9.3: Promote pedestrian safety in the downtown area.
- Policy 10.1: Support the development of medium- and high-density office, residential, and local serving retail near and around the Walnut Creek and Pleasant Hill BART Stations (Core Area).
- Policy 12.2: Promote a wide variety of public and private parking options.

Per the policies and actions listed above, the 2025 General Plan calls for mixed-use and a higher intensity of office, residential, and retail uses near BART (Policy 3.1 and Policy 10.1). Chapter 4.1, Land Use and Planning of this EIR, describes proposed land uses in greater detail. The delineation of the Plan Area is a new geographical boundary not previously identified in the General Plan.

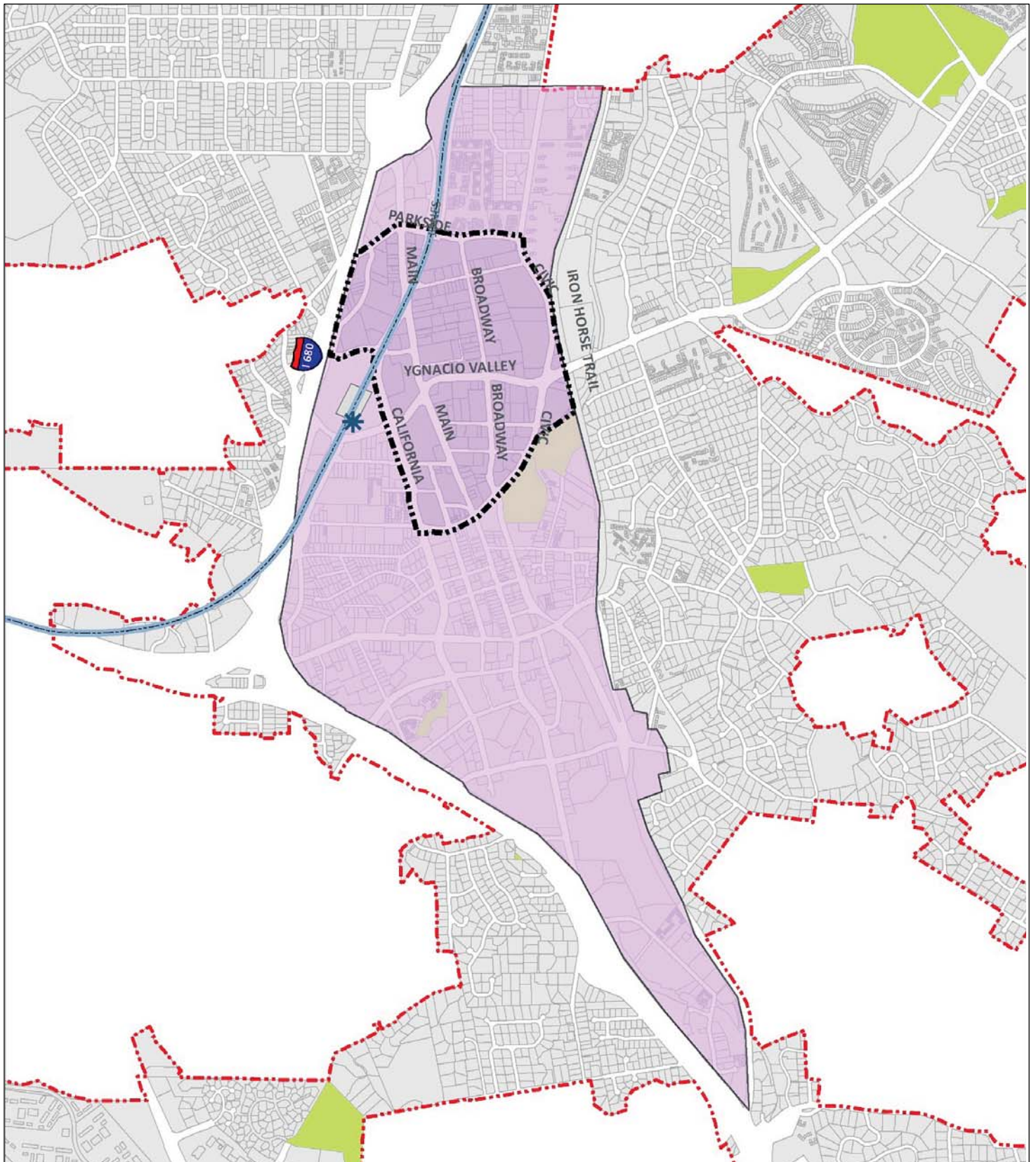
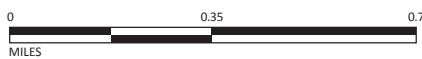


FIGURE 3-3

LSA



- Core Area
- Plan Area
- City Boundary
- BART Rail
- Park
- School
- BART Station

Data Sources: City of Walnut Creek GIS data,
Contra Costa County GIS data, 2015 ESRI, USGS

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3.5.2.3 North Main Street/Ygnacio Valley Road Specific Plan

The North Main Street/Ygnacio Valley Road Specific Plan, adopted in 2002,⁹ established a vision for a portion of the southern region of the Plan Area. It includes policies and guidelines encouraging new development and shows the preferred location, intensity, and character of land uses and capital improvements in the Plan Area. Once the Specific Plan is adopted, the new goals and policies will replace the ones in this plan.

3.5.2.4 Walnut Creek Bicycle Plan

Last updated in 2011, the Walnut Creek Bicycle Plan¹⁰ (Bicycle Plan) sets a vision encouraging bicycle use and improvements in the City. The Bicycle Plan includes goals, policies, and actions supporting this vision and promotes cycling as a viable and sustainable transportation option. The Bicycle Plan also identifies the Core Area as a high priority for implementing bicycle improvements, such as proposing a Class II bike lane along Civic Drive and Parkside Drive. Below are actions in the Bicycle Plan directly affecting the Plan Area.

- Action 7.4: Expand the existing or create new bicycle facilities with development and redevelopment of employment districts such as the Shadelands Business Center, the downtown Core Area, and around the BART stations.
- Action 10.1: Enhance network connectivity between transit stops and major destinations, including the Core Area and the City's open space areas.
- Action 11.3: Expand the number of bicycle racks and lockers in parking garages, employment centers, shopping centers, transit stations and the Core Area to meet future demand.

The Bicycle Plan is anticipated to be updated soon, and the Specific Plan would identify bike opportunities in the Plan Area.

3.5.2.5 Pedestrian Master Plan

The City's Pedestrian Master Plan¹¹ (Pedestrian Plan) was adopted in July 2016 and provides a framework for pedestrian facilities and programs in Walnut Creek. The Pedestrian Plan presents pedestrian improvement concepts with supporting policies to provide "safe, convenient and well maintained pedestrian facilities for all ages and abilities." The Pedestrian Plan identifies most of the Plan Area as a high pedestrian demand zone with opportunities for better street crossings, lighting, bus stops, traffic calming, and wayfinding.

⁹ EDAW, 2002. *North Main Street/Ygnacio Road Specific Plan*. Prepared for the City of Walnut Creek. July 16.

¹⁰ Walnut Creek, City of, 2011. *City of Walnut Creek Bicycle Plan*. August.

¹¹ Fehr & Peers, 2016. *City of Walnut Creek Pedestrian Master Plan*. Prepared for the City of Walnut Creek. July.

3.5.2.6 Design Review Guidelines

Last updated in 1996, the Design Review Guidelines¹² are intended to enhance the community character through architectural design, site planning, and landscape development in Walnut Creek. Projects go through a review process by the five-member Design Review Commission where they use principles outlined in the report to determine if the proposed project complies with City design standards. To create a smoother approval process, the Commission advises a review of site history, compliance with zoning requirements, a review of General Plan provisions, the use of quality design professionals, respect for the character of the area, and maintaining open communication with the public.

3.6 PROJECT GOALS AND OBJECTIVES FOR EIR ANALYSIS

The following goals of the Specific Plan were developed at the initiation of the planning process. Per CEQA Guidelines Section 15124(b), a project description is required to have a "... statement of the objectives sought by the proposed project." For the purposes of this EIR, these goals will be considered project objectives to inform and be used in the analysis contained in this EIR:

- Reinforce and further expand Walnut Creek's position as a major employment, retail commercial, and housing center, and as a cultural destination in the San Francisco Bay Area.
- Plan new economic and land use policies that lead to an increase in employment opportunities in close proximity to the Walnut Creek BART station and downtown.
- Harness and direct the market demand for more urbanized development in the 191-acre area near the Walnut Creek BART station, while also preserving and enhancing the strong sales tax base in the area, especially the auto sales and service uses which are concentrated within the Plan Area.
- Support and expand existing transit, bicycle and pedestrian transportation to manage traffic congestion, serve a diverse population, and build a resilient local transportation system.
- Expand upon the concepts of the North Main Street/Ygnacio Valley Road (NMS/YVR) Specific Plan, which was adopted in 2002 prior to the arrival of denser and more urbanized residential development in areas in and near the NMS/YVR Specific Plan Area.
- Direct and facilitate reinvestment and redevelopment within this portion of the Core Area of the City and to identify new infrastructure improvements needed to expand access to a broad range of transportation options, including walking, bicycling, and transit.
- Identify where optimal non-vehicular transportation connections should occur, and create and implement land use policies which take full advantage of the Plan Area's proximity to the Walnut Creek BART station and the traditional downtown.

¹² Walnut Creek, City of, 1996. *Design Review Guidelines*. July.

- Ensure that the transition from commercial land use to multi-family residential land use occurs in a responsible and fiscally sustainable manner.

3.7 NORTH DOWNTOWN SPECIFIC PLAN

This section provides a description of the planning process, a summary of the Specific Plan policies, and a description of the development assumptions included in this Draft EIR.

3.7.1 Specific Plan Process

Development of the Specific Plan is a City-initiated planning process for the area shown in Figure 3-2. The process began in April 2016 and has included analysis of existing conditions; creation of land use and circulation alternatives and development of the preferred alternative. The development of each of these was informed by a robust community engagement strategy that involved the community at each key stage of the planning process. The community engagement strategy included targeted outreach to stakeholders, community workshops, ongoing meetings with the North Downtown Specific Plan Advisory Committee; and outreach to the City's Planning Commission and the City Council. The community engagement process is described in Chapter 1, Introduction, of the Specific Plan.

3.7.2 Specific Plan Purpose and Authority

The Specific Plan shall guide all land use and development decision-making processes for the Plan Area. The Specific Plan does not replace or augment building safety codes or other non-planning related codes. All applications for new construction, substantial modifications to existing buildings, and changes in land use shall be reviewed for conformance with this Specific Plan. The Specific Plan would be adopted under the authority of the City's Zoning Ordinance, which establishes specific plans as tools to regulate land use and development.

3.7.3 Specific Plan Organization

The Specific Plan is organized into seven chapters, as described below:

- **Chapter 1: Introduction** includes information about the plan area's context and location, purpose of a Specific Plan, instructions on how to use the Specific Plan, and summary of the community engagement process.
- **Chapter 2: Vision** describes the vision and project goals that will direct future development and investment in North Downtown. It also includes a list of assumptions made at the beginning of the planning process to help guide decision making.
- **Chapter 3: Land Use** guides the location and type of new development. This chapter describes the land uses allowed in the Plan Area. It provides policy guidance of in North Downtown. This chapter also goes into greater detail about two specific districts in the Plan Area, with accompanying policies and character guidance for each.

- **Chapter 4: Development Standards and Guidelines** establishes regulations for future development on privately-owned properties in North Downtown. The chapter describes building design regulations such as allowed building height, intensity, and setback requirements. It also provides design guidance for topics such as public open space provision, landscaping, public art, small business retention, green building standards, and wayfinding.
- **Chapter 5: Mobility** establishes the overall street network, street and streetscape standards, bicycle and pedestrian networks, and other transportation standards and guidelines as well as policies that support multimodal mobility. This Chapter also includes standards that apply to all developments such as parking and loading and transportation demand management.
- **Chapter 6: Infrastructure and Utilities** identifies area-wide infrastructure, such as water supply, wastewater collection and treatment, stormwater management, telecommunications, solid waste and recycling, and police and fire services necessary to support new development.
- **Chapter 7: Implementation** identifies priority infrastructure projects, capital improvements, and other implementation actions, such as required programs or studies to implement the vision established in Chapter 2. It also describes the Specific Plan funding strategy and monitoring programs.

3.7.4 Planning Assumptions

Early in the planning process, a number of project assumptions were identified in coordination with the Specific Plan Advisory Committee. These assumptions were intended to provide parameters for how to approach a number of specific concepts, geographical locations, and physical constraints that were present in the Plan Area. The planning assumptions were referred to throughout the planning process and are supported by the Plan’s vision, concepts, and policies, and are summarized below.

3.7.4.1 Land Use Planning Assumptions

Following are the assumptions related to Land Use Planning for the proposed project.

- Auto sales and services will continue to be a major revenue generator for the City and will be accommodated and encouraged to intensify in the Plan Area, with particular focus north of Ygnacio Valley Road.
- Existing multi-story office and multi-family residential buildings built since 1985 are anticipated to remain through the 20-year Plan horizon.
- Civic Park will serve the Plan Area as the primary park and open space. The Plan Area will provide access to Civic Park and will be enhanced with small outdoor spaces such as plazas, courtyards and parklets.
- North Downtown will accommodate a portion of the City’s future housing and office needs, consistent with existing General Plan policy which focuses growth to the Core Area.

- The character of the Plan Area will become more compact, dense and walkable in form.

3.7.4.2 Circulation and Infrastructure Planning Assumptions

Following are the assumptions related to Circulation and Infrastructure Planning.

- The adjacent Walnut Creek BART station will continue to operate as a major commuter rail and bus transit hub which serves the Plan Area and the surrounding region.
- Ygnacio Valley Road will continue to be a vehicular route of regional significance, carrying between 60,000 to 70,000 car trips per day through the Plan Area.
- Civic Drive, N Main St and N California Blvd will continue to be major north/south routes, each carrying between 15,000 to 30,000 car trips per day.
- The Lawrence Way freeway entrance to northbound I-680 at the northwestern edge of the Plan Area will remain in its current locations and configuration.
- The Pacific Gas & Electric substation, electrical transmission line and easement in the Plan Area will remain in its current location.

3.7.5 Specific Plan Area-Wide Policies

The 20-year vision for the Specific Plan is that the Plan Area becomes better connected and integrated with Walnut Creek's traditional Downtown, the BART station, Civic Park, Iron Horse Trail, surrounding neighborhoods, and the region. It will continue to be an important jobs center and location for automobile sales and service, while also continuing to evolve into a vibrant mixed-use district that integrates housing, retail, restaurant, civic, hospitality, arts and entertainment uses.

North Downtown will feature well-designed public plazas that attract community members of all ages and will encourage physical activity, civic events, and informal social gathering. Street trees, landscaping, pedestrian-scale lighting and public art will beautify the streets and public spaces. Streets will be designed for all ages, abilities, and modes including pedestrians, bicyclists, transit, and vehicles. Ygnacio Valley Road will continue to be a major vehicular route of regional significance with improved facilities for pedestrians and bicyclists. Enhanced east-west and north-south connections will provide a diverse network of blocks, streets, and pathways, making it easier, safer, and more comfortable for workers, residents, and visitors to get around and through North Downtown. As described below, the Specific Plan provides key features for the following topics:

- Land Use
- Development Standards
- Mobility
- Infrastructure

3.7.5.1 Land Use

The proposed land use concept aims to create a more walkable area that is an extension of the traditional downtown with a focus on mixed use development with housing or office over ground-floor retail businesses south of Ygnacio Valley Road, the continuation of office and Auto Sales and Services north of Ygnacio Valley Road. Proposed Specific Plan land use designations are shown in Figure 3-4. Following are the key features of the Specific Plan land use concept.

- Encourage consolidation of auto sales and services north of Ygnacio Valley Road, with a more compact footprint.
- Support development of shared parking facilities for auto sales car storage.
- Facilitate a “Makers’ Row” along Pine Street to create opportunities for hand-crafted manufacturing, such as brewing, ceramics, jewelry making, and shared/technology/tool space.
- Encourage additional office development north of Ygnacio Valley Road.
- Encourage ground-floor, pedestrian oriented retail, restaurant, and service businesses along North Main Street and North Broadway.
- Support additional housing south of Ygnacio Valley Road.
- Support additional mixed-use office or residential over commercial along Civic Drive.
- Support development of an arts-entertainment-hospitality district that could include an outdoor plaza with space for outdoor events and focus on public art.
- Enhance the public realm with small public plazas, parklets, and seating areas.

The following land uses would be allowed within the Plan Area. These land uses are consistent with the land use categories in the General Plan.

- **Office (OF):** Primarily high quality administrative, professional, and general business offices that meet local and regional office space demands. Cultural facilities, restaurants, and retail stores are encouraged on the ground floor.
- **Auto Sales and Custom Manufacturing (AS):** Primarily intended for auto dealers, auto service and repair, as well as flexible industrial artisan space for small businesses and entrepreneurs. This is a special, new designation created for this plan to accommodate a more flexible range of artisan, industrial, and auto uses.
- **General Retail (GR):** Intended for one-stop-shop businesses that rely on customers arriving by auto and provide on-site parking. Uses include discount merchandise stores, financial institutions, hardware stores, hotels, nurseries, restaurants, and shopping centers. Ground floor retail is encouraged; offices may be allowed on the second floor or above.

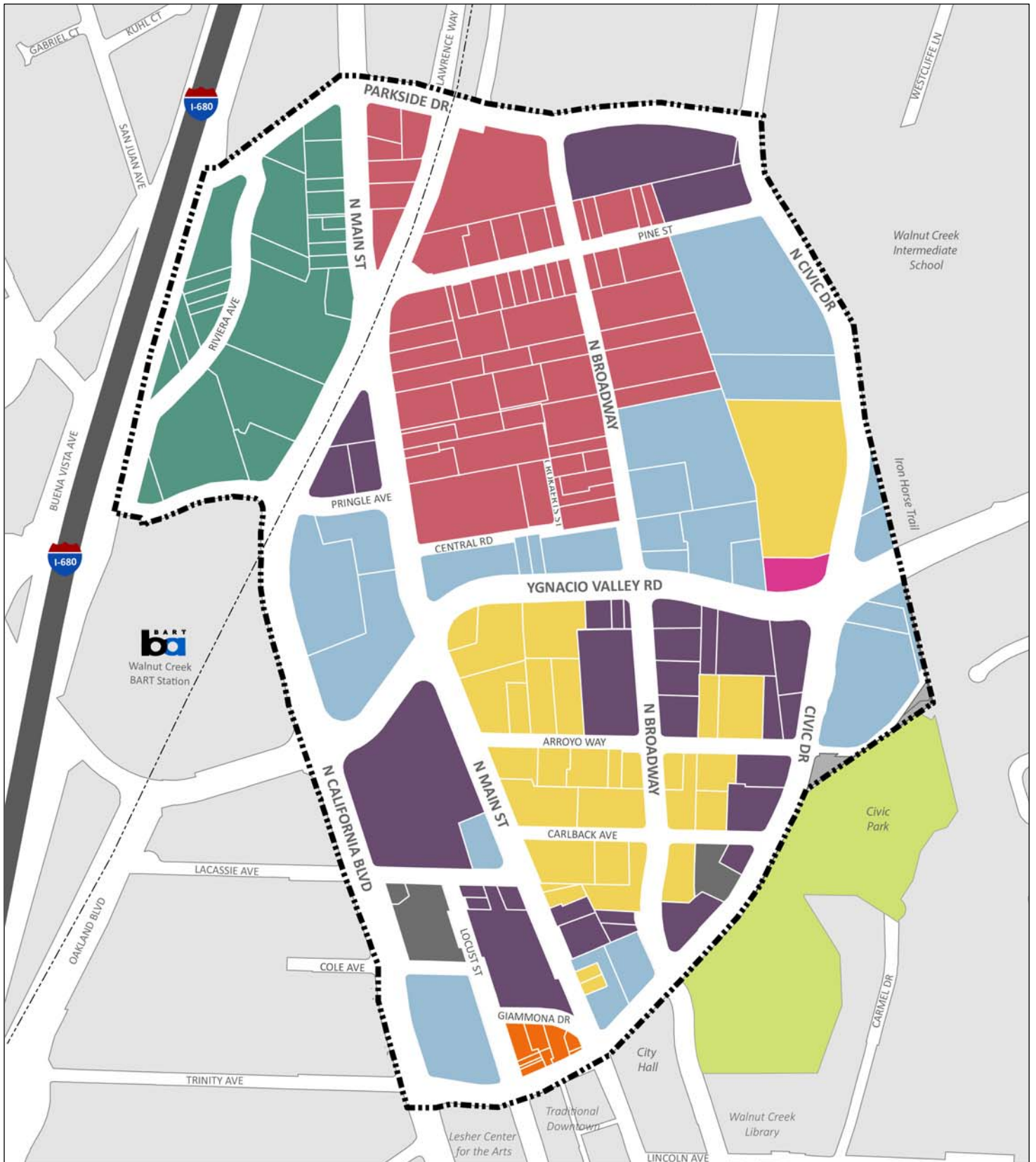
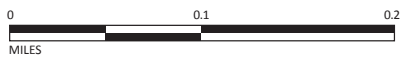


FIGURE 3-4

LSA



- Auto Sales & Custom Manufacturing (AS)
- Mixed Use - Residential (MU-R)
- Office (OF)
- Mixed Use - Commercial (MU-C)
- Pedestrian Retail (PR)
- Commercial Retail (CR)
- Public/Semi-Public (PU)
- Golden Triangle (GT)

- Plan Area
- BART Rail

Data Sources: City of Walnut Creek GIS data, Contra Costa County GIS data, 2015 ESRI, USGS

North Downtown Specific Plan EIR
Proposed Land Use Map

SOURCES: CITY OF WALNUT CREEK GIS DATA; CONTRA COSTA COUNTY GIS DATA, 2015, ESRI, USGS

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- **Mixed Use – Commercial Emphasis (MU-C):** Intended to encourage a combination of ground floor retail with office and/or residential uses above the ground floor. Retail is required on the ground floor.
- **Mixed Use – Residential Emphasis (MU-R):** Intended to encourage a combination of ground floor retail with office and/or residential uses above the ground floor. However, residential must be the primary use.
- **Mixed Use – Golden Triangle (MU-GT):** Intended to encourage a combination of ground-floor retail, high-intensity office and/or high-density residential development near the Walnut Creek BART station.
- **Public/Semi Public (PU):** This category encompasses facilities serving the public and the larger community good, including BART stations, the civic center, fire stations, government buildings, libraries, public utility stations and yards (but not their offices), public schools, and large, privately owned community-serving recreational facilities.
- **Pedestrian Retail (PR):** The purpose of the Pedestrian Retail zone is to provide a concentration of retail activity that is destination oriented, within the City’s designated Core Area. The intent is to serve the pedestrian shopper by offering a wide variety of shops.

Special Districts. As noted above, two key features of the land use concept would be the development of two special districts within the Plan Area, as illustrated in Figure 3-5. The intent of these districts is to create areas with distinct character and attract similar businesses to operate within close proximity of one another. These areas will become local and regional destinations and provide an opportunity for retail and gathering spaces within close proximity of Walnut Creek’s Downtown.

Makers’ Row. The area along Pine Street between Main Street and Civic Drive, as shown in Figure 3-5, is envisioned to develop over time into Makers’ Row. This district is intended to provide a variety of flexible industrial artisan space that can be used for production as well as retail sales or display. The concept is envisioned to be integrated and compatible with existing auto sales and service uses, focusing on street character and small-format, visitor-focused spaces, while providing an outlet and display for the large variety of creative industrial processes occurring throughout the North Downtown Area. It is within the Plan Area’s Auto Service and Custom Manufacturing land use category and will complement the existing character and businesses. Markers’ Row will encourage entrepreneurs and small and local businesses to open storefronts and operate in this area. It will have a unique, funky character and provide affordable leasing space.

Arts and Entertainment District. The Arts and Entertainment District is located in the southern edge of the Plan Area, south of Cariback, between Locust Street and N Broadway. It is just north of the Leshner Center of the Arts and will build on and encourage other art and entertainment uses to locate in the area including art galleries, music venues, restaurants, hotels, conference facilities and outdoor public gathering space. The District will have an artsy, creative, and colorful atmosphere that is intended to become a local and regional destination for people to

gather, with a variety of artistic venues and activities. The character of the Arts and Entertainment district is intended to extend to the design of the streetscape and public space, with public art, creative street furnishings, unique lighting, and artistic features integrated into paving and infrastructure.

3.7.5.2 Development Standards and Design Guidelines

The Development Standards chapter includes standards and guidelines that would apply to future public improvements and private development within the Plan Area, addressing both the design of new buildings and renovations of existing structures. Following are the key features of the Development Standards chapter.

- Encourage a compact development pattern and new connections that capitalize on the proximity to BART and downtown.
- Create attractive, high-quality public spaces, landscaping, and pedestrian-oriented amenities that are safe, vibrant, and accessible to all.
- Design architecturally interesting, appropriately scaled buildings to produce a high-quality urban form that contributes to a vibrant area of walkable blocks and varied experiences.
- Foster a strong sense of community through well-designed private and public spaces that encourage community gathering for events and a variety of locally serving amenities.
- Create a coordinated and consistent urban design character for public facilities.

The Specific Plan includes development standards for the following topics: height and development intensity; setbacks; and design guidelines for the following topics: site planning, building architecture,; building signage, public art, streetscape furnishings and public wayfinding.

3.7.5.3 Mobility

The Mobility chapter describes the future transportation network for all modes of travel within the Plan Area. The mobility chapter includes key features and policies related to the circulation network, street and intersection design concepts, parking, and transportation demand management. Following are the key features of the mobility chapter.

- Improve pedestrian crossings at key locations (such as controlled or enhanced crosswalks);
- Formalize connections to the Iron Horse Trail and Walnut Creek Intermediate School;
- Create mid-block east-west pedestrian and bicycle connections;
- Improve the bicycle network with new bicycle lanes and routes; and
- Create shared-use pedestrian and bicycle paths.

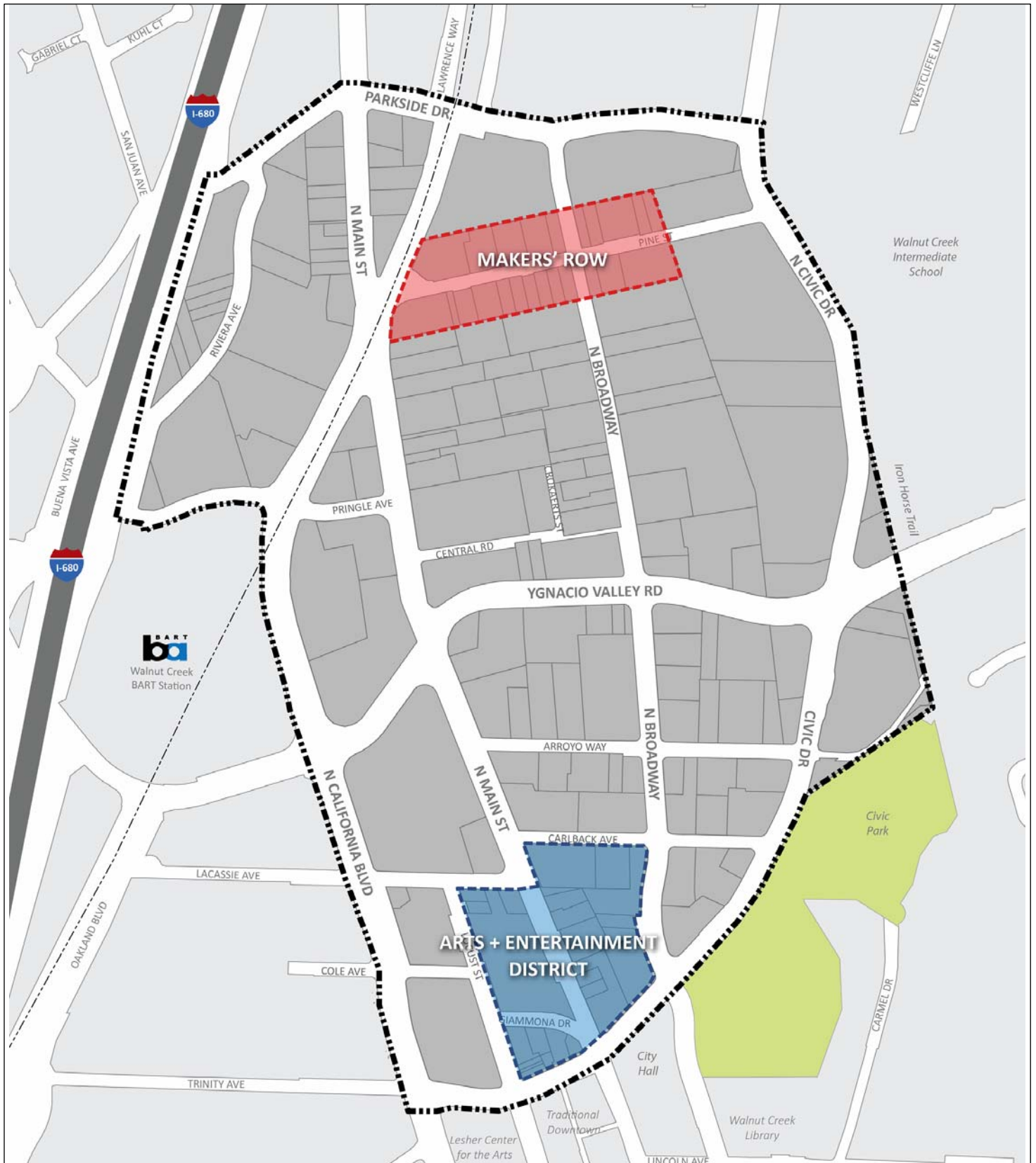
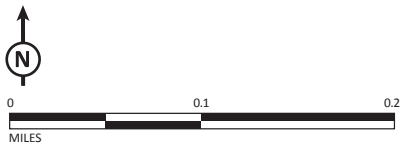


FIGURE 3-5

LSA



Plan Area BART Rail

North Downtown Specific Plan EIR
Proposed Special Districts

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The proposed circulation network within the Plan Area is shown in Figure 3-6. The Specific Plan includes several new bicycle, pedestrian, and multi-use facilities. These new facilities would complete the transportation network within the Plan Area, allowing more travel by foot and bicycle. The Mobility chapter includes various policies that meet the goals of the Specific Plan, described Section 3.6, and implement the key features, described above.

3.7.5.4 Infrastructure

The Infrastructure chapter establishes policies for the improvement and provision of utilities and public services taking into consideration the long-term development objectives to support development associated with the Specific Plan. The Infrastructure chapter identifies improvements to the underground utility infrastructure including municipal water and sewer that may need to be made as individual projects within the Plan Area are completed. These improvements include upsizing 6-inch water mains to 8-inch mains and the upsizing and replacement of approximately 5,670 linear feet of wastewater mains and would be completed by the East Bay Municipal Utility District (EBMUD) and Central Contra Costa Sanitary District (CCCSD). The infrastructure improvements identified would generally occur in the southern portion of the Plan Area.

3.7.6 Specific Plan Development Projections

The City has prepared growth projections to identify potential future development that would likely occur under the Specific Plan by 2038. For the purposes of evaluating the potential effects of the Specific Plan, these projections have been translated into equivalent estimates of the number of housing units, jobs, and population to occur by 2038, shown in Table 3-A. These future projections were identified by the City based on a parcel-by-parcel analysis of the potential development sites in the Plan Area that have the highest likelihood of being redeveloped over the 20-year time horizon of the Specific Plan. The existing baseline for this data is 2017, when traffic counts were taken and the existing conditions analysis for the Specific Plan began. This EIR analyzes the potential environmental effects of the project development build-out shown in Table 3-A. For the purposes of this analysis, the following entitled projects within the Plan Area are assumed to be part of the existing conditions:

- Riviera Apartments and Condos, multiple addresses: 138 residential units
- TRG Bayrock Apartments, located at 2211 North Main Street: 52 residential units
- Marriot Hotel, located at 2050 North California Boulevard and 2047 North Main Street: 160 hotel rooms
- F&M Bank, located at 1823 and 1871 North Main Street: 5,505 square feet of retail space
- 1716 Lofts, located at 1716 North Main Street: 48 residential units and 2,640 square feet of retail space

Table 3-A: Walnut Creek North Downtown Specific Plan Area Projections

Units	Existing Conditions (2017 Baseline)	2038 Projections	Net Difference (Specific Plan Study Option – 2017 Baseline)
Population	1,595 ^a	3,115 ^a	1,519
Housing Units	944	1,843	899
Jobs	13,039	16,585	3,546

Source: Raimi + Associates, North Downtown Growth Projection Assumptions Memo (December 7, 2017); Table compiled by LSA (2018)

Note: While the NOP will be circulated in 2018, the City is using a Year 2017 Baseline.

^a These projections were calculated using an assumed average household size of 1.69 persons, as described below.

The population projections shown in Table 3-A, below, were calculated using an assumed average household size of 1.69 persons.¹³ Employment projections were calculated using standard assumptions of one job per 500 square feet of retail space, one job per 250 square feet of office space, 0.9 jobs per hotel room,¹⁴ one job per 463 square feet of general light industrial,¹⁵ and one job per 600 square feet of auto retail or service.¹⁶

3.8 ANTICIPATED ADOPTION AND IMPLEMENTATION

The Planning Commission and City Council will review this Draft EIR along with the accompanying draft Specific Plan. The Planning Commission will subsequently review and provide a recommendation on the Final EIR and the Specific Plan to the City Council, who will consider certification of the Final EIR and adoption of the Specific Plan. The City will be responsible for implementing the Specific Plan through the development review process, other identified implementation strategies and the monitoring and issuance of permits.

Additionally, to consolidate the land use regulations for the Plan Area after adoption of the Specific Plan, amendments to the General Plan and Zoning Map will be required to allow for the rezoning of properties in the Plan Area from their existing zoning districts and General Plan designations. In addition, there may be additional zoning amendments undertaken by the City over time to ensure the Specific Plan is consistent with the Zoning Ordinance as a whole.

¹³ Raimi + Associates, 2016. *North Downtown Specific Plan Existing Conditions Report, Market and Economics, Table 1*. October 19.

¹⁴ The Natelson Company, Inc., 2001. *Employment Density Study: Summary Report*. Prepared for the Southern California Association of Governments. October 31.

¹⁵ United States Green Building Council, 2008. *Building Area Per Employee By Business Type*. May 13.

¹⁶ United States Green Building Council, 2017. *Appendix 2. Default occupancy counts*.

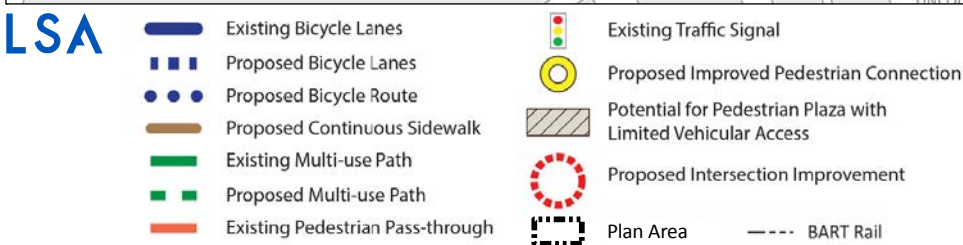
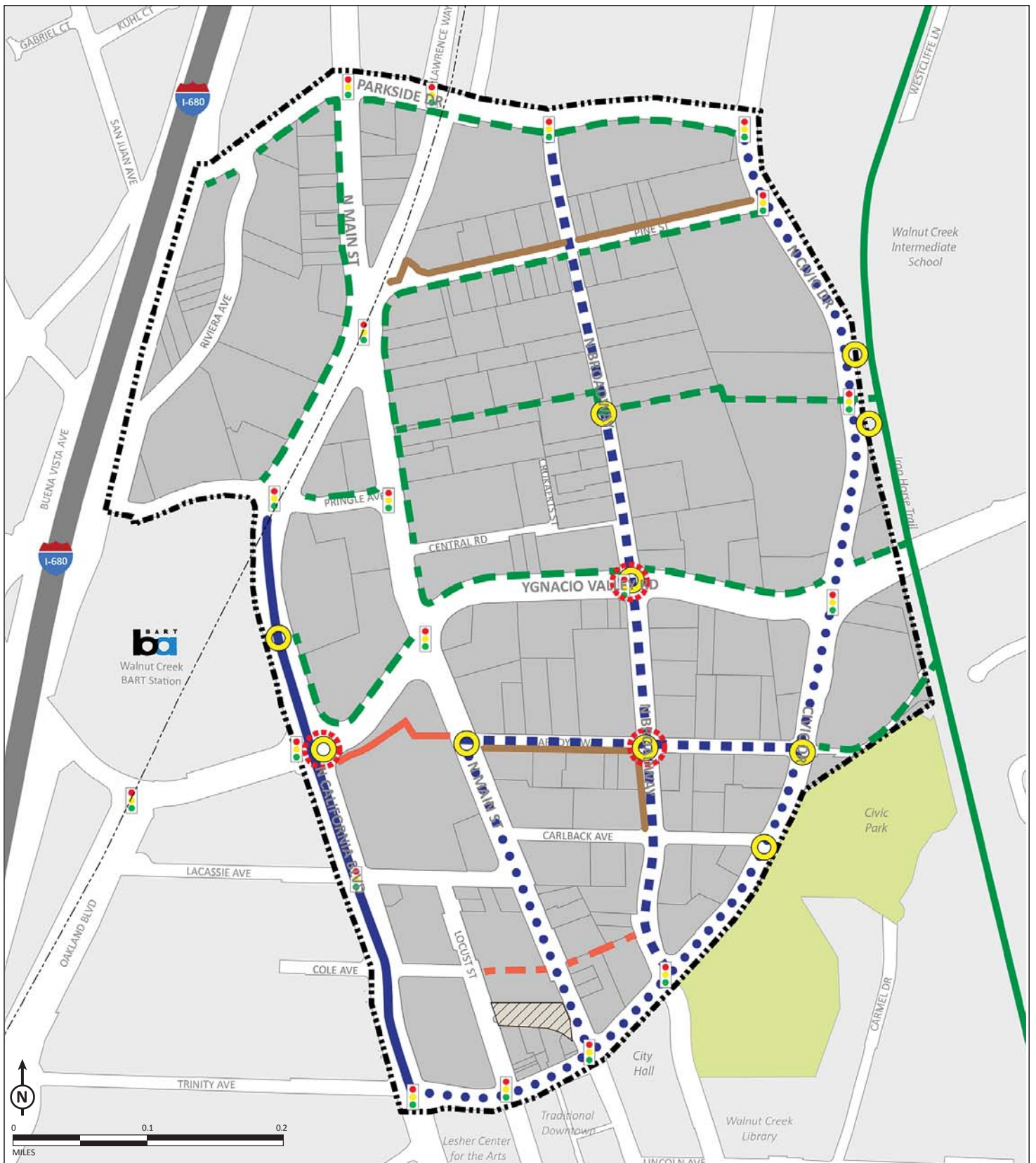


FIGURE 3-6

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4.0 SETTING, IMPACTS, AND MITIGATION MEASURES

This chapter contains an analysis of each potentially significant environmental issue that has been identified for the North Downtown Specific Plan Project (proposed project). The following: 1) identifies how a determination of significance is made; 2) identifies the environmental issues addressed in this chapter; 3) describes the context for the evaluation of cumulative effects; 4) lists the format of the topical issue section; and 5) provides an evaluation of each potentially significant issue in Sections 4.1 through 4.13.

DETERMINATION OF SIGNIFICANCE

Under CEQA, a significant effect is defined as a substantial, or potentially substantial, adverse change in the environment.¹ The CEQA Guidelines direct that this determination be based on scientific and factual data. The impact evaluation in this chapter is prefaced by criteria of significance, which are the thresholds for determining whether an impact is significant. These criteria of significance are based on the CEQA Guidelines and applicable City policies.

ISSUES ADDRESSED IN THE DRAFT EIR

Sections 4.1 through 4.13 of this chapter describe the environmental setting of the project as evaluated in the EIR and the impacts that are expected to result from implementation of the proposed project. Mitigation measures are proposed to reduce potential impacts, where appropriate.

- | | |
|-------------------------------------|---|
| 4.1 Land Use and Planning | 4.7 Hydrology and Water Quality |
| 4.2 Transportation and Circulation | 4.8 Hazards and Hazardous Materials |
| 4.3 Air Quality | 4.9 Population, Employment, and Housing |
| 4.4 Greenhouse Gas Emissions | 4.10 Public Services and Recreation |
| 4.5 Noise and Groundborne Vibration | 4.11 Utilities and Service Systems |
| 4.6 Geology and Soils | 4.12 Aesthetics |

Preliminary analysis has determined that implementation of the proposed Specific Plan would not result in significant impacts to Agricultural and Forestry Resources, Biological Resources, Cultural Resources, or Mineral Resources. Consequently, these issues are not examined in this EIR (but are discussed briefly in Chapter 5.0, Other CEQA Considerations).

ENVIRONMENTAL SETTING

This chapter has been prepared in accordance with CEQA Guidelines Section 15125, which states: "An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. The environmental setting will normally constitute the baseline physical conditions by

¹ CEQA Guidelines Section 21068.

which a Lead Agency determines whether an impact is significant. The description of the environmental setting shall be no longer than is necessary to an understanding of the physical effects of the proposed project and its alternatives.”

The NOP for the proposed project was published on January 16, 2018. Thus, each of the environmental topical sections in this chapter includes a discussion of physical conditions in the vicinity of the Plan Area on or around December 15, 2017, with the exception of Transportation and Circulation, as described in Section 4.2.1.2 of Chapter 4.2.

CUMULATIVE ANALYSIS CONTEXT

CEQA defines cumulative impacts as “two or more individual effects which, when considered together, are considerable, or which can compound to increase other environmental impacts.” Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts when the project’s incremental effect is cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of “reasonably foreseeable probable future” projects, per CEQA Section 15355. Cumulative impacts can result from a combination of the proposed project together with other closely related projects that cause an adverse change in the environment. Cumulative impacts can result from individually minor but collectively significant projects taking place over time.

The methodology used for assessing cumulative impacts typically varies depending on the specific topic being analyzed. CEQA requires that cumulative impacts be discussed using either a list of past, present, and probable future projects producing related or cumulative impacts, or a summary of projections contained in an adopted local, regional, or Statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. This EIR uses both approaches to evaluate cumulative impacts, and the particular approach used depends on the topical area under consideration; please refer to the cumulative discussion in the individual topic sections.

FORMAT OF ISSUE SECTIONS

The environmental topical section comprises two primary parts: (1) Setting, and (2) Impacts and Mitigation Measures. An overview of the general organization and the information provided in the two parts is provided below:

- *Setting.* The Setting section for each environmental topic generally provides a description of the applicable physical setting (e.g., existing land uses, existing traffic conditions) for the Plan Area and its surroundings in the City of Walnut Creek. An overview of regulatory considerations that are applicable to each specific environmental topic is also provided.
- *Impacts and Mitigation Measures.* The Impacts and Mitigation Measures section for each topic presents a discussion of the impacts that could result from implementation of the proposed Specific Plan. The section begins with the criteria of significance, which establish the thresholds to determine whether an impact is significant. The latter part of this section presents the

impacts from the proposed project and mitigation measures, as appropriate. Cumulative impacts are also addressed.

Impacts are numbered and shown in bold type, and the corresponding mitigation measures are numbered and indented. Impacts and mitigation measures are numbered consecutively and begin with an acronymic or abbreviated reference to the impact section (e.g., TRA). The following symbols are used for individual topics:

LU	Land Use and Planning Policy
TRA	Transportation and Circulation
AIR	Air Quality
GHG	Greenhouse Gas Emissions
NOI	Noise and Groundborne Vibration
GEO	Geology and Soils
HYD	Hydrology and Water Quality
HAZ	Hazards and Hazardous Materials
POP	Population, Employment and Housing
PSR	Public Services and Recreation
UTL	Utilities and Service Systems
AES	Aesthetics

Impacts are also categorized by type of impact, as follows: Less-Than-Significant (LTS), Significant (S), and Significant and Unavoidable (SU).

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4.1 LAND USE AND PLANNING

This section describes the existing land use conditions on and within the vicinity of the Plan Area, evaluates potential land use and planning policy-related impacts that could occur with implementation of the Specific Plan, and recommends mitigation measures, where appropriate.

4.1.1 Setting

4.1.1.1 Existing Land Use

The City occupies a valley between the Las Trampas and Diablo Foothill Ranges, at the foot of Mount Diablo. The City is located at the intersection of Interstate 680 (I-680) and State Route 24 (SR 24), 16 miles northeast of Oakland, in central Contra Costa County.

The Plan Area is shown in Figures 3-1 and 3-2 in Chapter 3.0, Project Description. The Plan Area is located on the western edge of Walnut Creek, directly north of the traditional Downtown and directly east of the Walnut Creek BART Station, surrounded by predominantly residential neighborhoods further to the east and to the west across I-680, the BART tracks, and heavier commercial activity further north. Civic Park, City Hall, and the Iron Horse Multi-Use Trail are directly southeast and east of the Plan Area.

The Plan Area is approximately 191 acres in size, with a majority of its land utilized for retail, automobile sales and services, and office uses, as well as a smaller amount of housing and public uses. Some of the City’s main thoroughfares provide access through the site, including Ygnacio Valley Road, North Main Street, North Broadway, and Civic Drive. The Plan Area includes a variety of auto sales and service businesses, and some of the City’s largest office buildings. Many of the City’s public buildings and facilities are located in or around the Plan Area, including City Hall, a State Department of Motor Vehicles Office, a Social Security Office, a County Fire Station, the Leshner Center for the Performing Arts, an AT&T facility, and the Post Office. The “Golden Triangle,” directly north of the BART station, is also in the Plan Area, and contains higher intensity office uses as well as some multi-family housing. Table 4.1.A below shows the acreages of the existing land uses within the Plan Area.

Table 4.1.A: Existing Land Use Acreage within the Plan Area

Land Use	Acreage	Percent of Total
Office	46.1	35.6
Auto Sales and Service	37.5	28.9
General Retail	26.3	20.3
Multifamily Residential	12.4	9.6
Public/Semi Public	3.5	2.7
Public/Private Parking	3.1	2.4
Single-Family Residential	0.7	0.5
Total	129.67^a	100.0

Source: Raimi + Associates (2017).

^a These figures may total from the calculated amounts shown above due to rounding. Additionally, note that these totals do not account for approximately 61 acres of combined vacant and public right-of-way space within the Plan Area.

4.1.1.2 Regulatory Setting

This section describes the State, regional, and local plans and regulations that address land use and development within and adjacent to the Plan Area. A brief description of these regulatory documents is provided.

State. Relevant State planning documents and regulations are described below.

California Government Code Title 7, Division 1, Chapter 3, Article 8. The State of California Government Code describes a Specific Plan as a plan “for the systematic implementation of the general plan for all or part of the area covered by the general plan.” The following components are required, at a minimum, to be included within a specific plan:

1. The distribution, location, and extent of the uses of land, including open space, within the area covered by the plan.
2. The proposed distribution, location, and extent and intensity of major components of public and private transportation, sewage, water, drainage, solid waste disposal, energy, and other essential facilities proposed to be located within the area covered by the plan and needed to support the land uses described in the plan.
3. Standards and criteria by which development will proceed, and standards for the conservation, development, and utilization of natural resources, where applicable.
4. A program of implementation measures including regulations, programs, public works projects, and financing measures necessary to carry out paragraphs 1, 2, and 3.

Additionally, specific plans are required to “include a statement of relationship of the specific plan to the general plan” and specific plans must be consistent with the general plan.

Regional. Relevant regional planning documents and regulations are described below.

Sustainable Communities Strategy/Plan Bay Area. The Sustainable Communities Strategy (SCS) is the Senate Bill (SB) 375-directed process managed by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC). Plan Bay Area is the Bay Area’s SCS, which provides an imperative to reduce greenhouse gas emissions by creating more livable, equitable, and environmentally sustainable communities. It addresses land use, transportation, housing, economics, and sustainability in a regional development plan for the Bay Area, with a focus on walkability and transit-oriented development.

As described in Chapter 3.0, Project Description, Plan Bay Area calls for focused housing and job growth around high-quality transit corridors, particularly within areas identified by local jurisdictions as Priority Development Areas (PDAs). As shown in Figure 3-3, the Plan Area is within the Core Area PDA, which encompasses approximately 627 acres. This land use strategy is anticipated to enhance mobility and economic growth by linking the location of housing and jobs with transit, thus offering a more efficient land use pattern around transit and greater return on existing and planned transit investments.

Local. Relevant local planning documents include the General Plan 2025, Zoning Ordinance, Walnut Creek Bicycle Plan, and Walnut Creek Pedestrian Master Plan.

General Plan 2025. The General Plan 2025 includes a Land Use Map that identifies the desired patterns of land use in the Plan Area by the General Plan’s horizon year of 2025.

Figure 4.1-1 shows the General Plan 2025 Land Use Map designations for the Plan Area. The land use categories provide the foundation for the City’s zoning map and regulations and have helped shape development decisions for the last 11 years. As described in Chapter 3.0, Project Description, the following land use categories are located within the Plan Area: Office (OF); Auto Sales and Service (AS); General Retail (GR); Mixed Use – Commercial Emphasis (MU-C); Mixed Use-Residential Emphasis (MU-R); Mixed Use – Golden Triangle (MU-GT); Public/Semi- Public (PU); and Pedestrian Retail (PR).

Table 4.1.B shows the existing General Plan Land Use Designations by acreage within the Plan Area. Table 4.1.A and Table 4.1.B vary slightly due to existing housing scattered in a variety of Office and Mixed Use zones, and automobile sales and service uses sometimes located within retail zones instead of the Automobile Sales and Service Zone. Additionally, Table 4.1.B does not account for vacant land.

Table 4.1.B: Existing General Plan Land Use Designation within the Plan Area

Land Use	Acreage	Percent of Total
Office (OF)	42.7	31.8
Auto Sales and Service (AS)	36.1	26.9
General Retail (GR)	25.1	18.7
Mixed Use – Golden Triangle (MU-GT)	16.9	12.5
Public/Semi Public (PU)	7.9	5.9
Mixed Use – Residential (MU-R)	4.4	3.3
Pedestrian Retail (PR)	0.9	0.7
Open Space – Recreation	0.3	0.2
Total	134.18^a	100.0

Source: Raimi + Associates (2017).

^a These figures may total from the calculated amounts shown above due to rounding. Additionally, note that these totals do not account for approximately 56 acres of public right-of-way space within the Plan Area.

The majority of the land within the Plan Area is made up of land designated for Office (31.8 percent), Auto Sales and Service (26.9 percent), and General Retail (18.7 percent). The remaining 22.6 percent is made up of Mixed Use, Public/Semi Public, Retail, and Open Space land use designations.

Zoning Ordinance. The City’s Zoning Ordinance acts as an implementation tool for the General Plan’s Built Environment Element. The Zoning Ordinance is located in Title 10, Chapter 2 of the Walnut Creek Municipal Code and regulates development type, density, and land use through development standards. Zoning in the Plan Area follows a similar pattern as the General Plan Land Use designations.

Figure 4.1-2 shows the existing Zoning Districts within the Plan Area.

Walnut Creek Bicycle Plan. The Walnut Creek Bicycle Plan (Bicycle Plan) sets a vision encouraging bicycle use and improvements in the City. The plan includes goals, policies, and actions supporting this vision and promotes cycling as a viable and sustainable transportation option. The plan also identifies the Core Area as a high priority for implementing bicycle improvements, such as proposing a Class II bike lane along Civic Drive and Parkside Drive. The following are actions within the Bicycle Plan directly affecting the Plan Area:

- **Action 7.4:** Expand the existing or create new bicycle facilities with development and redevelopment of employment districts such as the Shadelands Business Center, the Downtown Core Area, and around the BART stations.
- **Action 10.1:** Enhance network connectivity between transit stops and major destinations, including the Core Area and the City’s open space areas.
- **Action 11.3:** Expand the number of bicycle racks and lockers in parking garages, employment centers, shopping centers, transit stations and the Core Area to meet future demand.

Walnut Creek Pedestrian Master Plan. The Walnut Creek Pedestrian Master Plan (Pedestrian Plan) presents pedestrian improvement concepts with supporting policies to provide “safe, convenient and well-maintained pedestrian facilities for all ages and abilities.” The Pedestrian Plan identifies most of the Plan Area as a high pedestrian demand zone with opportunities for better street crossings, lighting, bus stops, traffic calming, and wayfinding.

4.1.2 Impacts and Mitigation Measures

The following discussion describes the proposed project’s potential impacts related to land use and planning. The section begins with the criteria of significance followed by a discussion of project impacts.

4.1.2.1 Significance Criteria

The proposed project would have a significant effect on land use and public policy if it would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

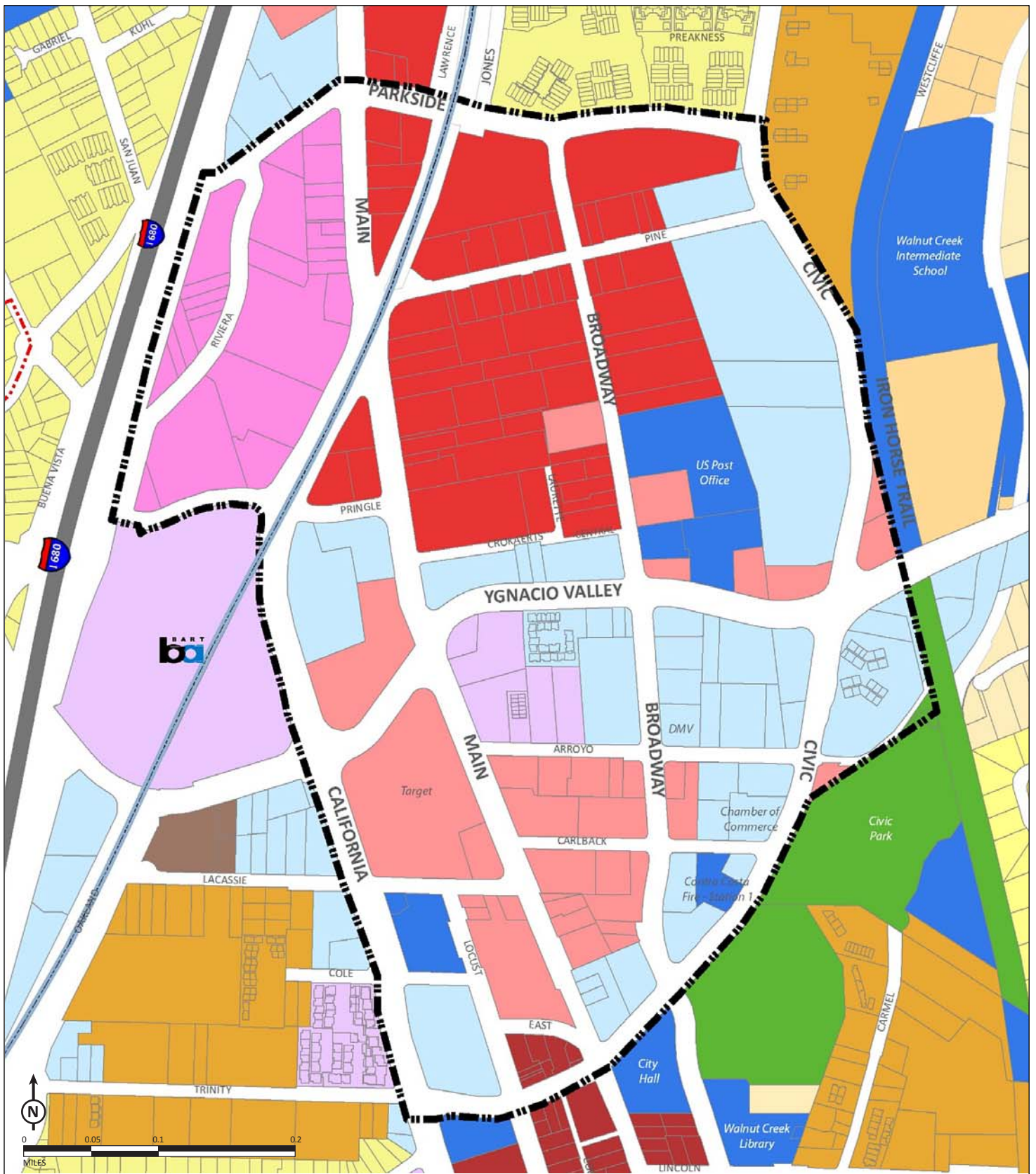


FIGURE 4.1-1

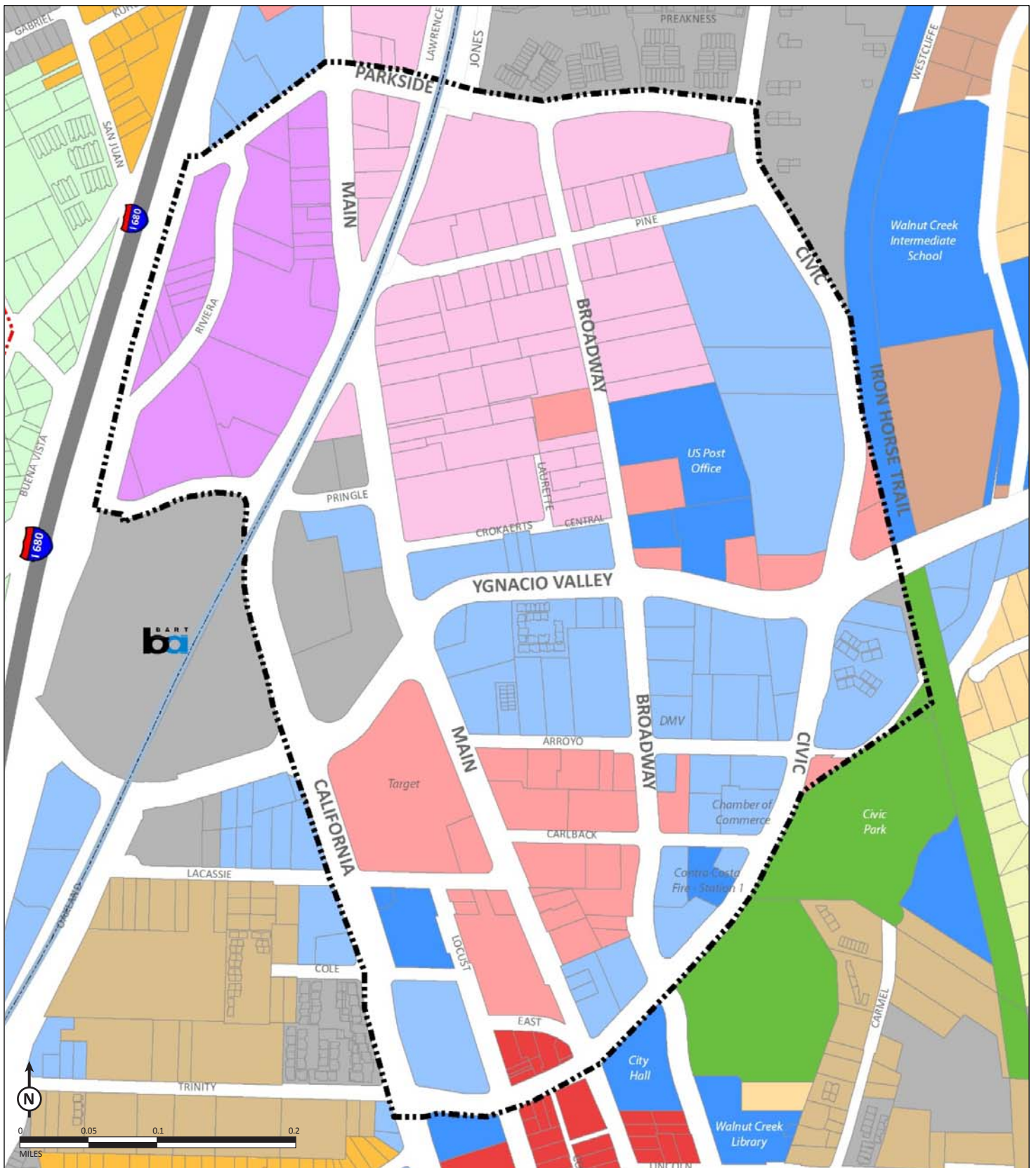
LSA

- | | | | | |
|------------------------|-----------------------------|--------------------------|-----------|---------------|
| Auto Sales and Service | Multifamily Low | Open Space - Recreation | Plan Area | City Boundary |
| Public/Semi Public | Mixed Use - Residential | Multifamily Special High | BART Rail | |
| General Retail | Mixed Use - Golden Triangle | Single Family Low | | |
| Office | Multifamily Medium | Pedestrian Retail | | |

North Downtown Specific Plan EIR
Existing General Plan Land Use Designations

SOURCE: CITY OF WALNUT CREEK GIS DATA; CONTRA COSTA COUNTY GIS DATA, 2015, ESRI, USGS

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LSA



FIGURE 4.1-2

North Downtown Specific Plan EIR
Existing Zoning Districts

SOURCE: CITY OF WALNUT CREEK GIS DATA; CONTRA COSTA COUNTY GIS DATA, 2015, ESRI, USGS

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4.1.2.2 Project Impacts

The following section provides an evaluation and analysis of the potential impacts of the implementation of the Specific Plan for each of the criteria of significance listed above.

Divide an Established Community. The physical disruption or division of an established community typically refers to the construction of a physical 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 example, the construction of an interstate highway through an existing community could constrain travel from one side of the community to another. Such a feature could also impair travel to areas outside of the community.

In the context of a Specific Plan, physical divisions within a community could also result from large-scale land use changes. The proposed project does include large-scale land use changes, however, the majority of the new land uses would be mixed-use, which is intentionally inclusive of a variety of uses, and therefore would not divide an already established community. Additionally, office and auto sales uses would continue to be clustered together north of Ygnacio Valley Road, while mixed-use would mainly be located to the south.

The Specific Plan does not include any large-scale infrastructure projects such as new freeways or rail lines that would divide an established community. Likewise, critical transportation infrastructure linking one neighborhood to another would not be removed as part of implementation of the Specific Plan. The Specific Plan focuses on the link between land use and transportation and seeks to balance the mobility needs of all users of the transportation system. Policies seek to reduce vehicle miles traveled and improve connectivity. Complete streets and sustainable transportation policies are included within the Specific Plan. These changes to the physical environment would not divide an established community, and would enhance multi-modal mobility within the City.

Conflict with Any Applicable Land Use Plans, Policy, or Regulation. This section includes a discussion of potential conflicts between the Specific Plan and the applicable planning documents described above.

Sustainable Communities Strategy/Plan Bay Area. Plan Bay Area does not directly govern land uses within the City, however there are a number of benefits available to the City from being consistent with Plan Bay Area, including streamlining pursuant to Senate Bill 375 (SB 375) for applicable transit priority and residential or mixed-use projects, as well as high eligibility for transportation funding, provided that policies and land use patterns proposed in the Specific Plan align with the goals of Plan Bay Area. Because the Plan Area is within an identified PDA, in which transit-oriented and infill development is encouraged, the Specific Plan would be consistent with the goals of Plan Bay Area by focusing on mixed-use and high-density transit-oriented infill development adjacent to the Walnut Creek BART Station. Therefore, the Specific Plan would not be inconsistent with Plan Bay Area, and this impact would be less than significant.

General Plan 2025. As described in Chapter 3.0, Project Description, the proposed project would include a General Plan Amendment to ensure consistency in land use designations and other pertinent provisions between the Specific Plan and the General Plan 2025. However, the Specific Plan is consistent with and implements the existing General Plan land use goals, policies, and actions that establish a framework for future development in the Plan Area, including:

Chapter 4: Built Environment

- **Goal 3: Encourage housing and commercial mixed-use development in selected locations that enhances pedestrian access and reduces traffic**
 - Policy 3.1: Create opportunities for mixed-use developments
 - Action 3.1.2: Require that office development in the Golden Triangle and new development in the Mixed Use – Residential land use categories provide housing components
- **Goal 10: Coordinate the location, intensity, and mix of land uses with transportation resources**
 - Policy 10.1: Support the development of medium- and high-density office, residential, and local serving retail near and around the Walnut Creek and Pleasant Hill BART stations (Core Area)
 - Action 10.1.1: Apply land use designations that encourage transit-oriented development around the BART stations and in the Core Area

The General Plan 2025 would be amended concurrently with the Specific Plan to ensure consistency, and the Specific Plan implements the overall land use framework for this area established by the General Plan's land use goals, policies, and actions. Specific Plan Policy LU 1.1 would ensure that land uses in the Plan Area would be consistent with the existing General Plan land use categories. Therefore, the Specific Plan would not conflict with the General Plan 2025, and this impact would be less than significant.

Zoning Ordinance. The City's Zoning Ordinance acts as an implementation tool for the General Plan's Built Environment Element and the Specific Plan's land use concept. Policies in the Specific Plan would require updates to the Zoning Ordinance such that it would be consistent with the Specific Plan and allow for land use patterns identified in the Specific Plan. Therefore, after implementation, the Specific Plan would not conflict with the Zoning Ordinance, or vice versa.

4.1.2.3 Cumulative Impacts

CEQA defines cumulative impacts as "two or more individual effects, which, when considered together, are considerable, or which can compound or increase other environmental impacts." Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts that are individually limited but cumulatively significant. These impacts can result from the

proposed project alone, or together with other projects. Section 15355 of the CEQA Guidelines states: “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.” Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

When evaluating cumulative impacts, CEQA allows the use of either a list of past, present, and probable future projects, including projects outside the control of the lead agency, or a summary of projections in an adopted planning document. This cumulative analysis for potential land use impacts uses adopted General Plans and Specific Plans in cities around Walnut Creek and the regional population and employment projections developed by ABAG.¹

Expected population growth in the region would result in extensive land use changes at the regional level, which is a potentially significant impact. ABAG expects that the population of the Bay Area region will grow from 7,609,000 residents in 2015 to 9,522,300 residents in 2040. Plan Bay Area has identified alternative growth strategies for the region to accommodate this growth. The preferred strategy calls for focused growth in existing communities along the existing transportation network. Plan Bay Area 2040 focuses growth and development within PDAs that are served by public transit and have been identified as appropriate for additional compact development. As stated above, the Plan Area is within the Core Area PDA.

As described above, the Specific Plan would be consistent with and implement the goals of the General Plan and the Zoning Ordinance would allow for the land uses identified within the Specific Plan. Therefore, individual development projects associated with the Specific Plan would not result in cumulatively considerable impacts when considered with past, present, and future projects as the Plan Area would be identified by the General Plan as an appropriate area for the type and intensity of development included in the Specific Plan.

The Specific Plan would result in compact growth and development within the Core Area PDA, and be consistent with the General Plan and Zoning Ordinance, and therefore would result in less-than-significant cumulative impacts related to land use.

¹ Association of Bay Area Governments and Metropolitan Transportation Commission, 2017. *Plan Bay Area 2040*. March.

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4.2 TRANSPORTATION AND CIRCULATION

This section is a transportation impact assessment prepared by Fehr & Peers Transportation Consultants. This section describes existing and projected future transportation conditions within the Plan Area vicinity, identifies the potential impacts of implementation of the Specific Plan, and recommends mitigation measures for identified significant impacts. The analysis methodology, environmental setting, and regulatory setting are described in the following sections. The transportation data and calculation sheets are included in Appendix B.

4.2.1 Analysis Scope and Methodology

The following sections describe the analysis scope and methodology, data collection methods, and study locations. The analysis scope presented in this chapter and all methodologies herein were reviewed and approved by City of Walnut Creek staff. The following subsections outline the analysis approach for traffic operations. The approaches for other transportation issues are presented later in this section.

4.2.1.1 Study Locations

This section evaluates the impacts of implementation of the Specific Plan on key roadway facilities, including 28 intersections, 12 freeway ramps, and three freeway segments. The study area for the transportation analysis was selected based on a review of the Plan Area and estimates of the added traffic expected to result from implementation of the Specific Plan. The study intersections, freeway mainline segments and ramps are listed below, and the study intersections are shown on Figure 4.2-1. Note that 40 intersections were evaluated for the existing condition, and 28 of these intersections were carried forward for the impact analysis, based on the current intersection operating conditions and expected additional traffic generated by the project. The 28 intersections carried through the impact analysis are listed below. The numbering is not sequential because it is based on the original list of 40 intersections.

Existing Conditions Study Intersections:

- 1) North Main Street & San Luis Road (signalized)
- 2) North Main Street & Penniman Way (signalized)
- 3) Penniman Way & Lawrence Way/Northbound (NB) Interstate 680 (I-680) Ramp (signalized)
- 4) Parkside Drive & Hillside Avenue (unsignalized)
- 5) Parkside Drive & Buena Vista Avenue (unsignalized)
- 6) Parkside Drive & San Juan Avenue (unsignalized)
- 7) Parkside Drive & Rivera Avenue (unsignalized)
- 8) North Main Street & Parkside Drive (signalized)
- 9) Parkside Drive & Lawrence Way (signalized)
- 10) North Broadway & Parkside Drive (signalized)
- 11) North Civic Drive & Parkside Drive (signalized)
- 12) North Main Street & North California Blvd/Lawrence Way (signalized)
- 13) North Broadway & Pine Street (unsignalized)
- 14) North Civic Drive & Pine Street (signalized)
- 17) North Main Street & Arroyo Way (unsignalized)
- 18) North Broadway & Arroyo Way (unsignalized)

- 19) Civic Drive & Arroyo Way (unsignalized)
- 24) North California Boulevard & Cole Avenue (unsignalized)
- 25) North California Boulevard & Trinity Avenue/Civic Drive (signalized)
- 27) Civic Drive & North Main Street (signalized)
- 28) Civic Drive & North Broadway (signalized)
- 33) Mt. Diablo Boulevard & California Boulevard (signalized)
- 35) Mt. Diablo Boulevard & Broadway (signalized)
- 36) Olympic Boulevard & Paulson Ln/Southbound (SB) I-680 Ramps (signalized)
- 37) Olympic Boulevard & NB I-680 Ramps (signalized)
- 38) Olympic Boulevard & Alpine Road (signalized)
- 39) Olympic Boulevard & S. California Boulevard (signalized)
- 40) Parkside Drive & Westbound (WB) State Route 24 (SR 24) On-Ramp (unsignalized)

Freeway Segments:

- 1) I-680 between Ygnacio Valley Road and Main Street
- 2) I-680 between Ygnacio Valley Road and Mount Diablo Boulevard
- 3) I-680 between Mount Diablo Boulevard and Olympic Boulevard

Freeway Ramps:

- 1) North Main I-680 Northbound Off-Ramp
- 2) North Main I-680 Southbound On-Ramp
- 3) Ygnacio I-680 Northbound On-Ramp
- 4) Ygnacio I-680 Southbound Off-Ramp
- 5) Ygnacio SR 24 Eastbound Off-Ramp
- 6) Ygnacio SR 24 Westbound On-Ramp
- 7) Mt. Diablo SR 24 Eastbound Off-Ramp
- 8) Mt. Diablo SR 24 Westbound On-Ramp
- 9) Olympic I-680 Northbound Off-Ramp
- 10) Olympic I-680 Northbound On-Ramp
- 11) Olympic I-680 Southbound Off-Ramp
- 12) Olympic I-680 Southbound On-Ramp

4.2.1.2 Data Collection

Peak hour intersection volumes at the signalized intersections studied for existing conditions are included in the City's Synchro traffic operations analysis model, and generally reflect 2014 conditions, with a few intersection volumes based on 2012 counts. At 10 unsignalized intersections which were added to the City's model, the City provided new counts collected in September 2016. Volumes at adjacent intersections were compared and, where necessary to ensure balanced volumes between closely spaced intersections, volumes were adjusted.

Freeway mainline volumes were obtained from the Caltrans PeMS database. On-ramp and off-ramp volumes were derived from the intersection counts.

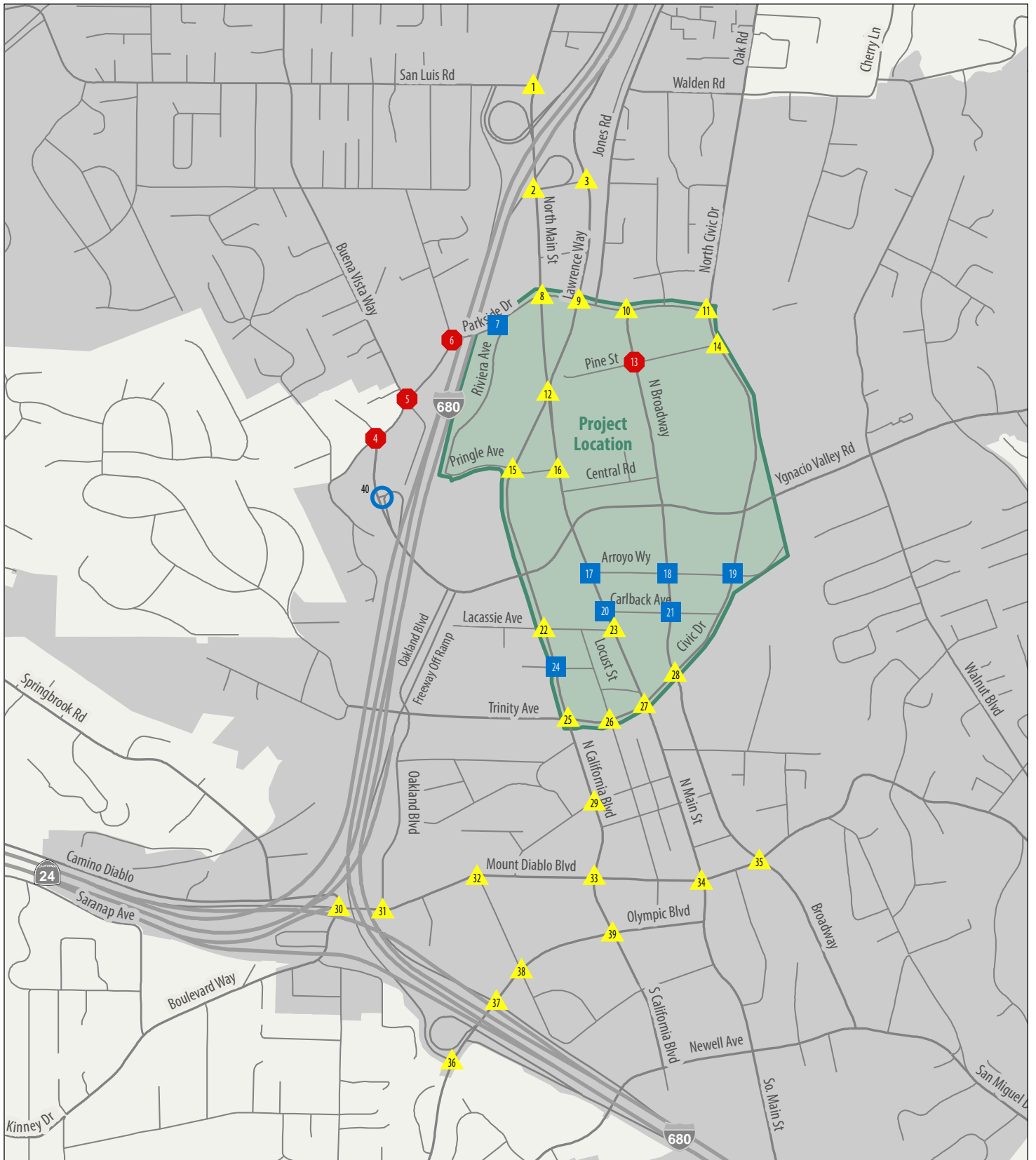


FIGURE 4.2-1

LSA

- ▲ Signals
- SS Stop
- ⬡ All Way Stop
- Yield Control



Note: All 40 intersections are analyzed for Existing conditions. Near-Term and Cumulative conditions are analyzed at intersections 1 – 14, 17 – 19, 24, 25, 27, 28, 33, 35, and 36 – 40.

NOT TO SCALE

North Downtown Specific Plan EIR
Study Intersections

SOURCE: FEHR & PEERS, 2018.

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4.2.1.3 Analysis Methodologies

Potential roadway system impacts resulting from implementation of the Specific Plan have been evaluated, and presented herein, following methodologies and standards commonly applied by the City of Walnut Creek in accordance with transportation planning and engineering practice.

Intersection Analysis Methodology. The operational performance of a roadway network is commonly described with the term “level of service” (LOS). LOS is a qualitative description of operating conditions, ranging from LOS A (free-flow traffic conditions with little or no delay) to LOS F (oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays). The LOS analysis methods outlined in the 2000 Highway Capacity Manuals (HCM)¹ were used in this study. This methodology incorporates characteristics such as the signal timing plan, the effects of pedestrians on signal phase duration, traffic volume peaking characteristics, motorist behavioral characteristics, and others. The Synchro Version 9 analysis program was used to perform the HCM analysis. The HCM analysis methods for signalized and unsignalized intersections are described below.

Signalized Intersections. Operations of signalized intersections were evaluated using the method from Chapter 18 of the 2000 HCM, which uses various intersection characteristics (such as traffic volumes, lane geometry, and signal phasing) to estimate the average control delay experienced by motorists traveling through an intersection. Control delay incorporates delay associated with deceleration, stopping, acceleration, and moving up in the queue. An intersection-wide volume to capacity measurement (v/c ratio) is also calculated, and this is the metric used by the City of Walnut Creek to assess project traffic impact significance. Table 4.2.A summarizes the relationship between the volume-to-capacity ratio and LOS for signalized intersections. This method evaluates each intersection in isolation and the effects of vehicle queue spillback are not considered in the analysis results.

Unsignalized Intersections. Operations at unsignalized intersections were evaluated using the methods from Chapters 19 and 20 of the 2000 Highway Capacity Manual. With this method, operations are defined by the average control delay per vehicle (measured in seconds) for each movement that must yield the right-of-way. At two-way or side street-controlled intersections, the control delay (and LOS) is calculated for each controlled movement, the left-turn movement from the major street, and the entire intersection. For controlled approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. The delays for the entire intersection and for the movement or approach with the highest delay are reported. Table 4.2.B summarizes the relationship between delay and LOS for unsignalized intersections.

¹ Transportation Research Board, 2010. *Highway Capacity Manual*.

Table 4.2.A: Signalized Intersection LOS Criteria

Level of Service	Description	v/c Ratio
A	Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤0.60
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	0.61 - 0.70
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	0.71 - 0.80
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity (V/C) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	0.81 - 0.90
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	0.91 – 1.0
F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	>1.0

Source: Highway Capacity Manual (2000 and 2010).

Table 4.2.B: Unsignalized Intersection LOS Criteria

Level of Service	Description	Average Control Per Vehicle (Seconds)
A	Little or no delays	< 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

Source: Highway Capacity Manual (2000 and 2010).

Intersection LOS Standards. The City of Walnut Creek General Plan defines the LOS standards for signalized intersections within the Core Area (defined as the area bounded by I-680, the Iron Horse Trail, and Walden Road) and outside the Core Area. For the purposes of this EIR, in consultation with City staff, these standards have been defined in terms of the HCM 2000 volume-to-capacity ratios as follows:

- For signalized intersections in the Core Area, the LOS standard is mid-LOS E (v/c=0.94)
- For Non-Core Area signalized intersections outside the Core Area, the LOS standard is mid-LOS D (v/c=0.84)

The City of Walnut Creek does not maintain LOS standards for stop-controlled intersections. However, for purposes of planning for improvements at such intersections, the City requires that the Manual on Uniform Traffic Control Devices peak hour signal warrant be reviewed as part of environmental reviews of projects and plans.

Freeway Operations Methodology. The analysis is based on the merge, diverge, and basic segment analysis procedures described in Chapter 11 of the 2010 HCM, where LOS is related to vehicle density. Table 4.2.C presents the relationship between vehicle density and LOS. The vehicle density reflects both the congestion and average travel speed experienced by motorists. The densities are calculated in passenger car equivalents (PCEs) per hour per lane; PCEs take into account the truck composition of the traffic flow. Caltrans establishes a LOS goal of the C/D threshold for freeway facilities, but acknowledges that travel demand causes many Bay Area freeway segments to exceed this threshold.

Table 4.2.C: Freeway LOS Definitions

Level of Service	Freeway Segment Density (cars per hour/per lane) ¹	Ramp Merge-Diverge Density (cars per hour/per lane)
A	< 11	< 10
B	> 11 and < 18	> 10 and < 20
C	> 18 and < 26	> 20 and < 28
D	> 26 and < 35	> 28 and < 35
E	> 35 and < 45	> 35
F	> 45 (Demand exceeds capacity)	Demand exceeds capacity when queues begin to form.

Source: *Highway Capacity Manual* (2010).

^a These standards apply to basic segments and weave segments.

Delay Index Methodology. The intersections along Ygnacio Valley Road have historically been analyzed using the methodology described for Contra Costa Transportation Authority Routes of Regional Significance, which is the Delay Index. The Delay Index calculations were established as part of the Measure C growth management program, discussed in Section 4.2.3 Setting for Regulatory Conditions. The Delay Index is expressed as the ratio of “congested” travel time divided by “uncongested” time. Along Ygnacio Valley Road, “congested” travel time is measured as the average travel time during the congested AM (7:00 a.m. to 9:00 a.m.) and PM (4:00 p.m. to 6:00 p.m.) peak periods. The “uncongested” travel time is chosen based on the lowest surveyed travel time during the AM and PM peak hours. Note that, as defined here, the “uncongested” travel time is still higher than a travel time during lower-volume periods such as the middle of the day or late at night. The Transportation Appendix contains the detailed methodology for the Delay Index calculation, as defined in the December 29, 2011, memo prepared by Dowling Associates for the City of Walnut Creek.

As described in Section 4.2.3 Setting for Regulatory Conditions, the September 2017 update to the Central Contra Costa County Action Plan for Routes of Regional Significance removed the Delay Index as the required performance metric for Ygnacio Valley Road, replacing it with a LOS F criteria at the intersections of Ygnacio Valley Road/Bancroft Avenue and Ygnacio Valley Road/Civic Drive.

However, the City of Walnut Creek General Plan requires the use of the Delay Index for the purpose of evaluating traffic operations on the Ygnacio Valley Road corridor. Therefore, the Delay Index is used as the impact criteria for Ygnacio Valley Road in this EIR.

Vehicle-Miles Travelled Methodology. In response to Senate Bill 743 (SB 743), the Office of Planning and Research (OPR) is updating the CEQA guidelines to include new transportation-related evaluation metrics. Draft guidelines were developed in August 2014, with final guidelines published in November 2017, incorporating public comments from the August 2014 and January 2016 drafts. The recommended traffic impact assessment metric in the final guidelines is Vehicle Miles of Travel (VMT), and peak hour intersection LOS will no longer be allowed as a measure of traffic impact significance. The guidelines are now undergoing a formal rule-making process that is expected to conclude within the next few months, and full compliance with the guidelines is expected by 2020. The City of Walnut Creek has not yet adopted a policy or significance threshold for environmental impact assessments in the City. Therefore, an assessment of the VMT per resident (for residential uses) and per employee (for office uses) generated by the Plan Area under Existing, Future No Project and Future With Project conditions was prepared for this EIR, for informational purposes only. The analysis was performed using the external vehicle trip generation estimates for each case, using the Main Street/MXD+ methodology as described in section 4.2.4.2; trip purpose breakdowns based on NCHRP 716: Travel Demand Forecasting Parameters and Techniques; average vehicle trip lengths by trip purpose for Walnut Creek, obtained from the 2010 – 2012 California Household Travel Survey; and resident and employee estimates consistent with the project land use description and the No Project land use description. Please refer to the Regulatory Setting for more discussion of transportation impact analysis changes under SB 743, including recommended thresholds of significance for impact analysis. As noted above, the City of Walnut Creek has not yet adopted significance thresholds, so this EIR does not assess project-related impacts based on VMT.

Analysis Scenarios. The operations of the study intersections, freeway segments and ramps, and Ygnacio Valley Road corridor were evaluated during the time periods when traffic volumes are highest, i.e., during the one hour when morning and evening traffic is highest between 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m., respectively. The operations of these facilities were evaluated for the following scenarios for the project:

- **Existing** – Existing (2014-2016) conditions based on traffic counts
- **Near Term Without Project** – Existing volumes plus traffic generated by entitled pipeline projects
- **Near Term with Project** – Near-Term traffic plus traffic generated by full buildout of the Specific Plan
- **Cumulative Without Project** – Forecasts for the year 2040 based on regional traffic growth and full buildout of the City of Walnut Creek General Plan and all pipeline projects
- **Cumulative with Project** – Cumulative traffic forecasts plus traffic generated by full buildout of the Specific Plan and all pipeline projects

4.2.2 Setting

The existing conditions for vehicles, transit, bicycles, and pedestrians within the vicinity of the site are presented below.

4.2.2.1 Roadway Network

As shown on Figure 4.2-1, the North Downtown Specific Plan area is bounded by I-680 and North California Boulevard to the west, Civic Drive to the east and south, and Parkside Drive to the north. Regional access to the Plan Area is provided by I-680, SR 24, and Ygnacio Valley Road.

- **Routes of Regional Significance** – major roadway and freeway corridors that serve regional traffic, as identified in action plans adopted by the Contra Costa Transportation Authority (CCTA). In the study area, I-680 and Ygnacio Valley Road are designated Routes of Regional Significance.
- **Arterials** – roadways that provide intra-city travel and access to the regional roadway network.
- **Collectors** – roadways that provide access within and between neighborhoods, and carry trips from local streets to arterials.
- **Local Streets** – roadways that are not classified as regional routes, arterials or collectors. The primary function of local streets is to provide direct access to fronting properties.

The roadways in the study area are described below.

Routes of Regional Significance

- **Interstate 680 (I-680)** is a north-south freeway connecting to Interstate 280 and U.S. Highway 101 in the south in San Jose to Interstate 80 to the north in Fairfield. The freeway is directly west of the study area, and generally provides three to four mainline lanes in each direction. Interchanges at Ygnacio Valley Road and North Main Street provide the most direct access to the Plan Area. In 2014, the average daily traffic volume on I-680 at Ygnacio Valley Road and at North Main Street was 241,000 vehicles per day.

Ygnacio Valley Road is a six-lane, east-west divided arterial that extends from I-680 to Clayton Road, where it continues as Kirker Pass Road. The Central Contra Costa County Action Plan identifies Ygnacio Valley Road as a Route of Regional Significance. The posted speed limit on Ygnacio Valley Road in the Plan Area is 30 miles per hour (mph). Sidewalks are provided on both sides of the street through the study area; bicycles are allowed to ride on the sidewalk as Ygnacio Valley Road is a designated enhanced Class III bicycle route. No parking is permitted on this roadway. In the study area, Ygnacio Valley Road carries approximately 62,200 vehicles per day.

- Figure 4.2-2 shows the Ygnacio Valley Road corridor.



FIGURE 4.2-2

LSA

NOT TO SCALE



SOURCE: FEHR & PEERS, 2018.

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North Downtown Specific Plan EIR
Ygnacio Valley Road Corridor

Arterials

- **Parkside Drive** is an east-west arterial that forms the northern boundary of the Plan Area, connecting I-680 on the west to North Civic Drive on the east. From I-680 to Riviera Avenue, Parkside Drive provides one travel lane in each direction and provides Class III bike sharrows. From Riviera Avenue to North Main Street, Parkside Drive provides one westbound travel lane and two eastbound travel lanes, with turn pockets. Parkside Drive from North Main Street to Jones Road provides two travel lanes in both directions, as well as turn lanes to access I-680 North or Jones Road. From Jones Road to North Civic Drive, Parkside Drive provides two travel lanes in both directions with a center median and turn pocket lanes at intersections. Sidewalks are generally provided along Parkside Drive. The posted speed limit along Parkside Drive is 25 mph west of Main Street and 35 mph east of Main Street. Parkside Drive carries approximately 15,200 vehicles per day just east of Main Street.
- **North California Boulevard** is a four-lane, north-south divided arterial that extends from North Main Street in the north to Newell Avenue in the south. North California Boulevard provides Class II bicycle lanes between Pringle Avenue and Trinity Avenue within the Plan Area. Some metered on-street parking is provided along North California Boulevard near Pringle Avenue, and sidewalks are generally provided. The posted speed limit along North California Boulevard is 35 mph. North California Boulevard carries approximately 13,800 vehicles per day from Ygnacio Valley Road to North Main Street and approximately 18,400 vehicles per day from Ygnacio Valley Road to Trinity Avenue.
- **North Main Street** is a four-lane, north-south divided arterial with turn pockets at intersections. North of Ygnacio Valley Road, the Main Street cross-section can widen to provide seven lanes at intersections. At Carlback Avenue, North Main Street becomes one lane in each direction with turn lanes. Some metered on-street parking is provided near retail and office establishments, such as south of Pringle Avenue and Arroyo Way. The posted speed limit is 30 mph south of Pine Street, and 35 mph north of Pine Street. North Main Street connects to I-680 just north of the study area and carries approximately 25,000 vehicles per day between Parkside Drive and North California Boulevard.
- **Lawrence Way** is a north-south arterial with two lanes in each direction. In the study area, Lawrence Way begins at the intersection with North Main Street and North California Boulevard and continues as a one-way northbound ramp over Parkside Drive, connecting to I-680 two blocks north of Parkside. There are no sidewalks along Lawrence Way, and the arterial primarily serves drivers approaching I-680. Lawrence Way carries approximately 16,700 vehicles per day south of Penniman Way (i.e., at the on-ramp to northbound I-680).
- **North Broadway** is a north-south arterial that connects to Parkside Drive on the north and southeast past the study area, eventually to I-680. North of Ygnacio Valley Road, North Broadway generally provides one travel lane in each direction with some metered street parking, and turn lanes to adjacent retail driveways. From Ygnacio Valley Road to Civic Drive, North Broadway has two lanes in each direction with some metered street parking and a turn lane at major intersections. North Broadway has sidewalks along the street. The posted speed limit north of Ygnacio Valley Road is 25 mph; south of Ygnacio Valley Road, the posted speed

limit is 30 mph. North Broadway carries approximately 7,600 vehicles per day south of Parkside Drive and 10,000 vehicles per day south of Ygnacio Valley Road.

- **Civic Drive** is a four-lane arterial that forms the eastern boundary of the study area. North Civic Drive starts generally north-south and curves generally east-west to I-680. North Civic Drive is generally a four lane divided road with turn lanes at intersections, becoming up to seven lanes at major crossings such as Ygnacio Valley Road. County Connection routes 7 and 311 run along North Civic Drive. There are generally sidewalks along Civic Drive. The posted speed limit on Civic Drive is 35 mph north of Ygnacio Valley Road, and 30 mph south of Ygnacio Valley Road. Civic Drive carries approximately 10,070 vehicles per day east of North California Boulevard, 24,660 vehicles per day north of Arroyo Way, and 18,500 vehicles per day south of Pine Street.

Collectors Riviera Avenue is a north-south collector street that connects Parkside Drive to the North and Pringle Avenue to the south, towards the Walnut Creek BART station. Riviera Avenue is striped with sharrows which indicate where bicyclists should ride, in a shared auto/bicycle space. Metered on-street parking is generally provided on the southbound side of the street. Sidewalks are available on both sides.

Local Roadways. The local roadways described below provide essential access to and through the study area, or are part of the study intersections analyzed in this section.

- **Pine Street** is a two-block long east-west local street connecting North California Boulevard and Main Street to Civic Drive on the east. A one-way eastbound, one-lane entrance to Pine Street is available from the North California Boulevard, Main Street, and Lawrence Way intersection. The western end of Pine Street is a cul-de-sac for vehicles to turn around; Pine Street dead ends at Civic Drive. Pine St is two-lanes with metered on-street parking. Sidewalks are provided on both sides and the posted speed limit is 25 mph.
- **Pringle Avenue** is an east-west local street connecting North Main Street to Riviera Avenue and forms the south boundary of the Plan Area. Pringle Avenue provides one lane in each direction, with sidewalks and on-street parking on both sides. The speed limit on Pringle Avenue is 25 mph.
- **Central Road** is a two-lane east-west local street connecting North Main Street to North Broadway. Parking is generally not allowed on both sides of the street, except for a short stretch west of Crokaerts Street. Sidewalks are generally provided, except for the south side of Central between Crokaerts Street and North Broadway.
- **Arroyo Way** is a two-lane east-west local street connecting North Main Street to Civic Drive and the Iron Horse Regional Trail, a major recreational bicycling and walking route to the east. Some metered on-street parking spaces area available.
- **Carlback Avenue** is a two-lane east-west local street connecting North Main Street to Civic Drive. Metered on-street parking spaces and sidewalks are generally provided on both sides of the street.

- **Lacassie Avenue** is a two-lane east-west local street that forms a cul-de-sac on the western end and connects to North Main Street on the eastern end. Metered on-street parking spaces are available on both sides of the street between North California Boulevard and North Main Street. Four-hour residential parking is provided west of North California Boulevard.
- **Cole Avenue** is a two-block long two-lane cul-de-sac extending from California Boulevard approximately 325 feet to the west. Sidewalk is provided on both sides of the street, with a 100-foot gap at the cul-de-sac on the north side of the street. On-street parking is provided on both sides of the street.

Traffic Demand Volumes and Lane Configurations. Weekday morning and evening peak hour intersection turning movement volumes were collected by the City of Walnut Creek and entered into the Synchro traffic operations model maintained by the City. The signalized intersection volumes represent 2014 conditions (with a few intersections based on older 2012 counts), and the unsignalized intersection volumes represent September 2016 conditions. Volumes at closely spaced intersections with different underlying count years were reviewed and adjusted to provide a balanced volume scenario. The peak hour volumes are presented on Figure 4.2-3a and Figure 4.2-3b along with the existing lane configuration and traffic control at the intersections.

Intersection Operations. Existing intersection lane configurations and traffic controls, signal timings, and peak hour turning movement volumes were used to calculate the levels of service for the study intersections during the AM and PM peak hours. The results of the LOS analysis using the HCM 2000 method in the Synchro 9 software program are presented in Table 4.2.D. Based on the analysis methodology and current traffic volumes, all intersections currently meet the City of Walnut Creek LOS standards.

The LOS calculation worksheets are included in the Transportation Appendix.

Table 4.2.D: Peak Hour Signalized Intersection LOS – Existing Conditions

	Intersection	Peak Hour	Control	Existing Conditions	
				V/C Ratio	LOS
1	North Main Street & San Luis Road	AM PM	Signalized	0.56 0.48	A A
2	North Main Street & Penniman Way	AM PM	Signalized	0.56 0.56	A A
3	Penniman Way & Lawrence Way/NB I680 Ramp*	AM PM	Signalized	0.38 0.92	A E
8	North Main Street & Parkside Drive**	AM PM	Signalized	0.79 0.89	C D
9	Parkside Drive & Lawrence Way	AM PM	Signalized	0.34 0.30	A A
10	North Broadway & Parkside Drive	AM PM	Signalized	0.39 0.57	A A
11	North Civic Drive & Parkside Drive	AM PM	Signalized	0.78 0.61	C B
12	North Main Street & North California Blvd/Lawrence Way	AM PM	Signalized	0.62 0.72	B C
14	North Civic Drive & Pine Street	AM PM	Signalized	0.52 0.47	A A

Table 4.2.D: Peak Hour Signalized Intersection LOS – Existing Conditions

	Intersection	Peak Hour	Control	Existing Conditions	
				V/C Ratio	LOS
15	North California Boulevard & Pringle Avenue	AM	Signalized	0.43	A
		PM		0.52	A
16	North Main Street & Pringle Avenue	AM	Signalized	0.44	A
		PM		0.49	A
22	North California Boulevard & Lacassie Avenue	AM	Signalized	0.35	A
		PM		0.43	A
23	North Main Street & Lacassie Avenue	AM	Signalized	0.28	A
		PM		0.50	A
25	North California Boulevard & Trinity Avenue/Civic Dr.	AM	Signalized	0.52	A
		PM		0.58	A
26	Civic Drive & Locust Street	AM	Signalized	0.35	A
		PM		0.54	A
27	Civic Drive & North Main Street	AM	Signalized	0.57	A
		PM		0.77	C
28	Civic Drive & North Broadway	AM	Signalized	0.62	B
		PM		0.73	C
29	North California Boulevard & Bonanza Street	AM	Signalized	0.54	A
		PM		0.70	B
30	Mt. Diablo Boulevard & Boulevard Way	AM	Signalized	0.53	A
		PM		0.58	A
31	Mt. Diablo Boulevard & Oakland Boulevard	AM	Signalized	0.59	A
		PM		0.64	B
32	Mt. Diablo Boulevard & Alpine Road	AM	Signalized	0.62	B
		PM		0.87	D
33	Mt. Diablo Boulevard & California Boulevard	AM	Signalized	0.62	B
		PM		0.83	D
34	Mt. Diablo Boulevard & Main Street	AM	Signalized	0.53	A
		PM		0.59	A
35	Mt. Diablo Boulevard & Broadway	AM	Signalized	0.53	A
		PM		0.70	B
36	Olympic Boulevard & Paulson Ln/SB I-680 Ramps	AM	Signalized	0.73	C
		PM		0.47	A
37	Olympic Boulevard & NB I-680 Ramps***	AM	Signalized	0.59	A
		PM		0.75	C
38	Olympic Boulevard & Alpine Road	AM	Signalized	0.53	A
		PM		0.51	A
39	Olympic Boulevard & S. California Boulevard	AM	Signalized	0.49	A
		PM		0.69	B

Source: Fehr & Peers (March 2018).

Notes:

LOS based on counts conducted between 2012 and 2016, provided by the City of Walnut Creek.

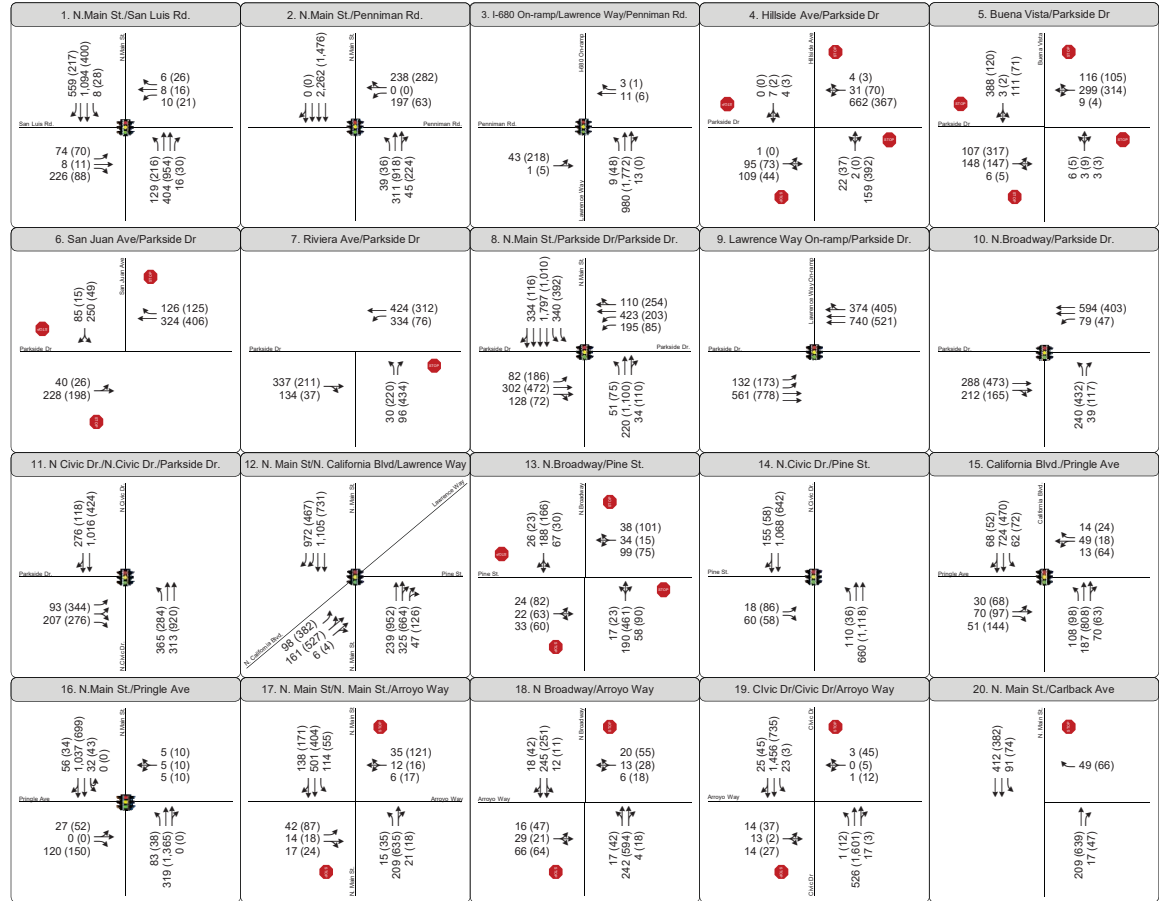
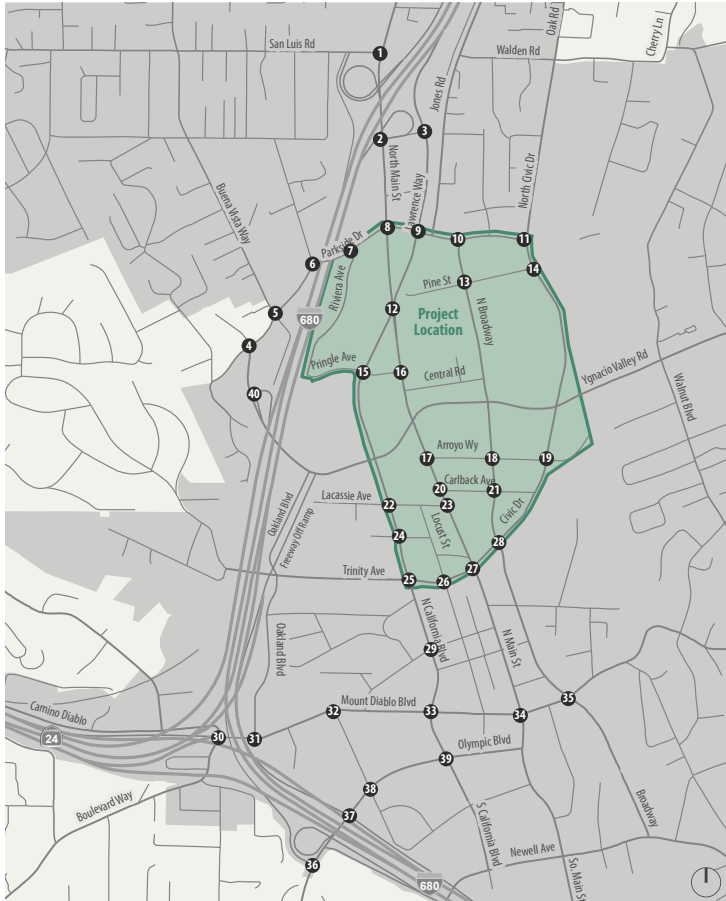
LOS = Level of Service. LOS calculations conducted using the 2000 HCM method in the Synchro 9 analysis software.

Bold text indicates below-standard intersection operations based on the Walnut Creek General Plan LOS standards. For signalized intersections in the Core Area, the LOS standard is mid-LOS E (v/c=0.94) For Non-Core Area signalized intersections, the LOS standard is mid-LOS D (v/c=0.84).

* In the PM peak hour, freeway congestion sometimes results in queues extending through this intersection, causing LOS F conditions.

** In the PM peak hour, on rare occasions, freeway congestion results in queues extending through this intersection, causing LOS F conditions. This was not observed on the days that field observations were conducted.

*** In the PM peak hour, the high westbound volume at this intersection sometimes results in queues extending past the Olympic/South California intersection, adding delay for these vehicles and causing LOS F conditions.



XX (YY) AM (PM) Peak Hour Traffic Volumes [Signalized Intersection] [Stop Sign] [Study Intersection]

LSA

NOT TO SCALE

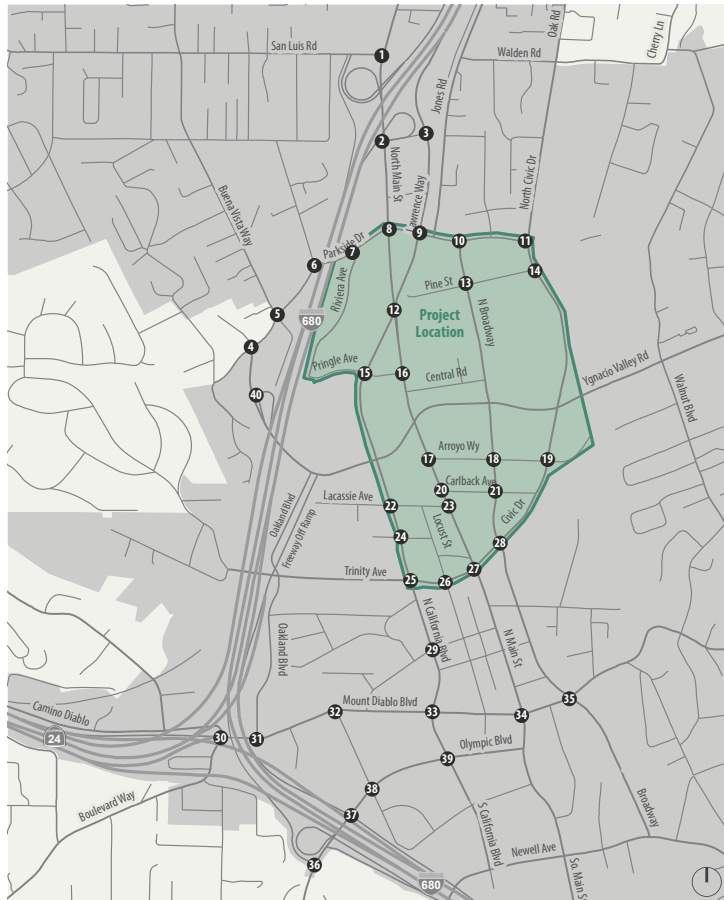


SOURCE: FEHR & PEERS, 2018.

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FIGURE 4.2-3a

North Downtown Specific Plan EIR
Existing Peak Hour
Intersection Traffic Volumes Lane Configurations and Traffic Controls



<p>21. N Broadway/Cariback Ave</p> <p>Cariback Ave</p> <p>11 (13) 272 (310) 36 (11)</p> <p>11 (72) 14 (12) 6 (7)</p> <p>9 (37) 21 (11) 58 (68)</p> <p>26 (50) 243 (524) 21 (21)</p>	<p>22. California Blvd./LaCassie Ave</p> <p>California Blvd</p> <p>43 (20) 59 (64) 56 (60)</p> <p>27 (133) 38 (72)</p> <p>13 (34) 5 (15) 12 (19)</p> <p>15 (16) 387 (1,038) 34 (77)</p>	<p>23. N. Main St./Main St./LaCassie Ave</p> <p>LaCassie Ave</p> <p>98 (87) 317 (359)</p> <p>30 (189) 6 (24)</p> <p>9 (21) 172 (404)</p>	<p>24. California Blvd./Cole Ave</p> <p>California Blvd</p> <p>18 (33) 828 (621) 135 (67)</p> <p>6 (63) 0 (3) 5 (5)</p> <p>18 (19) 0 (1) 14 (38)</p> <p>19 (39) 385 (1,132) 28 (48)</p>	<p>25. California Blvd./Civic Dr/Civic Drive</p> <p>California Blvd</p> <p>64 (85) 82 (82) 68 (70)</p> <p>18 (57) 75 (81) 287 (160)</p> <p>90 (157) 78 (124) 49 (60)</p> <p>28 (66) 391 (664) 269 (915)</p>
<p>26. Locust St/Civic Drive</p> <p>Civic Drive</p> <p>11 (43) 79 (129) 12 (25)</p> <p>42 (47) 337 (223) 120 (90)</p> <p>17 (48) 264 (570) 70 (83)</p> <p>6 (51) 37 (59) 19 (109)</p>	<p>27. Main St./Civic Drive</p> <p>Main St</p> <p>30 (64) 80 (317) 25 (93)</p> <p>21 (42) 442 (284) 107 (102)</p> <p>20 (55) 244 (568) 18 (48)</p> <p>21 (91) 155 (311) 79 (101)</p>	<p>28. Broadway/Civic Drive/Civic Dr</p> <p>Civic Drive</p> <p>72 (71) 251 (324) 4 (18)</p> <p>9 (14) 464 (293) 755 (380)</p> <p>28 (71) 263 (628) 49 (97)</p> <p>29 (53) 220 (557) 413 (751)</p>	<p>29. California Blvd./Bonanza St.</p> <p>California Blvd</p> <p>349 (151) 695 (550) 14 (53)</p> <p>7 (37) 20 (47) 2 (19)</p> <p>127 (213) 20 (114) 25 (62)</p> <p>54 (60) 478 (1,050) 16 (63)</p>	<p>30. Boulevard Way/Mt. Diablo Blvd</p> <p>Boulevard Way</p> <p>14 (31) 115 (188)</p> <p>220 (152) 754 (941) 291 (302)</p> <p>32 (13) 593 (738) 45 (71)</p> <p>59 (56) 21 (14) 308 (346)</p>
<p>31. Oakland Blvd./Mt. Diablo Blvd.</p> <p>Mt. Diablo Blvd</p> <p>340 (221) 0 (0) 133 (88)</p> <p>62 (89) 925 (1,174)</p> <p>81 (140) 935 (1,132)</p> <p>0 (0) 0 (0) 0 (0)</p>	<p>32. Alpine Rd/Mt. Diablo Blvd.</p> <p>Alpine Rd</p> <p>16 (5) 2 (1) 15 (8)</p> <p>10 (6) 634 (979) 50 (140)</p> <p>21 (12) 739 (988) 269 (267)</p> <p>195 (285) 13 (2) 138 (114)</p>	<p>33. California Blvd./Mt. Diablo Blvd.</p> <p>California Blvd</p> <p>180 (112) 470 (436) 58 (98)</p> <p>89 (95) 408 (435) 129 (148)</p> <p>127 (245) 255 (475) 217 (243)</p> <p>148 (270) 359 (895) 60 (122)</p>	<p>34. Main St./Mt. Diablo Blvd.</p> <p>Main St</p> <p>35 (73) 239 (185) 35 (50)</p> <p>39 (42) 467 (400) 129 (116)</p> <p>50 (75) 246 (433) 42 (69)</p> <p>68 (135) 179 (318) 82 (207)</p>	<p>35. Broadway/Mt. Diablo Blvd.</p> <p>Broadway</p> <p>14 (154) 55 (53) 96 (151)</p> <p>79 (135) 429 (295) 79 (34)</p> <p>115 (212) 181 (390) 88 (76)</p> <p>62 (131) 393 (606) 37 (76)</p>
<p>36. SB I680 Off-ramp/Pausens Ln/Olympic Blvd</p> <p>Olympic Blvd</p> <p>667 (325) 0 (0) 397 (543)</p> <p>389 (383) 2 (3)</p> <p>971 (724) 1 (4)</p> <p>1 (1) 0 (0) 13 (7)</p>	<p>37. NB I680 Ramps/Olympic Blvd</p> <p>Olympic Blvd</p> <p>363 (584) 467 (602)</p> <p>401 (284) 852 (882)</p> <p>111 (67) 0 (202) 379 (464)</p>	<p>38. Alpine Rd/Olympic Blvd</p> <p>Alpine Rd</p> <p>260 (212) 96 (48) 28 (13)</p> <p>12 (36) 458 (741) 13 (18)</p> <p>365 (218) 754 (1,057) 112 (91)</p> <p>86 (120) 29 (61) 14 (8)</p>	<p>39. California Blvd./Olympic Blvd</p> <p>California Blvd</p> <p>229 (231) 535 (439) 24 (70)</p> <p>15 (92) 63 (169) 6 (23)</p> <p>298 (533) 161 (305) 348 (266)</p> <p>188 (358) 317 (726) 4 (21)</p>	

XX (YY) AM (PM) Peak Hour Traffic Volumes Signalized Intersection Stop Sign Study Intersection

LSA

NOT TO SCALE



FIGURE 4.2-3b

North Downtown Specific Plan EIR
Existing Peak Hour

Intersection Traffic Volumes Lane Configurations and Traffic Controls

SOURCE: FEHR & PEERS, 2018.

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Table 4.2.E presents the LOS results for unsignalized intersections within the study area. The City of Walnut Creek does not maintain LOS standards for stop-controlled intersections, the level of service is presented for informational purposes. An assessment of the peak hour signal warrant for all unsignalized intersections indicates that the warrant is met for intersection #5 (Parkside Drive/Buena Vista Avenue) in the AM peak hour, and intersections #7 (Parkside Drive/Riviera Avenue) and #17 (North Main Street/Arroyo Way) in the PM peak hour.

Table 4.2.E: Peak Hour Unsignalized Intersection LOS – Existing Conditions

	Intersection	Peak Hour	Control	Delay	LOS ^{1,2}
4	Parkside Drive & Hillside Avenue	AM	AWSC	39.3	E
		PM		21.2	C
5	Parkside Drive & Buena Vista Avenue	AM	AWSC	32.6	D
		PM		22.4	C
6	Parkside Drive & San Juan Avenue	AM	AWSC	21.1	C
		PM		11.1	B
7	Riviera Avenue & Parkside Drive	AM	SSSC	8.9 (66.7)	A (F)
		PM		12.6 (24)	B (C)
13	North Broadway & Pine Street	AM	AWSC	11.1	B
		PM		28.1	D
17	North Main Street & Arroyo Way	AM	SSSC	4.7 (44.4)	A (E)
		PM		51.5 (>120)	F (F)
18	North Broadway & Arroyo Way	AM	SSSC	3 (12.3)	A (B)
		PM		5 (23.2)	A (C)
19	Civic Drive & Arroyo Way	AM	SSSC	3.2 (>120)	A (F)
		PM		14.7 (>120)	B (F)
20	North Main Street & Carback Avenue	AM	SSSC	1.6 (10)	A (A)
		PM		1.5 (16.3)	A (C)
21	North Broadway & Carback Avenue	AM	SSSC	2.9 (14.3)	A (B)
		PM		3 (15.9)	A (C)
24	North California Boulevard & Cole Avenue	AM	SSSC	1.5 (23.6)	A (C)
		PM		1.9 (26.4)	A (D)
40	Parkside Drive & WB SR 24 On-Ramp	AM	Yield	2.9 (5.9)	A (A)
		PM		2.9 (12.5)	A (B)

Source: Fehr & Peers (March 2018).

Notes:

For All-Way Stop-Controlled (AWSC) intersections, service levels are based on the whole intersection weighted average control delay expressed in seconds per vehicle calculated using methods described in the 2000 Highway Capacity Manual. For Side-Street Stop-Controlled (SSSC) intersections, the total delay and LOS is reported, followed by the worst movement or approach in parentheses.

Bold text indicates that the peak hour signal warrant is met.

Delay Index. The Delay Index was calculated for Ygnacio Valley Road from Oak Grove Road to the I-680 Southbound On-Ramp using the method described in Section 4.2.1.3 Analysis Methodologies. Table 4.2.F presents existing peak hour delay indices and corresponding average speeds. The corridor currently meets the standard, which is a Delay Index less than or equal to 2.0, and an average travel speed of at least 15 mph. Average travel speeds through the corridor vary from 20 to 30 mph during peak periods, depending on the direction of travel. The average travel speeds represent typical conditions over the peak hour; some individual trips may be longer or shorter than shown due to fluctuations in traffic volumes along the corridor during the peak commute periods.

Table 4.2.F: Peak Hour Delay Index – Existing Conditions

	Direction	Peak Hour	Existing Conditions	
			Delay Index	Average Speed (mph)
1	Ygnacio Valley Road Eastbound (Interstate 680 to Oak Grove Road)	AM	1.2	25.0
		PM	1.3	16.0
2	Ygnacio Valley Road Westbound (Oak Grove Road to Interstate 680)	AM	1.1	25.5
		PM	1.2	20.1

Source: Fehr & Peers (March 2018).

Freeway Operations. Table 4.2.G and Table 4.2.H present the current freeway operating conditions in the study area based on the latest available peak hour volumes obtained from the Caltrans PeMS database, combined with ramp volumes derived from the intersection volumes. Several mainline segments and ramp junctions operate below the Caltrans LOS standard of D, as shown in the table, due to regional commute patterns and heavy travel demand toward San Francisco and San Jose in the AM and toward the central and north Bay Area in the PM.

Table 4.2.G: Freeway Segment LOS – Existing Conditions

Segment	Peak Hour	Type	Existing Conditions	
			Density	LOS
<i>I-680 Northbound</i>				
Interstate 680: North of North Main Street	AM	Basic	23.6	C
	PM		30.9	D
Interstate 680: South of Olympic Boulevard	AM	Basic	23.7	C
	PM		In Queue	F
<i>I-680 Southbound</i>				
Interstate 680: South of Olympic Boulevard	AM	Basic	29.2	D
	PM		19.2	C
Interstate 680: North of North Main Street	AM	Basic	In Queue	F
	PM		21.5	C
<i>SR-24 Eastbound</i>				
State Route 24: West of Interstate 680	AM	Basic	20.4	C
	PM		In Queue	F
<i>SR-24 Westbound</i>				
State Route 24: West of Interstate 680	AM	Basic	30.2	D
	PM		21.6	C

Source: Fehr & Peers (March 2018).

Bold indicates a condition below the Caltrans standard.

Table 4.2.H: Freeway Ramps LOS – Existing Conditions

Segment	Peak Hour	Existing Conditions	
		Density	LOS
<i>I-680 Northbound</i>			
North Main Street On-Ramp	AM	19.1	B
	PM	In Queue	F
Ygnacio Valley Road Off-Ramp	AM	21.2	C
	PM	In Queue	F
Olympic Boulevard Off-Ramp	AM	26.3	C
	PM	28.3	D
Olympic Boulevard On-Ramp ^a	AM	35.9	E
	PM	In Queue	F
<i>I-680 Southbound</i>			
North Main Street Off-Ramp	AM	In Queue	F
	PM	9.2	A
Ygnacio Valley Road On-Ramp	AM	In Queue	F
	PM	In Queue	F
Olympic Boulevard Off-Ramp	AM	In Queue	F
	PM	34.6	D
Olympic Boulevard On-Ramp	AM	29.2	D
	PM	22.6	C
<i>SR-24 Eastbound</i>			
Ygnacio Valley Road Off-Ramp	AM	35.6	E
	PM	In Queue	F
Mount Diablo Boulevard Off-Ramp	AM	36.5	E
	PM	In Queue	F
<i>SR-24 Westbound</i>			
Ygnacio Valley Road On-Ramp	AM	In Queue	F
	PM	38.0	E
Mount Diablo Boulevard On-Ramp	AM	24.7	C
	PM	21.5	C

Source: Fehr & Peers (March 2018).

Bold indicates a condition below the Caltrans standard.

^a Walnut Creek intends to construct improvements to the Olympic Boulevard/I-680 Northbound Ramps intersection to prevent traffic from diverting through the intersection during the congested PM peak hours. This would improve operations at the merge onto northbound I-680, but the condition would remain LOS F. This improvement has been approved at a concept level by Caltrans.

4.2.2.2 Pedestrian Facilities

The Plan Area is generally well-served by sidewalks and controlled pedestrian crossings at signalized intersections. However, some gaps in the sidewalk network exist and many of the intersections have long crossings of high-traffic roadways, which are considered uncomfortable for pedestrians. In addition, there are several large development blocks that limit pedestrian connectivity, particularly in the east-west direction north of Ygnacio Valley Road. The North Downtown Specific Plan Transportation Baseline Report (October 2016) provides a comprehensive description of pedestrian facilities in the Plan Area.

4.2.2.3 Bicycle Facilities

The California Department of Transportation (Caltrans) in the Highway Design Manual, Chapter 1000: Bikeway Planning and Design² and California Assembly Bill 1193 codify four distinct classifications of bikeways. Each bikeway class is intended to provide bicyclists with enhanced riding conditions. Bikeways offer various levels of separation from vehicle traffic based on the volume and speed, among other factors. The four bikeway types in California and appropriate contexts for each are detailed below.

- **Class I Bikeway (Bike Path)** provides a completely separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow traffic. Such paths can be well situated along creeks, canals, and rail lines. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes.
- **Class II Bikeway (Bike Lane)** provides designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).
- **Class III Bikeway (Bike Route)** provides enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and to provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. Bicycle boulevards provide further enhancements to bike routes to encourage slow speeds and discourage non-local vehicle traffic via traffic diverters, chicanes, traffic circles, and/or speed tables. Bicycle boulevards can also feature special wayfinding signage to nearby destinations or other bikeways.
- **Class IV Bikeway (Separated Bikeway)** provides bicycle lanes for the exclusive use of bicycles which are physically separated from vehicle traffic. Separated Bikeways were adopted by Caltrans in 2015. Types of separation may include, but are not limited to, grade separation, flexible posts, physical barriers, or on-street parking.

Figure 4.2-4 shows the existing bicycle facilities in the Plan area, which include:

- The Iron Horse Trail, which traverses Walnut Creek and connects communities from Concord to Pleasanton
- Class II bicycle lanes along North California Boulevard between Civic Drive and Pringle Avenue
- Class III bicycle routes on Ygnacio Valley Road, Riviera Avenue between Pringle Avenue and Parkside Drive, and Parkside Drive west of Riviera Avenue

² California Department of Transportation, 2017. *Highway Design Manual, 6th Edition, Chapter 1000: Bikeway Planning and Design*. November.

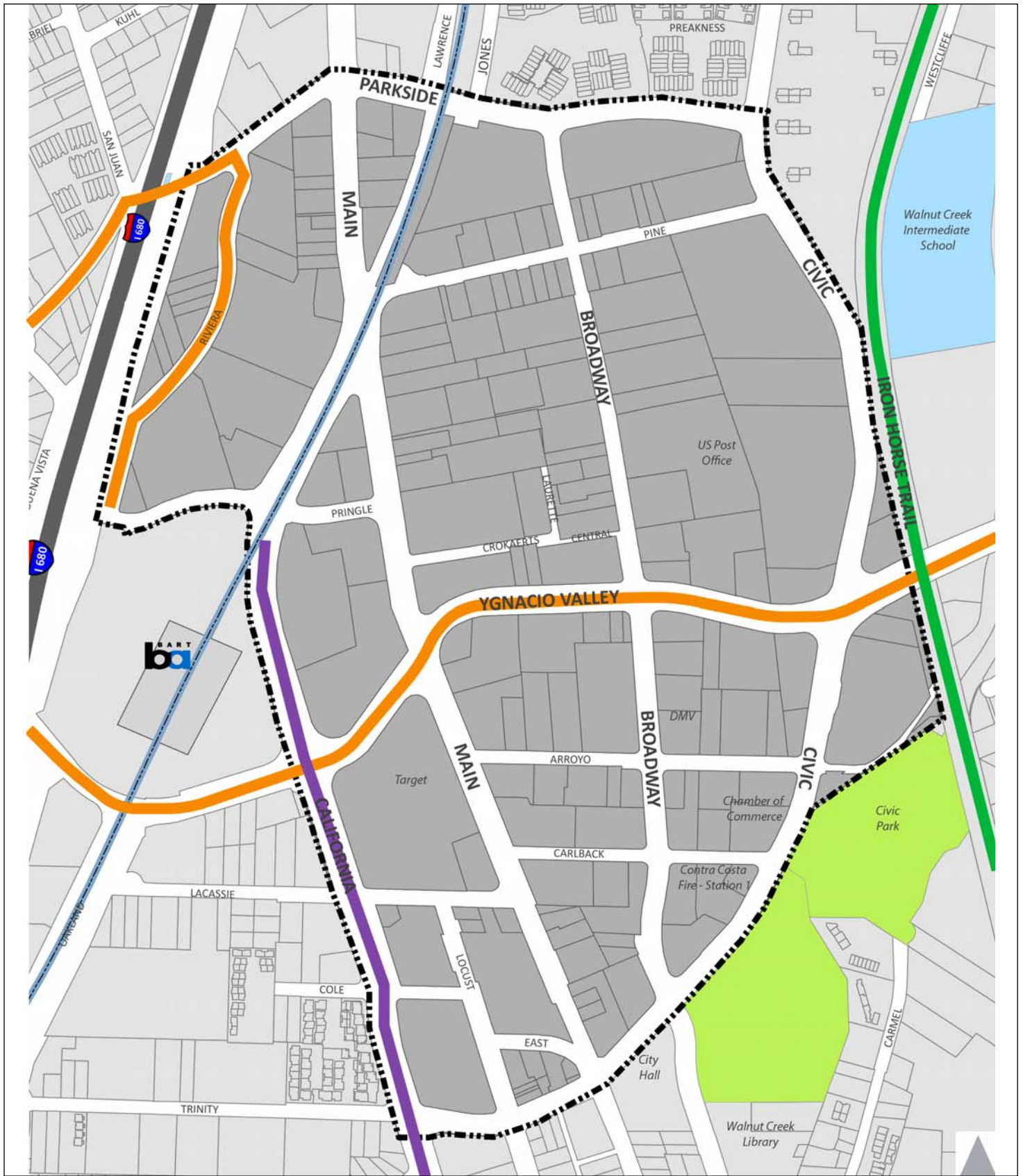


FIGURE 4.2-4

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- Multi-use Trail
- Class II Bicycle Lanes
- Class III Bicycle Routes
- Plan Area

North Downtown Specific Plan EIR
Existing Bicycle Facilities

SOURCE: 2011 WALNUT CREEK BICYCLE MASTER PLAN, FEHR & PEERS, 2016.
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4.2.2.4 Transit

The Plan Area is well served by CCCTA buses (the County Connection) and BART. The following sections describe transit services in the Plan area.

Bay Area Rapid Transit (BART). The Walnut Creek BART station is located within the Plan Area, north of Ygnacio Valley Road and west of North California Boulevard. The station is on the Pittsburg/Bay Point line, providing direct service to downtown San Francisco. Passengers travelling to or from destinations on the Fremont, Richmond, or Dublin/Pleasanton lines are required to transfer, generally at the MacArthur BART station. Trains operate approximately between 4:30 a.m. and midnight on weekdays. Train frequency varies from 20 minutes on weekends, to 15 minutes during off-peak weekday, to 5 to 8 minutes during the peak commute hours.

The latest available ridership data as of the preparation of the North Downtown Specific Plan EIR, for February 2018, indicates about 6,677 weekday boardings and 6,856 weekday alightings at the Walnut Creek station. These are somewhat lower than the data available at the time of the baseline report preparation for the North Downtown Specific Plan, presented in Table 4.2.I (data sampled from Wednesday, May 18, 2016, and Wednesday, August 24, 2016). The lower ridership could be due in part to ongoing construction on the Walnut Creek Station site that commenced in February 2018.

Table 4.2.I: Walnut Creek BART Station Ridership – 2016

Station Name	Day	Between 8:00 a.m. and 9:00 a.m.		Between 5:00 p.m. and 6:00 p.m.		Daily	
		Entries	Exits	Entries	Exits	Entries	Exits
Walnut Creek	5/18/16	1,381	318	434	1,272	7,076	7,288
Walnut Creek	8/24/16	1,563	351	416	1,565	7,374	7,653

Source: Bay Area Rapid Transit [data extracted by Fehr & Peers] (September 2016).

BART conducted a 2015 Station Area Profile Study at all stations throughout the BART network. The study consisted of undertaking commuter intercept surveys by asking a series of questions of BART commuters as they entered the station’s fare gates. The following section discusses the findings of this study for the Walnut Creek BART station.

As shown in Table 4.2.J at the Walnut Creek BART station, based on the survey sample, 50 percent of riders drive alone or carpool while 14 percent walk to the station. This is quite different from the system-wide average of 29 percent drive alone/carpool and 37 percent walk, reflecting the suburban location, relative convenience of driving versus other modes, and parking availability relative to other more urban stations.

Table 4.2.J: Access Mode from Home to BART

Home Origin Stations	In ^a	Walk	Bicycle	Bus, train, or other transit	Motorcycle/motorized scooter	Drive alone/carpool	Drop off/taxi/other
Walnut Creek	585	14%	4%	3%	--%	51%	28%
System wide (all stations)	24,014	38%	6%	8%	--%	29%	19%

Source: Bay Area Rapid Transit (2015).

^a Survey sample size (not entire inbound patronage).

As shown in Table 4.2.K, of all people boarding trains at the Walnut Creek BART, 72 percent are headed to work, 7 percent are headed to the airport and 5 percent are headed to school. Eighty-six percent of boarding riders are employed and 10 percent are students. Approximately 62 percent of the people boarding at the Walnut Creek BART station use BART for five or more days per week.

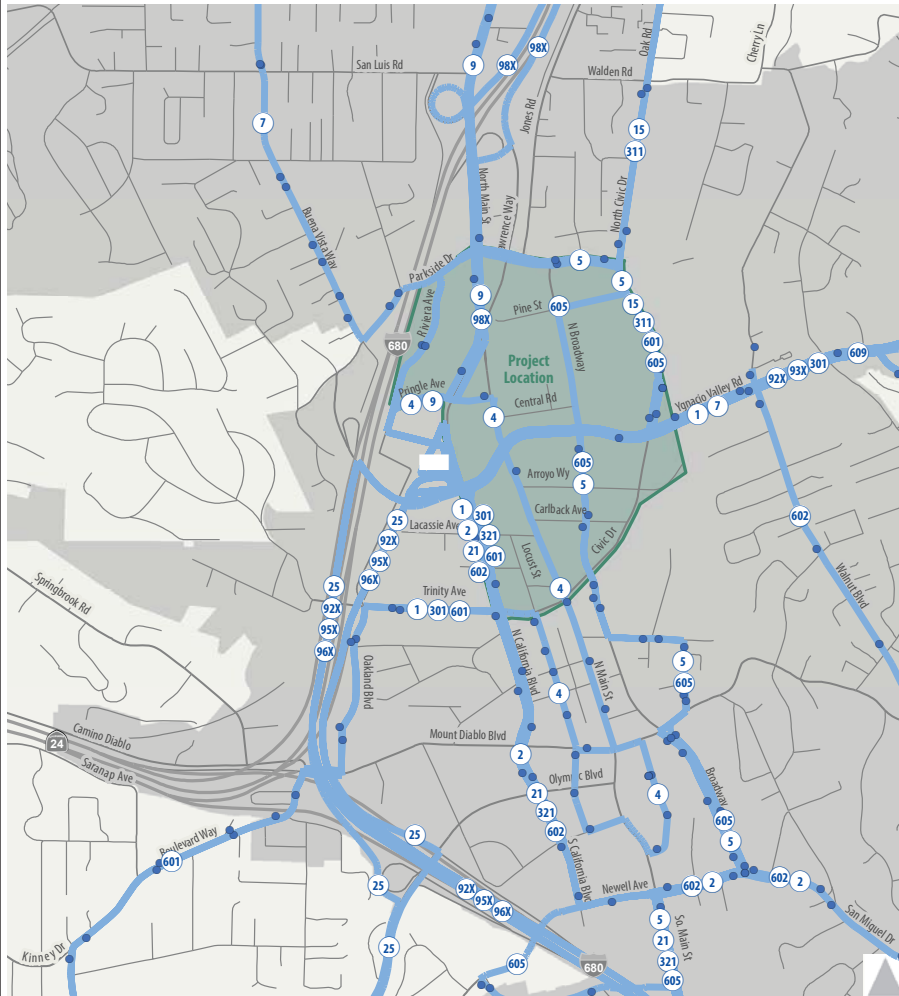
Table 4.2.K: Destinations of Walnut Creek Boardings

Destinations of Walnut Creek Boardings	Percent
Workplace	72
Work-related/business appointment	2
College/university (student)	5
School (K-12 student)	–
Shopping	1
Sports event	2
Restaurant/cafe	1
Theater or concert	1
Social/recreational (includes visiting friends/family)	7
Medical / dental	1
Personal errands	1
Airplane trip	7
Hotel	–
Escorting others	1
Other	–

Source: Bay Area Rapid Transit (2015).

County Connection. The Contra Costa County Transit Authority (CCCTA, or the “County Connection”) provides bus service throughout Central Contra Costa County. It provides service on 26 weekday routes (including the Alamo Creek Shuttle), 7 express routes, 11 weekend routes and 3 school routes. Of these, 8 weekday routes, 5 express routes and 4 weekend routes serve the Plan Area. The school routes are not operated during the summer when school is not in session. Service is generally provided from 6:00 a.m. to 9:00 p.m. on weekdays, and from 9:00 a.m. to 7:00 p.m. on weekends. Fares are \$2.00 for regular fixed routes and \$2.25 for express routes for adults when paid in cash. Monthly passes are available.

Figure 4.2-5 shows the fixed routes directly serving the Plan Area. These routes operate along Ygnacio Valley Road, North California Boulevard, Trinity Avenue, and Oakland Boulevard.



Route	Service Description	Service Time	Frequency		Boarding
			Peak (min)	Off-Peak (min)	
1	Rossmoor Shopping Center, Walnut Creek BART, Ygnacio Valley Rd., John Muir Medical Center, Shadelands	5:55am to 7:30pm	60	60	391
1M	Walnut Creek BART, Marchbanks	6:23am to 7:34pm	40	40	
2	Walnut Creek BART, Trotter Way	6:40am to 6:46pm	60	90	15
4	Free Shuttle - Walnut Creek BART, Broadway Plaza	7:10am to 9:30pm	15	15	819
5	Walnut Creek BART, Kaiser Permanente Medical Center, Creekside Dr	6:50am to 7:30pm	45	90	544
9	DVC, Sun Valley Mall, JFK University, Crescent Plaza, Pleasant Hill BART, North Main, Walnut Creek BART	6:00am to 10:43pm	30	60	595
15	Concord BART, Treat Blvd., Pleasant Hill BART, Walnut Creek BART	5:45am to 8:44pm	60	60	566
21	Walnut Creek BART, Alamo, Danville Blvd, Danville Park 'n Ride, San Ramon Transit Center	5:30am to 11:20pm	30	60	627
25	Lafayette BART, Mt. Diablo Blvd., Walnut Creek BART	7:30am to 6:30pm	60	60	65

Route	Service Description	Service Time	Frequency	
			Peak (min)	Off-Peak (min)
92X	Ace Express: Pleasanton Train Station (ACE), Bishop Ranch, San Ramon Transit Center	5:53am to 6:14pm	60	
93X	Kirker Pass Express: Hillcrest Park 'N Ride, John Muir Medical Center, Walnut Creek BART	5:07am to 7:41pm	30	60
95X	San Ramon Express: San Ramon Transit Center to Walnut Creek BART	6:30am to 9:00ampm 4:00pm to 7:00pm	30	
96X	Bishop Ranch Express, North: Walnut Creek BART to Bishop Ranch	5:35am to 7:50pm	20	
98X	Martinez/Walnut Creek Express: Amtrak, Concord, Walnut Creek BART	5:40am to 7:20pm	30	60

Route	Service Description	Service Time	Frequency			Boarding
			Early	Midday	Late	
4	Free Shuttle - Walnut Creek BART, Broadway Plaza	9:10am to 6:41pm	20	20	20	459
301	Bart Walnut Creek, Trinity, Boulevard, Tice Valley	9:25am to 6:19pm	90	90	90	64.5
311	Bart Concord, Bart Pleasant Hill, Bart Walnut Creek	7:18am to 7:02pm	80	80	80	216
321	Bart Walnut Creek, Danville Blvd, San Ramon Vally Blvd, San Ramon Transit Center	7:45am to 10:30pm	120	60	120	207

- Bus Routes and Route Numbers
- Bus Stops
- BART Bus Station

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FIGURE 4.2-5

SOURCE: FEHR & PEERS, 2018.

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Many, but not all, bus stops on streets in or adjacent to the Plan Area include benches and shelters. In particular, the stops on Oakland Boulevard and Trinity Avenue do not include these amenities.

Table 4.2.L, Table 4.2.M, and Table 4.2.N show the May 2016 service hours, bus headways, and total route ridership averaged over month of May 2016 on the weekday, weekend and express routes directly serving the Plan Area, respectively. The most heavily used bus route serving the Plan Area on weekdays is Route 4 (also known as the “Free Ride”), which is used by over 800 riders on typical weekdays and provides free service between the Walnut Creek BART Station, Downtown Walnut Creek, and Broadway Plaza. Route 4 also has the highest frequency of service with 15-minute headways on weekdays.

On weekends, Route 4 also serves the most daily riders, at 460 in May 2016.

Of the express routes, route 96X has the most ridership serving between Bishop Ranch and Walnut Creek BART station with a headway of 20 minutes. Express routes also operate during weekends.

Table 4.2.L: Weekday Transit Service

Route #	Service Description	Hours of Service	Frequency		May 2016 Weekday Average
			Peak	Off Peak	
1	Rossmoor Shopping Center, Walnut Creek BART, Ygnacio Valley Rd., John Muir Medical Center, Shadelands	5:55 a.m. to 7:30 p.m.	60 min	60 min	391
2	Walnut Creek BART, Trotter Way	6:40 a.m. to 6:46 p.m.	60 min	90 min	15
4	Free Shuttle – Walnut Creek BART, Broadway Plaza	7:10 a.m. to 9:30 p.m.	15 min	15 min	819
5	Walnut Creek BART, Kaiser Permanente Medical Center, Creekside Drive	6:50 a.m. to 7:30 p.m.	45 min	90 min	544
9	DVC, Sun Valley Mall, JFK University, Crescent Plaza, Pleasant Hill BART, North Main, Walnut Creek BART	6:00 a.m. to 10:43 p.m.	30 min	60 min	595
15	Concord BART, Treat Blvd., Pleasant Hill BART, Walnut Creek BART	5:45 a.m. to 8:44 p.m.	60 min	60 min	566
21	Walnut Creek BART, Alamo, Danville Blvd, Danville Park 'n Ride, San Ramon Transit Center	5:30 a.m. to 11:20 p.m.	30 min	60 min	627
25	Lafayette BART, Mt. Diablo Blvd., Walnut Creek BART	7:30 a.m. to 6:30 p.m.	60 min	60 min	65

Source: Contra Costa County Transit Authority (May 2016).

Table 4.2.M: Weekend Transit Service

Route #	Service Description	Hours of Service	Frequency			May 2016 Weekend Boarding
			Early	Midday	Late	
4	Free Shuttle – Walnut Creek BART, Broadway Plaza	9:10 a.m. to 6:41 p.m.	20 min	20 min	20 min	459
301	Bart Walnut Creek, Trinity, Boulevard, Tice Valley	9:25 a.m. to 6:19 p.m.	90 min	90 min	90 min	65
311	Bart Concord, Bart Pleasant Hill, Bart Walnut Creek	7:18 a.m. to 7:02 p.m.	80 min	80 min	80 min	216
321	Bart Walnut Creek, Danville Blvd, San Ramon Valley Blvd, San Ramon Transit Center	7:45 a.m. to 10:30 p.m.	120 min	60 min	120 min	207

Source: Contra Costa County Transit Authority (May 2016).

Table 4.2.N: Express Routes Service

Route #	Service Description	Hours of Service	Frequency	May 2016 Weekday Boarding
92X	Ace Express: Pleasanton Train Station (ACE), Bishop Ranch, San Ramon Transit Center	5:53 a.m. to 7:19 p.m.	60 min	219
93X	Kirker Pass Express: Hillcrest Park 'N Ride, John Muir Medical Center, Walnut Creek BART	5:07 a.m. to 7:41 p.m.	30 min / 60 min	190
95X	San Ramon Express: San Ramon Transit Center to Walnut Creek BART	6:30 a.m. to 9:00 a.m. & 4:00 p.m. to 7:00 p.m.	30 min	171
96X	Bishop Ranch Express, North: Walnut Creek BART to Bishop Ranch	5:35 a.m. to 7:50 p.m.	20 min	579
98X	Martinez/Walnut Creek Express: Amtrak, Concord, Walnut Creek BART	5:40 a.m. to 7:20 p.m.	30 min / 60 min	424

Source: Contra Costa County Transit Authority (May 2016).

4.2.2.5 Parking

Vehicle parking in the Plan Area is provided both on-street and in various off-street private parking lots and structures. Virtually all of the on-street parking within the Plan Area is metered, with the remaining non-metered curb space designated as red zones or short-term loading zones. Most meters have one-hour or two-hour time limits. The total metered parking supply in the area is 545 spaces. While a quantitative survey of the off-street private parking supply is not available, the supply is substantial, with numerous surface lots, podium parking levels, and underground parking provided for the commercial and residential uses in the area. It is presumed that the current development in the area provides parking meeting City code requirements.

Overall, the on-street parking in the Plan Area is generally 40 to 50 percent occupied on typical weekdays, based on data provided by the City's meter database (see the chart below). The peak occupancy hours are 10:00 a.m. to 3:00 p.m. Based on field observations, the southernmost blocks in the Plan Area, closest to the Downtown, see higher occupancy levels, along with North California Boulevard and Pringle Avenue. The other blocks in the area tend to have lower occupancy.

On weekends, parking occupancies fall to less than 30 percent, likely due to the fact that most of the non-residential development in the area is office uses as opposed to retail uses.

While an occupancy survey of the off-street parking was not performed, it can be assumed that the supply is generally meeting demand, since there is a substantial on-street parking vacancy.

The City actively manages its parking supply to maximize the availability of spaces for all users. The Downtown Core and the Plan Area are part of the City's Downtown Parking Meter Zone, which was adopted in 2013, and is in effect a parking benefit district. Through this program, the revenue generated through meters is used to support Downtown parking operations and Downtown enhancements including the free Downtown trolley, beautification, and special events. In May 2018, the City rolled out the Attendant Assisted Parking Pilot Program in the City's Broadway Parking Garage. The pilot program created 80 additional spaces within the garages. Attendant-assisted parking is a cost effective solution and differs from traditional valet parking because it utilizes space within an existing structure without having to rent additional offsite parking spaces to increase parking supply. In September 2017, the City's Transportation Commission approved removal of time limits for 1,000 on-street spaces, primarily located within the Plan Area. These spaces had previously been two-hour time limited and highly underutilized. This change essentially created new long-term parking opportunities for customers and employees. Since its implementation, these spaces have experienced a 10 percent increase in occupancy. The City also continues to work closely with private parking operators in Downtown Walnut Creek to create awareness of their programs and services offered to customers and employees.

4.2.3 Setting for Regulatory Conditions

The existing regulatory setting as it relates to transportation and circulation within the vicinity of the Plan Area is described below.

4.2.3.1 State of California: Senate Bill 743

In response to Senate Bill 743 (SB 743), the Office of Planning and Research (OPR) is updating the CEQA guidelines to include new transportation-related evaluation metrics. Draft guidelines were developed in August 2014, with final guidelines published in November 2017, incorporating public comments from the August 2014 and January 2016 drafts. The recommended traffic impact assessment metric in the final guidelines is VMT, and peak hour intersection LOS will no longer be allowed as a measure of traffic impact significance. The guidelines are now undergoing a formal rule-making process that is expected to conclude within the next few months, and full compliance with the guidelines is expected by 2020.

The final guidelines recommend the following change to the impact assessment for land use projects:

Text of Proposed Amendments to CEQA Guidelines Appendix G

b) *For a land use project, would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(1)?*

(b) Criteria for Analyzing Transportation Impacts.

(1) Land Use Projects. 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. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact.

OPR has established a draft threshold for the evaluation of different land use types. For residential uses, new developments that have an estimated vehicle miles of travel 15 percent below *existing* city VMT/capita or regional VMT/capita (household or home-based) would be considered less than significant.

For office uses, developments that would result in VMT 15 percent below *existing* regional VMT per employee (work tour or home-based work) would be considered less than significant.

Local-serving retail may be less than significant (projects less than 50,000 square feet). Retail which increases VMT compared to previous shopping patterns may be considered significant.

As the City of Walnut Creek has not established thresholds of significance for use in City impact studies, and the new guidelines have not yet been adopted, this EIR provides an assessment of VMT per resident and per employee, as defined in the OPR Guidelines (refer to Section 4.2.1.3 Analysis Methodologies) for the North Downtown Specific Plan area, for the Existing condition, and the Future No Project condition and Future With Project condition. This analysis is presented for information only, and is not part of the impact assessment.

4.2.3.2 Contra Costa Transportation Authority (CCTA) Congestion Management Program and Central Contra Costa Action Plan

The CCTA serves as the Congestion Management Agency (CMA) for Contra Costa County. As required by State law, CCTA must prepare a Congestion Management Program (CMP) that outlines strategies for managing the transportation network. One requirement of the CMP is to set traffic Level of Service (LOS) standards for the State Highways and principal arterials. Every two years, the CMP is updated to identify existing and future transportation facilities that would operate below the acceptable LOS and to identify improvements and strategies for intersections and segments where future growth would degrade that service level. Standards for roadway operations in Walnut Creek are defined on a countywide basis per the CMP.

In addition, CCTA is responsible for the Growth Management Program, which was first established in 1989, after Contra Costa County voters passed Measure C, and subsequently updated and modified by Measure J in 2004. Measure C, which raised the sales tax to fund regional transportation

improvements, required local jurisdictions to adopt and implement a growth control program in order to receive their share of funds for transportation projects, including maintenance. Measure J establishes the Transportation Sales Tax Expenditure Plan, which extends the transportation sales tax initially authorized by the passage of Measure C.

The Growth Management Plan establishes a cooperative, multi-jurisdictional planning process requiring participation from all cities and towns and the County in managing the impacts of growth in Contra Costa County. The Measure C program set traffic LOS standards for regional and non-regional routes in Contra Costa County, which the City has incorporated into its General Plan. These standards are tied to land use and provide for a tiered system that uses different standards for different types of streets.

Local jurisdictions work through their respective Regional Transportation Planning Committees. For central Contra Costa County, the Transportation Partnership and Cooperation Committee (TRANSPAC) developed the Central Contra Costa Action Plan adopted in 2009 (“Action Plan”), and most recently updated the plan in September 2017. The 2017 Action Plan identifies multi-modal traffic service objectives (MTSOs) for ‘Routes of Regional Significance’, which includes Ygnacio Valley Road in Walnut Creek and neighboring jurisdictions. Historically, the Delay Index metric has been used to measure the performance of Ygnacio Valley Road (refer to Section 4.2.1.3 Analysis Methodologies for a description of this methodology); however, in the 2017 update to the Central County Action Plan, this requirement was eliminated, and the MTSOs for Ygnacio Valley Road in the City of Walnut Creek include the following:

- LOS F at the intersections of Ygnacio Valley Road/Bancroft Road and Ygnacio Valley Road/Civic Drive

The Action Plan also sets forth actions and responsibilities for the jurisdictions that Ygnacio Valley Road serves. In Walnut Creek, those actions include:

- Seek funding to improve vehicle, bicycle, and pedestrian access at the Walnut Creek BART Station

Proposed improvements for Ygnacio Valley Road within Walnut Creek’s purview in the Action Plan include:

- Addition and extension of turn lanes on Ygnacio Valley Road in various locations
- Implementation of various vehicle, bus, bicycle and pedestrian access improvements at the Walnut Creek BART Station

As part of its adoption of the Walnut Creek General Plan 2025, the City adopted the ‘Delay Index’ corridor performance measure for Ygnacio Valley Road, consistent with the 2009 Central County Action Plan. Therefore, this metric is used in this EIR to measure the performance of Ygnacio Valley Road.

4.2.3.3 City of Walnut Creek General Plan

Relevant City of Walnut Creek General Plan policies related to transportation are discussed below. The City's LOS standards, which are described in the General Plan, are discussed in Section 4.2.1.3 Analysis Methodologies.

Adopted in 2006, the Walnut Creek General Plan establishes goals and policies that guide the development of the city. Specific goals and policies pertinent to transportation as they relate to the Specific Plan are listed in this section.

Chapter 2, Quality of Life

- **Goal 8: Make Walnut Creek a community accessible to all.**
 - Action 8.1.2: As part of the City's Project review processes, consider the needs of persons of all abilities.

Chapter 4, Built Environment

- **Goal 10: Coordinate the location, intensity, and mix of land uses with transportation resources.**
- **Goal 11: Create a balanced, safe, and efficient regional and subregional transportation system.**
 - Policy 11.1: Require that commercial Projects comply with the City's performance standards for fire, police, parks, water, flood control, and sanitary sewer facilities.
 - Policy 11.2: Implement Measure C and plan for the implementation of Measure J.
 - Action 11.2.1: Demonstrate compliance with all components of the Measure C (1988) and Measure J (2004) Growth Management Program.
 - Action 11.2.2: At a minimum, comply with the Measure C adopted standards for Level of Service at intersections along Basic Routes.
 - Policy 11.3: Require that new development pay its share of costs associated with growth.
 - Action 11.3.1: Implement TRANSPAC's Regional Transportation Mitigation Program with respect to new regional development and its impacts on Walnut Creek roadways.
 - Action 11.3.2: Assess a traffic impact fee on new development.
 - Action 11.3.3: Apply the Transportation Authority's travel demand model (as updated from time to time) in analyzing developments that exceed Measure J thresholds.

- **Goal 12: Make more efficient use of the regional and subregional transportation system.**
 - Policy 12.1: Promote the use of carpools and vanpools.
 - Action 12.1.3: Encourage transportation demand management (TDM) programs in new development.
 - Policy 12.2: Support infill and redevelopment in existing urban areas.
- **Goal 19: Enhance the urban design quality of the Core Area and its subareas.**
 - Policy 19.2: Improve directional signage for pedestrians and vehicles in the Core Area.
 - Action 19.2.1: Design and implement a comprehensive Core Area directional sign program that shows shuttle stops; parking garage locations, capacities, and availability; orients residents and visitors; and shows optimal routes for getting to key cultural, shopping and civic destinations in the city.
- **Goal 20: Reinforce the urban design and character of the Pedestrian Retail District as a gathering place for local residents as well as a regional retail destination.**
 - Policy 20.1: Strengthen the identity of the Pedestrian Retail District as a pedestrian oriented shopping destination for local residents and regional shoppers.
 - Action 20.1.2: Develop a comprehensive “park once and walk” program aimed at encouraging people to park their cars in public garages at the periphery of the downtown.
 - Action 20.1.3: Conduct studies to evaluate the free downtown shuttle and ways to enhance its service. Conduct studies to explore ways to enhance existing pedestrian connections and corridors with new signage, graphics, landscaping, and lighting.

Chapter 5, Transportation

- **Goal 3: Maintain a transportation network that provides mobility for all ages and abilities and for all areas of the community.**
 - Policy 3.1: Maintain the level of service standards for roadways shown on Figure 2 [of the Walnut Creek General Plan] for the City’s transportation network.
- **Goal 6: Provide a safe and attractive walking environment accessible to all.**
 - Policy 6.1: Provide safe and attractive pedestrian routes along arterials and collectors leading to schools, along arterials or collectors that carry high traffic volumes, on all downtown streets, along major streets leading to the downtown, and on all streets leading to transit facilities.

- Policy 6.2: Require full-frontage curb and sidewalk improvements in all commercial areas.
- Policy 6.4: Facilitate use of public sidewalks and walkways throughout the city.
- **Goal 7: Increase transit ridership and service to employment, schools, shopping, and recreation.**
 - Policy 7.3: Link high-density residential developments, schools, employment centers, and shopping areas via transit.
 - Policy 7.5: Develop a comprehensive plan with CCCTA to install public transit amenities such as benches, passenger shelters, and walkways.
 - Action 7.5.4: Require, where appropriate, that new developments provide transit amenities as a condition of Project approval.
- **Goal 8: Serve as a model for other cities by providing a comprehensive TDM program that strives to decrease the use of the automobile and reduce peak-period traffic congestion.**
 - Policy 8.2: Seek new and innovative methods and programs that address peak-period congestion.
 - Policy 8.3: Manage employee parking supply and demand in all commercial areas.
 - Policy 8.5: Link high-density residential developments, employment centers, and shopping areas via transit, bikeways, and walkways.
- **Goal 9: Provide a pedestrian-friendly downtown.**
- **Goal 12: Provide convenient and adequate parking.**
- **Goal 13: Provide convenient and adequate loading facilities in the Core Area.**

4.2.3.4 City of Walnut Creek Pedestrian Master Plan

The Walnut Creek Pedestrian Master Plan (PMP) was adopted in September 2016, and provides a comprehensive framework for pedestrian facilities and programs. The PMP includes six key elements: (1) Policy Framework; (2) Existing Conditions; (3) Pedestrian Improvement Concepts; (4) Support Programs; (5) Implementation Plan; and (6) Crosswalk Improvement Guidelines. The goals, policies, and actions applicable to the Specific Plan are listed below.

- **PMP Goal 1: Provide a citywide walking network that facilitates pedestrian travel.**
 - Policy 1.4: Consistent with “complete streets” principles, incorporate pedestrian improvements where feasible in transportation investments such as street-widening and new development projects.

- Action 1.4.7: Pursue grant funding and coordinate inter-agency programs to improve pedestrian connectivity.
- **PMP Goal 2: Improve pedestrian safety.**
 - Policy 2.1: Promote the safety of bicyclists, pedestrians, and equestrians. (GP Transportation Policy 2.3)
 - Action 2.1.4: Create an online request form for traffic enforcement and pedestrian safety improvements.
 - Policy 2.3: Incorporate pedestrian improvements to help meet the safety and accessibility needs of seniors and people with disabilities.
 - Action 2.3.1: Reduce motor-vehicle collisions involving pedestrians by prioritizing pedestrian improvements at all crosswalks and intersections and especially at crosswalks and intersections with a past record of pedestrian fatalities.
 - Action 2.3.2: Routinely implement the Crosswalk Policy to guide the installation, enhancement, and removal of crosswalks citywide.
- **PMP Goal 4: Maintain the Pedestrian Retail District and Core Area as premier walking environments.**
 - Policy 4.5: Favor pedestrian travel over vehicular travel in the Pedestrian Retail District. (GP Transportation Policy 9.2)
 - Action 4.5.1: Develop guidelines for roadways, alleys, paseos and mid-block cut-throughs to provide more public space for pedestrians.

4.2.3.5 City of Walnut Creek Bicycle Master Plan

The 2011 Walnut Creek Bicycle Master Plan outlines the objectives of the Plan, describes the existing conditions of bicycle facilities in the City, provides a needs assessment, details the proposed bicycle network, provides an assessment of the Master Plan's consistency with other relevant plans and policies, and describes the implementation and funding plan for the proposed network. The Bicycle Master Plan has four objectives: (1) Maintenance; (2) Education, Enforcement and Safety; (3) Promotion; and (4) Design. The Plan contains goals, policies and actions that are applicable to the Specific Plan, and is incorporated by reference into this Setting.

4.2.3.6 City of Walnut Creek Ten-Year Capital Investment Program

The Ten-Year Capital Investment Program (CIP) reflects capital project needs beyond the City's two year budget cycle, including projects that are not fully funded. The CIP helps city staff plan and identify future needs. Capital investment projects are categorized as asset management projects, which preserve the value of the City's prior capital investments, or as transportation projects, which may include street construction or reconstruction, bridge repair or replacement, traffic management improvements, signal improvements, pedestrian accessibility, and bicycle facility upgrades. In

addition, discretionary capital projects refer to significant improvements to existing City infrastructure or new City assets.

The highlighted projects applicable to the Specific Plan are listed below.

- **Roadway Maintenance** – Pavement management represents the largest single expenditure in the CIP. Approximately \$4.7 million per two-year cycle goes towards maintaining the City’s 218 miles of streets.
- **Ygnacio Valley Road Capacity Improvements** – The CIP contains several projects to improve traffic flow on the arterial, such as left turn lanes and intersection improvements. Ygnacio Valley Road Capacity Improvements are funded by Traffic Impact Fees.
- **Pedestrian Improvements** – The City has initiated an on-going effort to provide pedestrian improvements throughout the city, including curb ramps, bulb-outs, signing, striping, lighting, line of sight, advanced warning, layout and alignment modifications.
- **Civic Park Master Plan Update** – Civic Park is adjacent to the southeast boundary of the Plan Area. The master plan will identify the best long-range use of limited park land.

4.2.4 Impacts and Mitigation Measures

This section includes an analysis of impacts on the existing transportation and circulation system that could result from implementation of the Specific Plan. CEQA Guidelines Appendix G, the City of Walnut Creek General Plan, and City of Walnut Creek staff were consulted to determine the criteria against which impacts should be evaluated as part of this analysis, and these criteria is described below.

4.2.4.1 Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides the guidance for determining the significance of potential transportation and traffic impacts. The specific criteria to be used to evaluate the North Downtown Specific Plan have been derived from the Appendix G Guidelines, City of Walnut Creek policies, and current best practices for transportation impact evaluation.

The Appendix G guidelines state that a project would result in a significant impact related to transportation and circulation if it would:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;

- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The City's LOS and performance standards are defined in the Walnut Creek General Plan 2025 (Transportation Element Goal 3, Policy 3) and the *2017 Central Contra Costa County Action Plan for Routes of Regional Significance* (Action Plan). These LOS and performance standards were used to determine whether implementation of the Plan would result in significant impacts to the study intersections and Routes of Regional Significance, per the first standard of significance from the CEQA Guidelines listed above.

The Walnut Creek General Plan 2025 contains LOS standards that vary by whether the intersections are within the Core Area (bounded by I-680, the Iron Horse Trail, and Walden Road), and by roadway classification. The LOS standards based on the General Plan criteria are presented in Section 4.2.3.2 and re-iterated below.

The City has not adopted significance criteria for stop-controlled intersections. For this EIR, the stop-controlled intersections are analyzed to provide information that can be used to plan potential future improvements, which could include signalization. Thus, the LOS is assessed and a peak hour signal warrant review is performed.

Based on the above, impacts would be considered significant if the Specific Plan causes any of the following to occur:

1. Intersection Traffic Impacts:

- The addition of Project (proposed Specific Plan) traffic causes a signalized intersection located within the Core Area – that is, east of I-680 (except for Ygnacio Valley Road intersections) – to deteriorate from an acceptable level to an unacceptable level, which is defined as high LOS E (v/c ratio of 0.95) or greater. For intersections operating at a v/c ratio of 0.95 or greater under baseline conditions (in this EIR, the baseline for Project impacts is Near Term conditions, and the baseline for Cumulative impacts is 2040 No Project conditions), the Plan would result in a significant impact it increases the v/c ratio by 0.05 or more. This standard applies to intersection numbers 1, 2, 3, 8, 9, 10, 11, 12, 14, 25, 27, 28, 33, 35, 37, 38 and 39.

- The addition of Project traffic causes a signalized intersection located outside the Core Area – that is, west of I-680 – to deteriorate from an acceptable level to an unacceptable level, which is defined as high LOS D (v/c ratio of 0.85) or greater. For intersections operating at a v/c ratio of 0.85 or greater under baseline conditions, the Plan would result in a significant impact it increases the v/c ratio by 0.05 or more. This standard applies to study intersection number 36.
 - For informational purposes, an assessment of the LOS and signal warrant status of stop-controlled intersections is provided. However, this analysis will not be used to identify Plan impacts. This analysis applies to study intersection numbers 4, 5, 6, 7, 13, 17, 18, 19, 24 and 40.
2. **Delay Index on Ygnacio Valley Road:** The addition of Project traffic results in the Multi-Modal Traffic Service Objective (MTSO) for Ygnacio Valley Road to exceed the standard, which is a Delay Index of 2.0, or for the average travel speed to drop below 15 miles per hour.
 3. **Freeway Traffic Impacts:** The City of Walnut Creek does not maintain standards for the operation of freeways within the city. However, for purposes of this impact evaluation, the following criterion is used:
 - An impact to the freeway system would be significant if the Plan causes a freeway segment to fall from meeting the Caltrans standard for the freeways in the Plan Area (LOS D) to not meeting the standard (LOS E or F); or if the Plan adds traffic to an already sub-standard segment.
 4. **Transit, Pedestrians, and Bicycles:** The Plan conflicts with adopted transportation policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.
 5. **Emergency Access:** The Plan results in inadequate emergency access.
 6. **Hazards:** The Plan substantially increases hazards or congestion due to excessive queuing or design features.
 7. **Air Traffic Patterns:** The Plan results in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks.

4.2.4.2 Traffic and Circulation Impacts

This section presents the traffic forecasting methodology, followed by the transportation impacts, presented in the order of the criteria presented in the preceding section. Traffic-related impacts are presented first, for the Near-Term and Cumulative cases, followed by the impacts for the other topics.

Traffic Forecasting Methodology. This section describes the development of Near-Term No Project, Near-Term with Project, Cumulative No Project, and Cumulative with Project traffic volumes.

The forecasts were prepared using the Contra Costa Countywide Travel Demand Model, in conjunction with the Main Street trip generation model. The Countywide Model was used to forecast future regional traffic growth for the Cumulative No Project and Cumulative with Project cases, and the Main Street model was used to project traffic generated by already-entitled projects within the study area, the proposed Specific Plan land uses, and the land uses which would be expected to develop within the study area under the current General Plan.

Contra Costa Countywide Travel Demand Model. The Countywide Model uses information related to current and future population and employment, transit ridership, expected roadway improvements, and observed travel behavior to forecast traffic on the regional transportation system. For this EIR, the baseline and future (2040) models were reviewed and land uses and network corrections were made to better-represent conditions in and around the study area. The primary adjustments were to ensure that the recent development in the downtown was adequately reflected in the baseline model, and that the West Downtown Specific Plan area land uses matched those in the Draft West Downtown Specific Plan, in the 2040 model. The model was then subjected to validation checks to determine whether the model could be used to directly forecast regional traffic growth at the study intersections. Based on these checks, it was determined that an area-wide growth rate of 0.5% growth per year would best represent the expected traffic growth in the study area as indicated by the model. This growth rate reflects all other growth from land uses outside the North Downtown Specific Plan area. Therefore, for the Cumulative No Project and Cumulative with Project cases, the existing traffic volumes were increased by 13 percent, to reflect the 26 years between 2014 (the date for most of the counts in the City's existing conditions Synchro model) and 2040.

MXD+ Trip Generation Model. The traditional trip generation methods commonly used by traffic engineers overestimate the impacts of mixed-use development because they do not accurately reflect the amount of internal trip linking or the level of trips made by transit, biking, and/or walking. This results in increased development costs due to oversized infrastructure, and skewed public perception of the likely impacts of mixed-use development. The most common method used is outlined in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition,³ and it relies on data primarily collected at suburban, single-use, free-standing sites. This limits its applicability to mixed-use development, such as that proposed in the Specific Plan, which is located in a dense walkable urban setting with nearby local and regional transit service. This method does not adequately account for key variables that influence travel such as development density and scale, location efficiency, land use mix, urban design, and transit orientation.

³ The 10th Edition of the ITE Trip Generation Manual was released after this project had started.

Two significant new research studies have provided the opportunity to improve the state of practice. One study sponsored by the US Environmental Protection Agency⁴ and another by the Transportation Research Board⁵ have developed means to improve trip generation estimation for mixed-use development (MXD). The two studies examined over 260 mixed-use development sites throughout the US and, using different approaches, developed new quantification methods. Fehr & Peers has reviewed the two methods, including the basis, capabilities, and appropriate uses of each, to produce a new method (MXD+) that combines the strengths of the two individual advances to best practice. MXD+ recognizes that traffic generation by mixed-use and other forms of sustainable development relate closely to the density, diversity, design, destination accessibility, transit proximity, and scale of development. MXD+ improves the accuracy of impact estimation and gives planners a tool to rationally balance land use mix and to incorporate urban design, context compatibility, and transit orientation to create lower-impact development.

The MXD+ methodology starts with ITE trip generation estimates, but then adjusts those estimates to account for the mixed-use and environment characteristics. Use of the MXD+ methodology requires more input data than a traditional trip generation application. Data detailing the geographic layout of the site, land use in the surrounding area, and socioeconomic data of both the site and the surrounding area were collected to inform the MXD+ methodology. Sources used to collect this data include the CCTA travel demand model, the Metropolitan Transportation Commission (MTC) travel demand model, Census and American Community Survey (ACS), the Bay Area Travel Survey (BATS), and the Specific Plan land use plan.

Near-Term No Project Traffic Forecasts. Near-Term No Project forecasts were developed to reflect the pending construction of several entitled projects in the Plan area. Figure 4.2-6 shows the location of the projects, which include 190 new apartment units on Riviera Avenue, a 160-room hotel on the site bounded by North California Boulevard, North Main Street and Pringle Avenue, 5,500 new square feet of retail space at the corner of North Main Street and Lacassie Avenue, and 48 apartment units with 2,600 square feet of retail space near the northeast corner of Civic Drive and North Main Street. Table 4.2.O shows the trip generation for these entitled projects. In total, the entitled projects are estimated to generate about 2,470 daily trips that travel outside the Plan Area; and just over 130 AM and PM peak hour external trips.

⁴ Ewing et al., 2011. *Traffic Generated by Mixed-Use Developments—A Six-Region Study Using Consistent Built Environmental Measures*. ASCE UP0146.

⁵ Bochner, et al., 2011. *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments*. National Cooperative Highway Research Program Report 684.

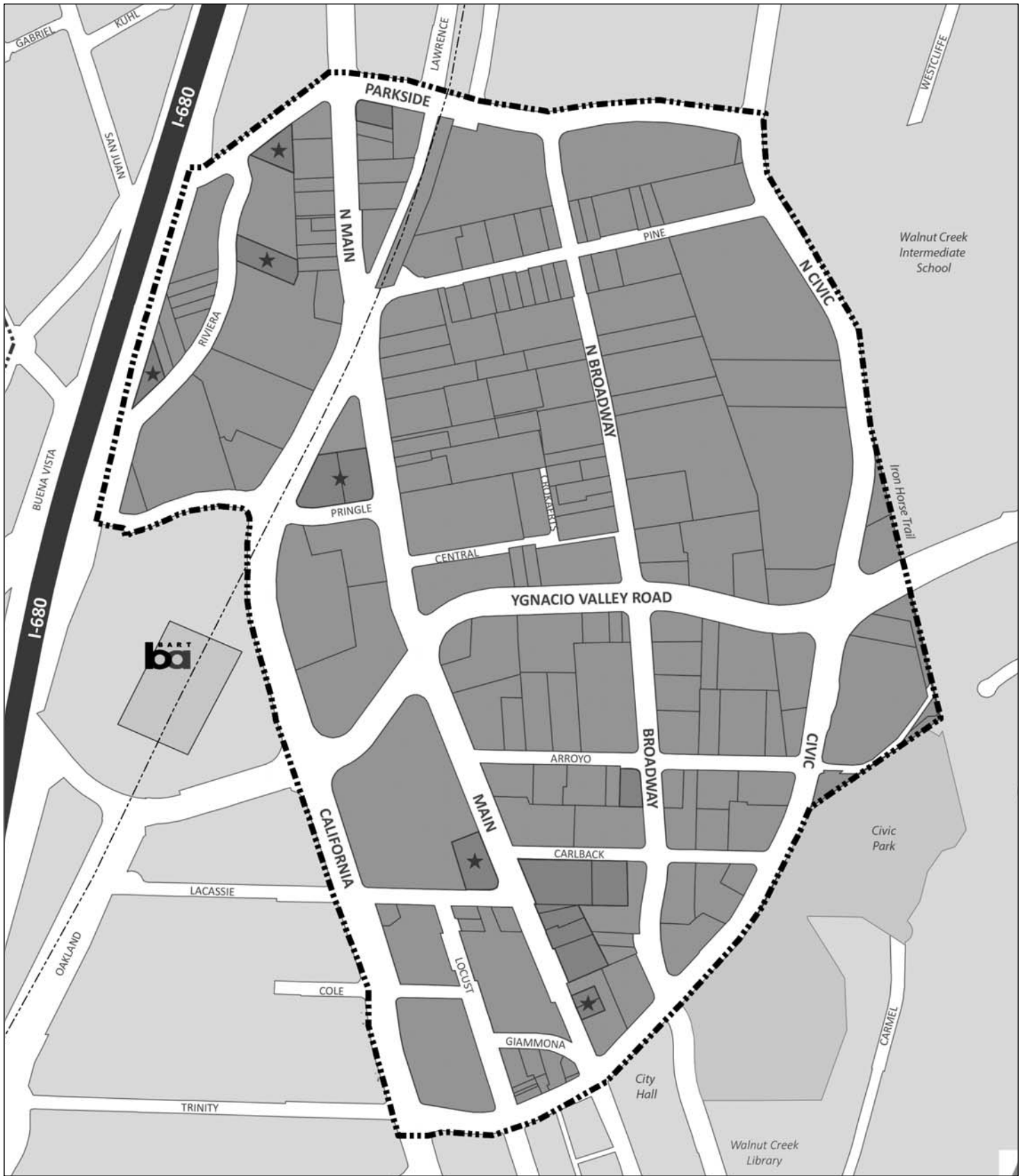


FIGURE 4.2-6

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- ★ Entitled Project*
- Non-entitled Project**
- ⋯⋯ Plan Area
- ⋯⋯ City Boundary
- ⋯⋯ BART Rail

* Entitled projects are included in the near-term baseline
 ** Non-entitled projects are included within the SP and GP future land use estimates

North Downtown Specific Plan EIR
 Plan Area Pipeline Projects

Table 4.2.O: Entitled Project Vehicle Trip Generation

Land Use	Units	No. Units	ITE Code	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Gross Motorized Vehicle Trip Estimates for New Land Use Development										
Apartments	DU	238	220 ^a	1,580	24	97	121	96	51	147
Hotel	Rooms	160	310 ^b	1,310	50	35	85	49	47	96
<i>Residential/Lodging Sub-Total</i>				2,890	74	132	206	145	98	243
Retail	KSF	8,145	820 ^c	350	5	3	8	14	16	30
Industrial	KSF	0	111 ^d	0	0	0	0	0	0	0
Automobile Sales	KSF	0	841 ^e	0	0	0	0	0	0	0
<i>Commercial Sub-Total</i>				350	5	3	8	14	16	30
Office	KSF	0	710 ^f	0	0	0	0	0	0	0
<i>Office Sub-Total</i>				0	0	0	0	0	0	0
Total				3,240	79	135	214	159	114	273
Vehicle Trip Reductions Based on MXD+ Model										
Transit Trips				-125	-7	-9	-16	-10	-5	-15
Pedestrian/Bicycle Trips				-270	-15	-9	-24	-10	-14	-24
Non-auto internalization				-190	-11	-10	-21	-19	-30	-49
Net New Vehicle Trips										
Net New Project Vehicle Trips (Internal)				190	11	10	21	19	30	49
Net New Project Vehicle Trips (External)				2,470	35	97	132	101	35	136
Net New Project Vehicle Trips (Total)				2,560	46	107	153	120	65	185

Source: Fehr & Peers (March 2018).

ITE Trip Generation (9th Edition) by land use category (LUC):

^a LUC 220 (Apartment): Daily: T = 6.65(X); AM Peak Hour: T = 0.51(X) (20% in, 80% out); PM Peak Hour: T = 0.62(X) (65% in, 35% out)

^b LUC 310 (Hotel): Daily: T = 8.17(X); AM Peak Hour: T = 0.53(X) (59% in, 41% out); PM Peak Hour: T = 0.60(X) (51% in, 49% out)

^c LUC 820 (Shopping Center): Daily: T = 42.70(X); AM Peak Hour: T = 0.96(X) (62% in, 38% out); PM Peak Hour: T = 3.71(X) (48% in, 52% out)

^d LUC 110 (General Light Industrial): Daily: T = 6.97(X); AM Peak Hour: T = 0.92(X) (88% in, 12% out); PM Peak Hour: T = 0.97(X) (12% in, 88% out)

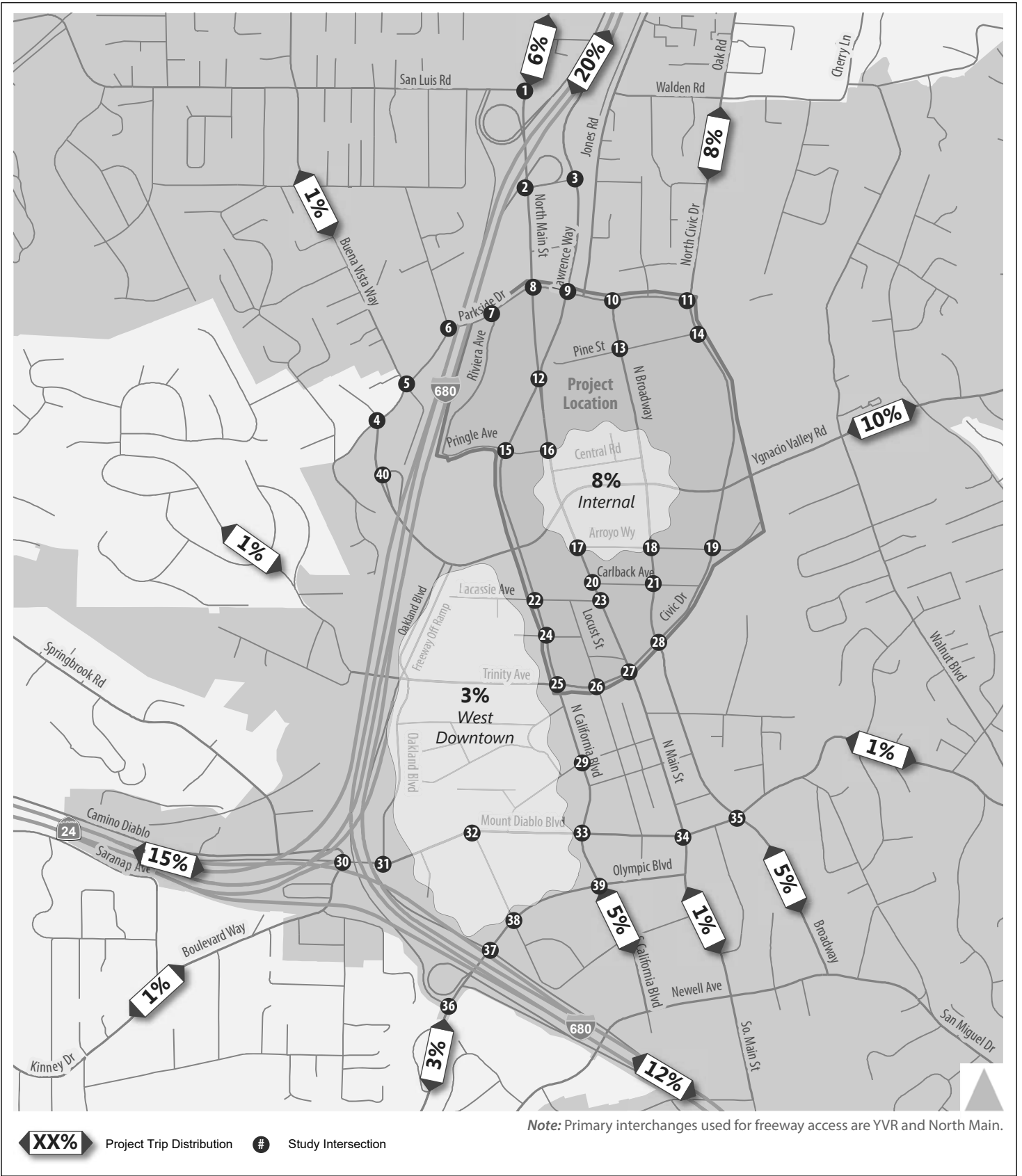
^e LUC 841 (Automobile Sales): Daily: T = 32.30(X); AM Peak Hour: T = 1.92(X) (75% in, 25% out); PM Peak Hour: T = 2.62(X) (40% in, 60% out)

^f LUC 710 (General Office Building): Daily: T = 11.03(X); AM Peak Hour: T = 1.56(X) (88% in, 12% out); PM Peak Hour: T = 1.49(X) (17% in, 83% out)

DU = dwelling unit. KSF = 1,000 square feet.

To distribute and assign the external vehicle trips to the study area network, a trip distribution was derived from the Countywide Travel Demand Model. Figure 4.2-7 presents the distribution, which is based on “select zone” runs of residential and commercial zones within the Plan area. Figure 4.2-8a and Figure 4.2-8b shows the resulting Near-Term No Project intersection forecasts.

Near-Term No Project freeway ramp volumes were also derived from the Near-Term No Project intersection volumes.



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FIGURE 4.2-7

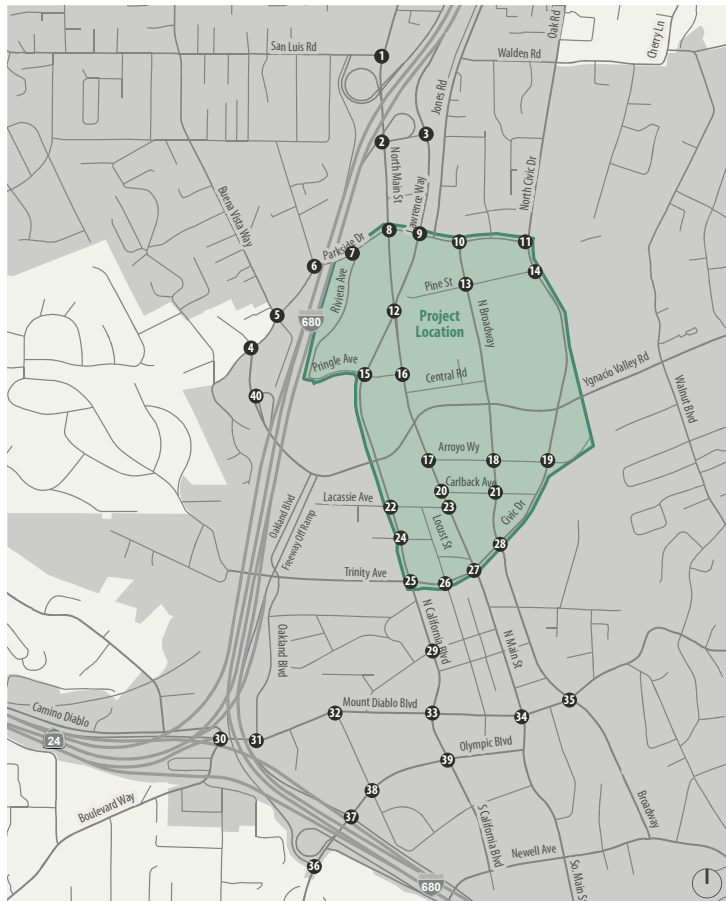


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SOURCE: FEHR & PEERS, 2018.

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North Downtown Specific Plan EIR
 Approximate Project Trip Distribution



<p>1. N. Main St/San Luis Rd.</p> <p>San Luis Rd</p> <p>680</p> <p>San Luis Rd</p> <p>559 (217) 1,096 (408) 8 (28)</p> <p>6 (26) 8 (16) 10 (21)</p> <p>74 (70) 8 (11) 226 (88)</p> <p>420 (216) 410 (968) 16 (30)</p>	<p>2. N. Main St/Penniman Rd.</p> <p>Penniman Rd</p> <p>0 (0) 2,273 (1,508)</p> <p>238 (282) 0 (0) 197 (63)</p> <p>39 (36) 317 (922) 54 (25)</p>	<p>3. I-680 On-ramp/Lawrence Way/Penniman Rd.</p> <p>Penniman Rd</p> <p>52 (223) 1 (5)</p> <p>9 (48) 993 (1,782) 13 (0)</p>	<p>4. Hillside Ave/Parkside Dr</p> <p>Parkside Dr</p> <p>0 (0) 7 (2) 4 (3)</p> <p>4 (3) 31 (70) 668 (371)</p> <p>1 (0) 95 (73) 109 (44)</p> <p>22 (37) 2 (0) 160 (386)</p>	<p>5. Buena Vista/Parkside Dr</p> <p>Parkside Dr</p> <p>388 (120) 305 (318) 111 (71)</p> <p>116 (105) 305 (318) 9 (4)</p> <p>107 (317) 149 (151) 6 (5)</p> <p>6 (5) 16 (16) 3 (5)</p>
<p>6. San Juan Ave/Parkside Dr</p> <p>Parkside Dr</p> <p>85 (15) 250 (49)</p> <p>126 (125) 330 (410)</p> <p>40 (26) 229 (202)</p>	<p>7. Riviera Ave/Parkside Dr</p> <p>Parkside Dr</p> <p>424 (312) 336 (102)</p> <p>36 (224) 115 (445)</p> <p>337 (211) 135 (41)</p>	<p>8. N. Main St/Parkside Dr/Parkside Dr.</p> <p>Parkside Dr</p> <p>336 (136) 1,806 (1,019) 340 (385)</p> <p>90 (191) 313 (478) 126 (72)</p> <p>51 (75) 227 (1,104) 34 (110)</p> <p>110 (254) 423 (209) 195 (85)</p>	<p>9. Lawrence Way On-ramp/Parkside Dr.</p> <p>Parkside Dr</p> <p>374 (405) 740 (527)</p> <p>138 (176) 566 (784)</p>	<p>10. N. Broadway/Parkside Dr.</p> <p>Parkside Dr</p> <p>594 (409) 79 (47)</p> <p>291 (475) 214 (169)</p> <p>240 (432) 39 (117)</p>
<p>11. N. Civic Dr./N. Civic Dr./Parkside Dr.</p> <p>Parkside Dr</p> <p>276 (124) 1,016 (429)</p> <p>96 (346) 207 (276)</p> <p>365 (284) 316 (922)</p>	<p>12. N. Main St/N. California Blvd/Lawrence Way</p> <p>N. California Blvd</p> <p>972 (467) 1,103 (731)</p> <p>98 (382) 167 (527) 6 (4)</p> <p>239 (932) 325 (664) 47 (126)</p>	<p>13. N. Broadway/Pine St.</p> <p>Pine St</p> <p>26 (23) 190 (170) 67 (30)</p> <p>24 (82) 24 (63) 33 (60)</p> <p>17 (23) 190 (461) 58 (90)</p> <p>38 (101) 9 (75) 99 (5)</p>	<p>14. N. Civic Dr./Pine St.</p> <p>Pine St</p> <p>155 (69) 1,070 (647)</p> <p>20 (86) 60 (58)</p> <p>110 (96) 661 (1,120)</p>	<p>15. California Blvd/Pringle Ave</p> <p>Not Analyzed in Near-term Scenario</p>
<p>16. N. Main St/Pringle Ave</p> <p>Pringle Ave</p> <p>138 (177) 14 (18) 114 (65)</p> <p>42 (87) 14 (18) 17 (24)</p> <p>15 (95) 216 (646) 21 (16)</p>	<p>17. N. Main St/N. Main St/Arroyo Way</p> <p>N. Main St</p> <p>35 (121) 12 (16) 6 (18)</p> <p>15 (95) 216 (646) 21 (16)</p> <p>42 (87) 14 (18) 17 (24)</p>	<p>18. N. Broadway/Arroyo Way</p> <p>Arroyo Way</p> <p>18 (42) 245 (257) 12 (11)</p> <p>16 (47) 29 (21) 66 (64)</p> <p>17 (42) 242 (594) 4 (18)</p>	<p>19. Civic Dr/Civic Dr/Arroyo Way</p> <p>Arroyo Way</p> <p>25 (46) 1,456 (743) 23 (3)</p> <p>14 (37) 13 (2) 14 (27)</p> <p>1 (12) 529 (1,805) 17 (3)</p>	<p>20. N. Main St/Carback Ave</p> <p>Not Analyzed in Near-term Scenario</p>

XX (YY) AM (PM) Peak Hour Traffic Volumes Signalized Intersection Stop Sign Study Intersection

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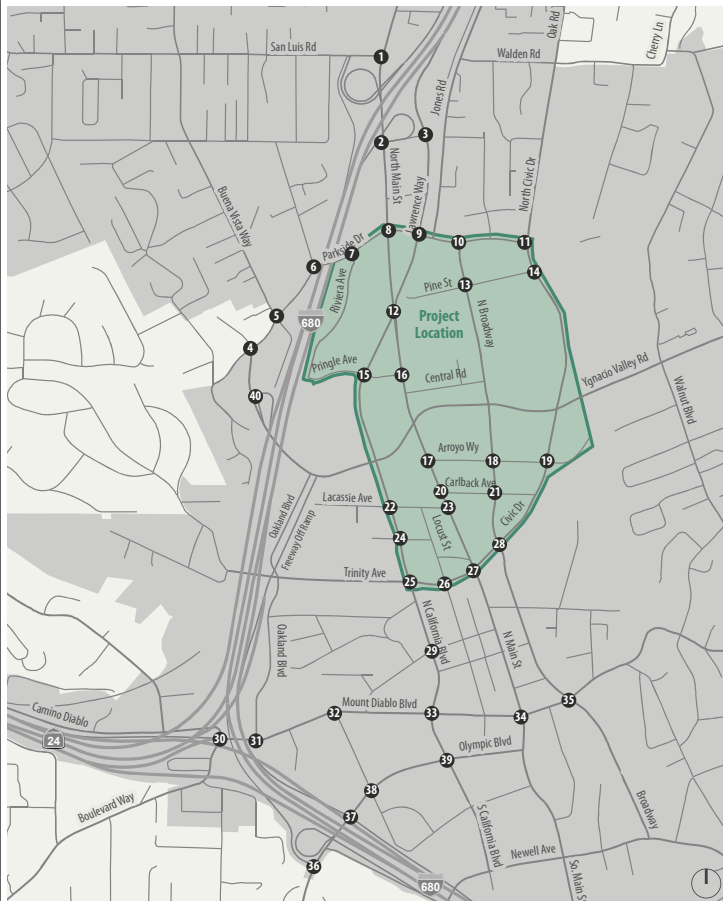


SOURCE: FEHR & PEERS, 2018.

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FIGURE 4.2-8a

North Downtown Specific Plan EIR
Near-Term No Project Peak Hour
Intersection Traffic Volumes Lane Configurations and Traffic Controls



XX (YY) AM (PM) Peak Hour Traffic Volumes Signalized Intersection Stop Sign Study Intersection

21. N Broadway/Carback Ave <i>Not Analyzed in Near-term Scenario</i>	22. California Blvd/LaCassie Ave LaCassie Ave: 43 (20), 642 (596), 52 (82) California Blvd: 28 (137), 6 (7), 28 (72) Signalized Intersection	23. N. Main St./Main St./LaCassie Ave LaCassie Ave: 100 (91), 322 (367) Main St.: 30 (193), 6 (24) Signalized Intersection	24. California Blvd./Cole Ave California Blvd: 16 (33), 834 (623), 135 (57) Cole Ave: 18 (19), 0 (1), 14 (38) Stop Sign	25. California Blvd./Civic Dr/Civic Drive <i>Not Analyzed in Near-term Scenario</i>
26. Locust St./Civic Drive <i>Not Analyzed in Near-term Scenario</i>	27. Main St./Civic Drive Civic Drive: 31 (64), 288 (321), 25 (79) Main St.: 21 (42), 442 (285), 107 (102) Signalized Intersection	28. Broadway/Civic Drive/Civic Dr Civic Drive: 72 (72), 25 (325), 4 (16) Broadway: 28 (72), 263 (628), 49 (97) Signalized Intersection	29. California Blvd./Bonanza St. <i>Not Analyzed in Near-term Scenario</i>	30. Boulevard Way/Mt. Diablo Blvd. <i>Not Analyzed in Near-term Scenario</i>
31. Oakland Blvd./Mt. Diablo Blvd. <i>Not Analyzed in Near-term Scenario</i>	32. Alpine Rd./Mt. Diablo Blvd. <i>Not Analyzed in Near-term Scenario</i>	33. California Blvd./Mt. Diablo Blvd. California Blvd: 180 (113), 274 (489), 28 (69) Mt. Diablo Blvd: 89 (95), 408 (435), 129 (148) Signalized Intersection	34. Main St./Mt. Diablo Blvd. <i>Not Analyzed in Near-term Scenario</i>	35. Broadway/Mt. Diablo Blvd. Mt. Diablo Blvd: 144 (154), 554 (432), 96 (151) Broadway: 79 (135), 429 (295), 79 (94) Signalized Intersection
36. SB 1680 Off-ramp/Pausen Ln/Olympic Blvd Pausen Ln: 667 (325), 0 (0), 387 (543) Olympic Blvd: 391 (383), 4 (4) Signalized Intersection	37. NB 1680 Ramps/Olympic Blvd Olympic Blvd: 401 (287), 853 (882) NB 1680 Ramps: 111 (87), 0 (262), 379 (484) Signalized Intersection	38. Alpine Rd/Olympic Blvd Olympic Blvd: 366 (221), 754 (1,059), 112 (91) Alpine Rd: 284 (213), 89 (48), 23 (15) Signalized Intersection	39. California Blvd./Olympic Blvd California Blvd: 239 (231), 539 (439), 24 (70) Olympic Blvd: 15 (92), 63 (169), 6 (23) Signalized Intersection	40. Broadway/Cypress St Cypress St: 0 (0), 0 (0), 0 (0) Broadway: 0 (0), 182 (440), 646 (924) Signalized Intersection

FIGURE 4.2-8b

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SOURCE: FEHR & PEERS, 2018.

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North Downtown Specific Plan EIR
 Near-Term No Project Peak Hour
 Intersection Traffic Volumes Lane Configurations and Traffic Controls

Near-Term with Project Forecasts. The trip generation for the proposed Specific Plan land uses was estimated using the Main Street model. The land uses include several non-entitled pending projects, as described in the project description chapter. The Specific Plan development sites are shown on Figure 4.2-9. The Specific Plan envisions the following net new development, which includes the non-entitled pipeline projects (a detailed breakdown by traffic analysis zone is provided in the Transportation Appendix).

Residential: 899 multi-family units
Office: 818,000 square feet⁶
Retail: 61,000 square feet
Industrial: 16,000 square feet
Auto Sales and Service: (37,000) square feet (net loss)
Hotel: 200 rooms

Table 4.2.P presents the trip generation, broken down into external vehicle trips, internal vehicle trips, transit trips, and pedestrian/bicycle trips. The Specific Plan (including the non-entitled pipeline projects) is estimated to generate about 14,170 daily trips that travel outside the Plan Area, 1,260 external AM peak hour trips, and 1,280 external PM peak hour trips. A detailed breakdown by development zone is included in the Transportation Appendix.

The external vehicle trips generated by the Specific Plan land uses were distributed to the study area roadway network using the distribution patterns shown on Figure 4.2-7, and the internal vehicle trips between zones were also added to the network, focusing on zones most likely to generate internal vehicle trips based on their relative distance. The resulting Specific Plan trip assignment is shown on Figure 4.2-10a and Figure 4.2-10b.

Figure 4.2-11a and Figure 4.2-11b show the Near Term with Project intersection traffic volumes.

Near-Term with Project freeway ramp volumes are the Near-Term No Project ramp volumes plus estimates of traffic from the development of the Specific Plan.

⁶ All commercial uses rounded to the nearest 1,000.

Table 4.2.P: Specific Plan Vehicle Trip Generation

Land Use	Units	No. Units	ITE Code	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Gross Motorized Vehicle Trip Estimates for New Land Use Development										
Apartments	DU	899	220 ^a	5,980	92	366	458	362	195	557
Hotel	Rooms	200	310 ^b	1,630	63	44	107	61	59	120
<i>Residential/Lodging Sub-Total</i>				7,610	155	410	565	423	254	677
Retail	KSF	60.709	820 ^c	2,590	36	22	58	108	117	225
Industrial	KSF	16	111 ^d	110	13	2	15	2	14	16
Automobile Sales	KSF	-37.087	841 ^e	-1,200	-54	-18	-71	-39	-59	-98
<i>Commercial Sub-Total</i>				1,510	-8	6	2	71	72	143
Office	KSF	817.99	710 ^f	9,020	1,123	153	1,276	207	1,012	1,219
<i>Office Sub-Total</i>				9,020	1,123	153	1,276	207	1,012	1,219
Total				18,140	1,273	596	1,843	701	1,338	2,039
Vehicle Trip Reductions Based on MXD+ Model										
Transit Trips				-720	-86	-38	-124	-44	-86	-130
Pedestrian/Bicycle Trips				-1,390	-119	-44	-163	-46	-94	-140
Non-auto internalization				-930	-104	-42	-146	-80	-164	-244
Net New Vehicle Trips										
Net New Project Vehicle Trips (Internal)				930	104	42	146	80	164	244
Net New Project Vehicle Trips (External)				14,170	860	403	1,264	451	860	1,281
Net New Project Vehicle Trips (Total)				15,100	964	445	1,410	531	994	1,525

Source: Fehr & Peers (March 2018).

ITE Trip Generation (9th Edition) by land use category (LUC):

^a LUC 220 (Apartment): Daily: T = 6.65(X); AM Peak Hour: T = 0.51(X) (20% in, 80% out); PM Peak Hour: T = 0.62(X) (65% in, 35% out)

^b LUC 310 (Hotel): Daily: T = 8.17(X); AM Peak Hour: T = 0.53(X) (59% in, 41% out); PM Peak Hour: T = 0.60(X) (51% in, 49% out)

^c LUC 820 (Shopping Center): Daily: T = 42.70(X); AM Peak Hour: T = 0.96(X) (62% in, 38% out); PM Peak Hour: T = 3.71(X) (48% in, 52% out)

^d LUC 110 (General Light Industrial): Daily: T = 6.97(X); AM Peak Hour: T = 0.92(X) (88% in, 12% out); PM Peak Hour: T = 0.97(X) (12% in, 88% out)

^e LUC 841 (Automobile Sales): Daily: T = 32.30(X); AM Peak Hour: T = 1.92(X) (75% in, 25% out); PM Peak Hour: T = 2.62(X) (40% in, 60% out)

^f LUC 710 (General Office Building): Daily: T = 11.03(X); AM Peak Hour: T = 1.56(X) (88% in, 12% out); PM Peak Hour: T = 1.49(X) (17% in, 83% out)

DU = dwelling unit. KSF = 1,000 square feet.

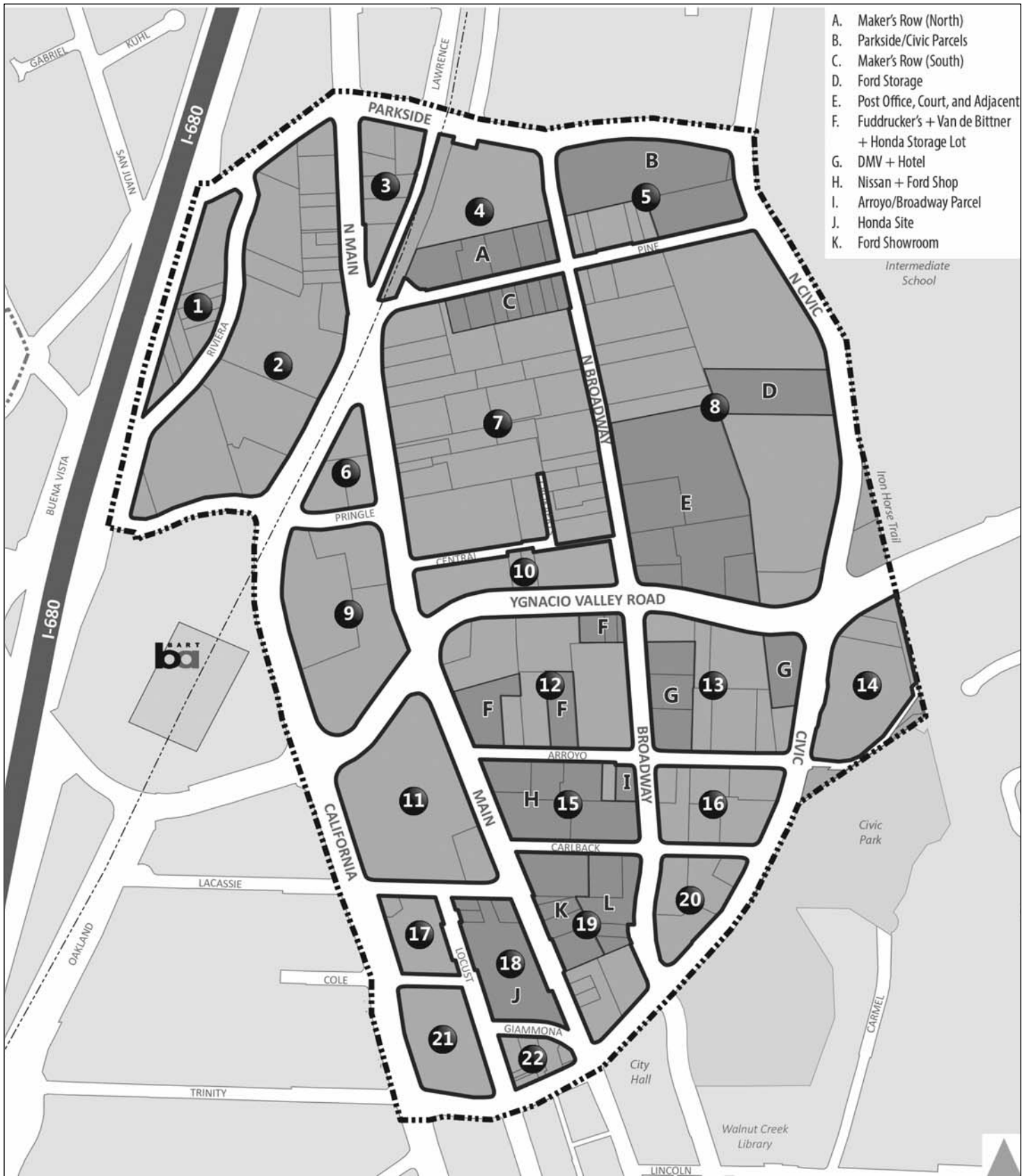


FIGURE 4.2-9

LSA



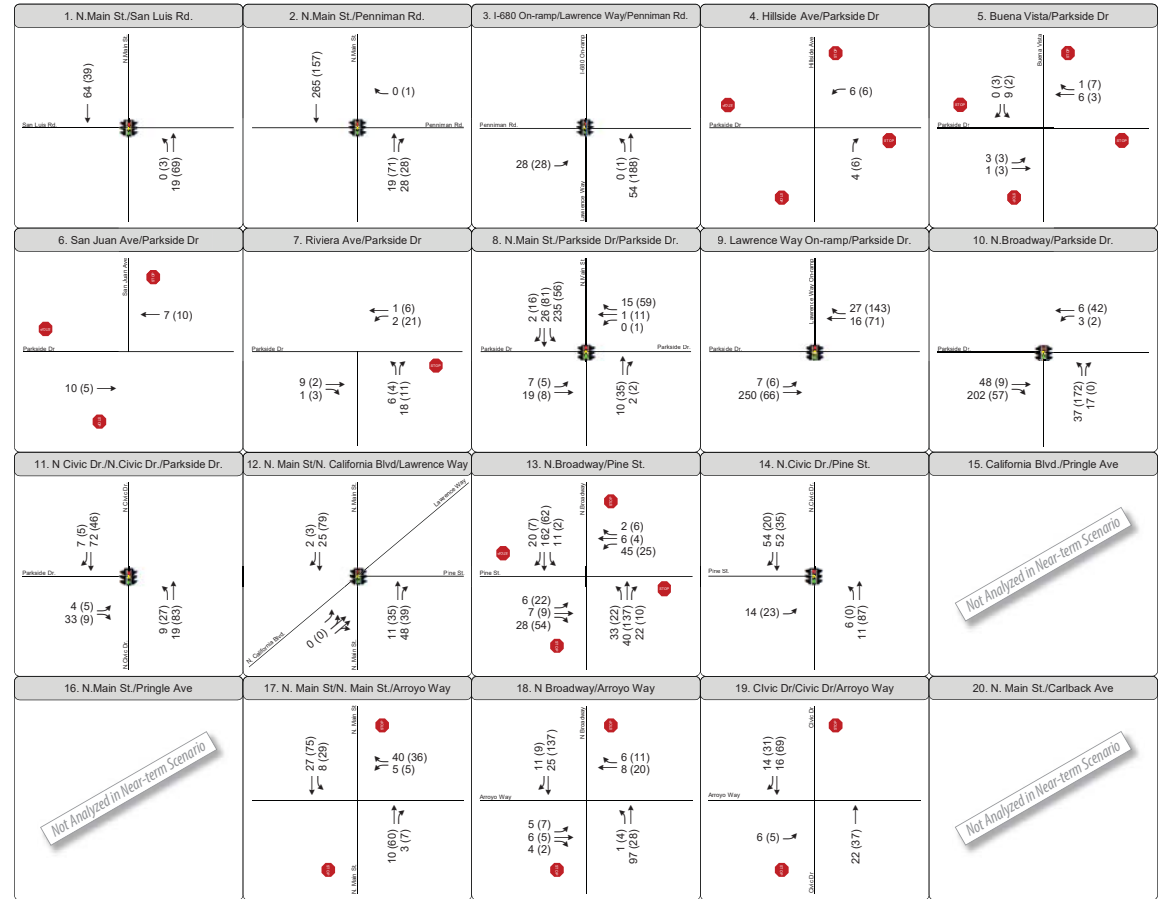
- Traffic Analysis Zone (TAZ) Boundary
- Development Site
- Plan Area
- City Boundary
- BART Rail

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North Downtown Specific Plan EIR
Plan Area Opportunity Sites

SOURCE: CITY OF WALNUT CREEK GIS DATA, CONTRA COSTA COUNTY GIS DATA, 2015, ESRI, USGS

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XX (YY) AM (PM) Peak Hour Traffic Volumes 🚦 Signalized Intersection 🛑 Stop Sign 📍 Study Intersection

LSA

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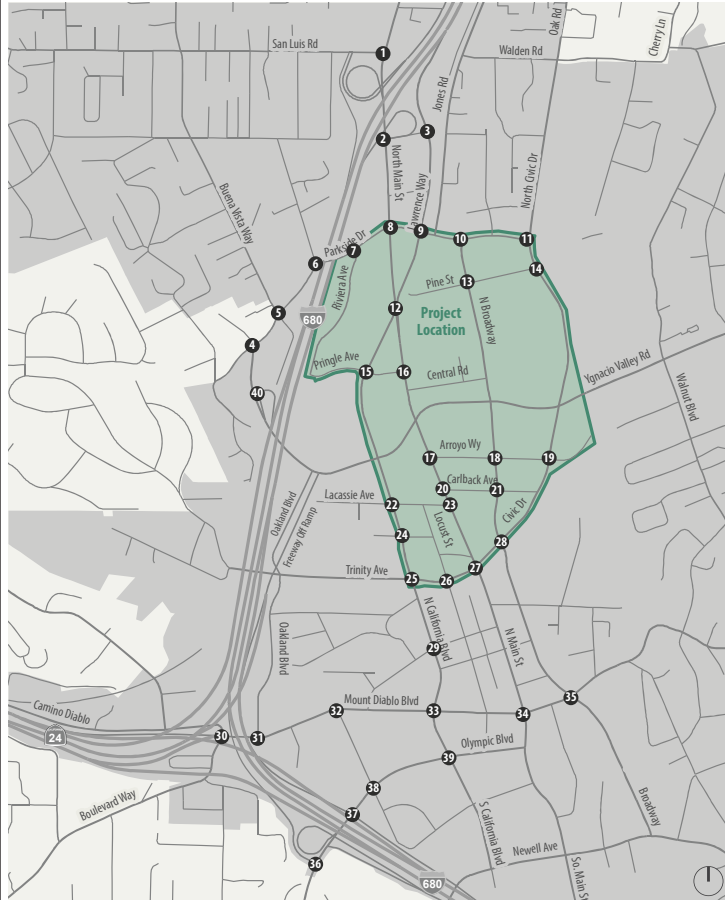


FIGURE 4.2-10a

North Downtown Specific Plan EIR
Specific Plan Trip Assignment

SOURCE: FEHR & PEERS, 2018.

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XX (YY) AM (PM) Peak Hour Traffic Volumes [Signalized Intersection Symbol] [Stop Sign Symbol] [Study Intersection Symbol]

21. N Broadway/Carback Ave <i>Not Analyzed in Near-term Scenario</i>	22. California Blvd./LaCassie Ave 	23. N. Main St./Main St./LaCassie Ave 	24. California Blvd./Cole Ave 	25. California Blvd./Civic Dr/Civic Drive <i>Not Analyzed in Near-term Scenario</i>
26. Locust St./Civic Drive <i>Not Analyzed in Near-term Scenario</i>	27. Main St./Civic Drive 	28. Broadway/Civic Drive/Civic Dr 	29. California Blvd./Bonanza St. <i>Not Analyzed in Near-term Scenario</i>	30. Boulevard Way/Mt. Diablo Blvd <i>Not Analyzed in Near-term Scenario</i>
31. Oakland Blvd./Mt. Diablo Blvd. <i>Not Analyzed in Near-term Scenario</i>	32. Alpine Rd/Mt. Diablo Blvd. <i>Not Analyzed in Near-term Scenario</i>	33. California Blvd./Mt. Diablo Blvd. 	34. Main St./Mt. Diablo Blvd. <i>Not Analyzed in Near-term Scenario</i>	35. Broadway/Mt. Diablo Blvd.
36. SB I680 Off-ramp/Pausen Ln/Olympic Blvd 	37. NB I680 Ramps/Olympic Blvd 	38. Alpine Rd/Olympic Blvd 	39. California Blvd./Olympic Blvd 	40. Broadway/Cypress St

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FIGURE 4.2-10b

North Downtown Specific Plan EIR
Specific Plan Trip Assignment

SOURCE: FEHR & PEERS, 2018.

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<p>1. N.Main St/San Luis Rd.</p> <p>San Luis Rd</p> <p>680</p> <p>San Luis Rd</p> <p>74 (70) 8 (11) 226 (88)</p> <p>Signalized</p> <p>6 (26) 8 (16) 10 (21)</p> <p>129 (219) 438 (1,021) 16 (30)</p>	<p>2. N.Main St/Penniman Rd.</p> <p>Penniman Rd</p> <p>0 (0) 2,526 (1,639)</p> <p>Signalized</p> <p>238 (282) 0 (0) 196 (60)</p> <p>39 (96) 942 (248) 72 (248)</p>	<p>3. I-680 On-ramp/Lawrence Way/Penniman Rd.</p> <p>Penniman Rd</p> <p>70 (242) 1 (5)</p> <p>Signalized</p> <p>3 (1) 11 (6)</p> <p>9 (48) 1,057 (1,935) 13 (0)</p>	<p>4. Hillside Ave/Parkside Dr</p> <p>Parkside Dr</p> <p>0 (0) 7 (2) 4 (3)</p> <p>Signalized</p> <p>4 (3) 31 (70) 668 (373)</p> <p>1 (0) 95 (73) 109 (44)</p> <p>22 (37) 2 (0) 163 (399)</p>	<p>5. Buena Vista/Parkside Dr</p> <p>Parkside Dr</p> <p>388 (123) 3 (2) 120 (73)</p> <p>Signalized</p> <p>117 (112) 305 (317) 9 (4)</p> <p>110 (320) 149 (151) 6 (5)</p> <p>6 (5) 3 (3) 3 (3)</p>
<p>6. San Juan Ave/Parkside Dr</p> <p>Parkside Dr</p> <p>85 (15) 250 (49)</p> <p>Signalized</p> <p>126 (125) 331 (416)</p> <p>40 (26) 238 (204)</p>	<p>7. Riviera Ave/Parkside Dr</p> <p>Parkside Dr</p> <p>425 (318) 336 (102)</p> <p>Signalized</p> <p>36 (224) 115 (445)</p>	<p>8. N. Main St/Parkside Dr/Parkside Dr.</p> <p>Parkside Dr</p> <p>336 (136) 1,924 (1,096) 374 (446)</p> <p>Signalized</p> <p>125 (313) 424 (215) 195 (86)</p> <p>90 (191) 322 (480) 128 (72)</p> <p>51 (75) 280 (1,300) 34 (110)</p>	<p>9. Lawrence Way On-ramp/Parkside Dr.</p> <p>Parkside Dr</p> <p>401 (548) 756 (593)</p> <p>Signalized</p> <p>138 (176) 808 (837)</p>	<p>10. N. Broadway/Parkside Dr.</p> <p>Parkside Dr</p> <p>600 (446) 82 (49)</p> <p>Signalized</p> <p>335 (481) 412 (216)</p> <p>277 (604) 56 (117)</p>
<p>11. N. Civic Dr./N. Civic Dr./Parkside Dr.</p> <p>Parkside Dr</p> <p>283 (124) 1,004 (469)</p> <p>Signalized</p> <p>374 (311) 352 (1,001)</p> <p>96 (348) 240 (285)</p>	<p>12. N. Main St/N. California Blvd/Lawrence Way</p> <p>N. Main St</p> <p>978 (480) 348 (221) 1,126 (805)</p> <p>Signalized</p> <p>275 (980) 365 (688) 53 (128)</p> <p>102 (584) 160 (530) 20 (5)</p>	<p>13. N. Broadway/Pine St.</p> <p>Pine St</p> <p>46 (30) 348 (221) 78 (52)</p> <p>Signalized</p> <p>40 (107) 40 (19) 144 (100)</p> <p>30 (104) 29 (72) 61 (114)</p> <p>50 (45) 255 (988) 80 (100)</p>	<p>14. N. Civic Dr./Pine St.</p> <p>Pine St</p> <p>295 (78) 1,116 (676)</p> <p>Signalized</p> <p>32 (109) 60 (61)</p> <p>116 (38) 694 (1,265)</p>	<p>15. California Blvd/Pringle Ave</p> <p>California Blvd</p> <p>Not Analyzed in Near-term Scenario</p>
<p>16. N. Main St/Pringle Ave</p> <p>Pringle Ave</p> <p>198 (171) 132 (77) 120 (81)</p> <p>Signalized</p> <p>74 (154) 12 (16) 11 (22)</p> <p>42 (87) 14 (18) 17 (24)</p> <p>15 (95) 262 (225) 23 (25)</p>	<p>17. N. Main St/N. Main St/Arroyo Way</p> <p>N. Main St</p> <p>29 (61) 289 (386) 12 (11)</p> <p>Signalized</p> <p>26 (66) 20 (47) 6 (18)</p> <p>21 (53) 34 (25) 70 (65)</p> <p>18 (46) 361 (622) 4 (16)</p>	<p>18. N. Broadway/Arroyo Way</p> <p>Arroyo Way</p> <p>38 (75) 1,469 (803) 23 (3)</p> <p>Signalized</p> <p>3 (45) 0 (5) 1 (12)</p> <p>19 (41) 13 (2) 14 (27)</p> <p>1 (12) 591 (1,635) 17 (3)</p>	<p>19. Civic Dr/Civic Dr/Arroyo Way</p> <p>Arroyo Way</p> <p>Not Analyzed in Near-term Scenario</p>	<p>20. N. Main St/Carback Ave</p> <p>Carback Ave</p> <p>Not Analyzed in Near-term Scenario</p>

XX (YY) AM (PM) Peak Hour Traffic Volumes Signalized Intersection Stop Sign Study Intersection

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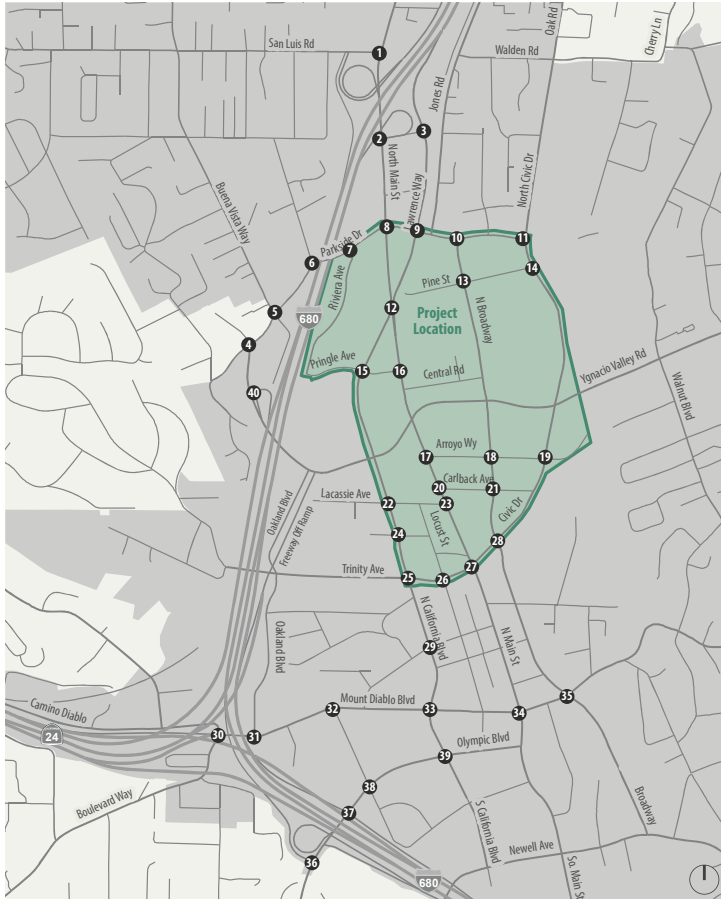


FIGURE 4.2-11a

North Downtown Specific Plan EIR
Near-Term with Project Peak Hour
Intersection Traffic Volumes, Lane Configurations and Traffic Controls

SOURCE: FEHR & PEERS, 2018.

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XX (YY) AM (PM) Peak Hour Traffic Volumes [Signalized Intersection Symbol] [Stop Sign Symbol] [Study Intersection Symbol]

21. N Broadway/Carlbak Ave Not Analyzed in Near-term Scenario	22. California Blvd/LaCassie Ave <ul style="list-style-type: none"> California Blvd: 46 (38) AM, 1 (84) PM LaCassie Ave: 16 (34) AM, 7 (21) PM, 12 (19) PM Carlbak Ave: 29 (138) AM, 13 (15) PM, 34 (76) PM San Luis Blvd: 15 (16) AM, 7 (27) PM, 35 (85) PM 	23. N. Main St./Main St./LaCassie Ave <ul style="list-style-type: none"> Main St: 115 (108) AM, 341 (421) PM LaCassie Ave: 48 (214) AM, 7 (27) PM Main St: 14 (28) AM, 202 (443) PM 	24. California Blvd./Cole Ave <ul style="list-style-type: none"> California Blvd: 16 (34) AM, 840 (628) PM, 141 (77) PM Cole Ave: 18 (19) AM, 1 (3) PM, 14 (38) PM California Blvd: 9 (65) AM, 0 (3) PM, 22 (19) PM Cole Ave: 19 (28) AM, 389 (1,145) PM, 36 (67) PM 	25. California Blvd./Civic Dr/Civic Drive Not Analyzed in Near-term Scenario
26. Locust St/Civic Drive Not Analyzed in Near-term Scenario	27. Main St/Civic Drive <ul style="list-style-type: none"> Main St: 41 (72) AM, 241 (824) PM, 29 (82) PM Civic Drive: 23 (72) AM, 334 (592) PM, 21 (51) PM Main St: 21 (42) AM, 464 (361) PM, 109 (109) PM Civic Drive: 21 (32) AM, 181 (171) PM, 87 (65) PM 	28. Broadway/Civic Drive/Civic Dr <ul style="list-style-type: none"> Broadway: 94 (141) AM, 271 (376) PM, 7 (20) PM Civic Drive: 100 (93) AM, 292 (634) PM, 49 (97) PM Broadway: 29 (53) AM, 266 (576) PM, 418 (782) PM 	29. California Blvd./Bonanza St. Not Analyzed in Near-term Scenario	30. Boulevard Way/Mt. Diablo Blvd Not Analyzed in Near-term Scenario
31. Oakland Blvd./Mt. Diablo Blvd. Not Analyzed in Near-term Scenario	32. Alpine Rd./Mt. Diablo Blvd. Not Analyzed in Near-term Scenario	33. California Blvd./Mt. Diablo Blvd. <ul style="list-style-type: none"> California Blvd: 185 (116) AM, 493 (484) PM, 56 (86) PM Mt. Diablo Blvd: 127 (245) AM, 255 (482) PM, 217 (243) PM California Blvd: 146 (270) AM, 400 (822) PM, 60 (122) PM Mt. Diablo Blvd: 89 (95) AM, 408 (435) PM, 129 (149) PM 	34. Main St./Mt. Diablo Blvd. Not Analyzed in Near-term Scenario	35. Broadway/Mt. Diablo Blvd. <ul style="list-style-type: none"> California Blvd: 144 (155) AM, 569 (475) PM, 99 (160) PM Mt. Diablo Blvd: 115 (212) AM, 182 (381) PM, 94 (79) PM Broadway: 88 (139) AM, 429 (296) PM, 79 (94) PM Mt. Diablo Blvd: 64 (139) AM, 465 (470) PM, 57 (77) PM
36. SB 1680 Off-ramp/Paulsen Ln/Olympic Blvd <ul style="list-style-type: none"> Paulsen Ln: 667 (325) AM, 0 (0) PM, 397 (543) PM Olympic Blvd: 404 (411) AM, 18 (16) PM Paulsen Ln: 995 (741) AM, 1 (4) PM 	37. NB 1680 Ramps/Olympic Blvd <ul style="list-style-type: none"> Olympic Blvd: 363 (584) AM, 498 (643) PM Paulsen Ln: 401 (284) AM, 876 (899) PM Olympic Blvd: 111 (67) AM, 362 (502) PM, 384 (501) PM 	38. Alpine Rd/Olympic Blvd <ul style="list-style-type: none"> Alpine Rd: 291 (252) AM, 99 (48) PM, 29 (15) PM Olympic Blvd: 394 (246) AM, 754 (1,063) PM, 112 (91) PM Alpine Rd: 86 (120) AM, 28 (61) PM, 14 (6) PM 	39. California Blvd./Olympic Blvd <ul style="list-style-type: none"> California Blvd: 229 (232) AM, 558 (484) PM, 24 (70) PM Olympic Blvd: 298 (533) AM, 161 (311) PM, 348 (266) PM California Blvd: 15 (92) AM, 63 (169) PM, 6 (23) PM Olympic Blvd: 188 (358) AM, 358 (763) PM, 4 (21) PM 	40. Broadway/Cypress St <ul style="list-style-type: none"> California Blvd: 0 (0) AM, 615 (264) PM, 172 (168) PM Cypress St: 0 (0) AM, 0 (0) PM, 0 (0) PM California Blvd: 0 (0) AM, 0 (0) PM, 0 (0) PM Cypress St: 0 (0) AM, 195 (1,056) PM, 682 (1,056) PM

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SOURCE: FEHR & PEERS, 2018.

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FIGURE 4.2-11b

North Downtown Specific Plan EIR
Near-Term with Project Peak Hour
Intersection Traffic Volumes, Lane Configurations and Traffic Controls

Cumulative No Project Forecasts. The Cumulative No Project condition reflects traffic growth expected by 2040 under the current General Plan. As part of the Specific Plan development process, General Plan-allowed uses were estimated by the planning team, in cooperation with City staff. The net-new development that could be expected under the current General Plan (including non-entitled pipeline projects) includes the following:

- Residential: 280 multi-family units
- Office: 563,000 square feet⁷
- Retail: 2,000 square feet
- Industrial: none
- Auto Sales and Service: 22,000 square feet
- Hotel: none

Table 4.2.Q presents the trip generation, broken down into external vehicle trips, internal vehicle trips, transit trips, and pedestrian/bicycle trips. The development that could occur under the current General Plan (including the non-entitled pipeline projects) is estimated to generate about 7,000 daily trips that travel outside the Plan Area, 760 external AM peak hour trips, and 750 external PM peak hour trips. A detailed breakdown by development zone is included in the Transportation Appendix.

Table 4.2.Q: No Project (General Plan) Vehicle Trip Generation

Land Use	Units	No. Units	ITE Code	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Gross Motorized Vehicle Trip Estimates for New Land Use Development										
Apartments	DU	280	220 ^a	1,860	29	114	143	113	61	174
Hotel	Rooms	0	310 ^b	0	0	0	0	0	0	0
<i>Residential/Lodging Sub-Total</i>				<i>1,860</i>	<i>29</i>	<i>114</i>	<i>143</i>	<i>113</i>	<i>61</i>	<i>174</i>
Retail	KSF	2,006	820 ^c	90	1	1	2	3	4	7
Industrial	KSF	0	111 ^d	0	0	0	0	0	0	0
Automobile Sales	KSF	22,298	841 ^e	720	32	11	43	23	25	58
<i>Commercial Sub-Total</i>				<i>810</i>	<i>33</i>	<i>12</i>	<i>45</i>	<i>26</i>	<i>39</i>	<i>65</i>
Office	KSF	563	710 ^f	6,210	773	105	878	143	696	839
<i>Office Sub-Total</i>				<i>6,210</i>	<i>773</i>	<i>105</i>	<i>878</i>	<i>143</i>	<i>696</i>	<i>839</i>
Total				8,880	835	231	1,066	282	796	1,078
Vehicle Trip Reductions Based on MXD+ Model										
Transit Trips				-370	-61	-17	-78	-20	-59	-79
Pedestrian/Bicycle Trips				-620	-65	-17	-82	-19	-50	-69
Non-auto internalization				-450	-56	-16	-72	-25	-67	-92
Net New Vehicle Trips										
Net New Project Vehicle Trips (Internal)				450	56	16	72	25	67	92
Net New Project Vehicle Trips (External)				7,000	597	165	762	193	553	746
Net New Project Vehicle Trips (Total)				7,440	653	181	834	218	620	838

Source: Fehr & Peers (March 2018).

ITE Trip Generation (9th Edition) by land use category (LUC):

^a LUC 220 (Apartment): Daily: T = 6.65(X); AM Peak Hour: T = 0.51(X) (20% in, 80% out); PM Peak Hour: T = 0.62(X) (65% in, 35% out)

^b LUC 310 (Hotel): Daily: T = 8.17(X); AM Peak Hour: T = 0.53(X) (59% in, 41% out); PM Peak Hour: T = 0.60(X) (51% in, 49% out)

^c LUC 820 (Shopping Center): Daily: T = 42.70(X); AM Peak Hour: T = 0.96(X) (62% in, 38% out); PM Peak Hour: T = 3.71(X) (48% in, 52% out)

^d LUC 110 (General Light Industrial): Daily: T = 6.97(X); AM Peak Hour: T = 0.92(X) (88% in, 12% out); PM Peak Hour: T = 0.97(X) (12% in, 88% out)

^e LUC 841 (Automobile Sales): Daily: T = 32.30(X); AM Peak Hour: T = 1.92(X) (75% in, 25% out); PM Peak Hour: T = 2.62(X) (40% in, 60% out)

^f LUC 710 (General Office Building): Daily: T = 11.03(X); AM Peak Hour: T = 1.56(X) (88% in, 12% out); PM Peak Hour: T = 1.49(X) (17% in, 83% out)

DU = dwelling unit. KSF = 1,000 square feet.

⁷ All commercial uses rounded to the nearest 1,000.

The external vehicle trips generated by the General Plan land uses (including the non-entitled pipeline projects) were distributed to the study area roadway network using the distribution patterns shown on Figure 4.2-7, and the internal vehicle trips between zones were also added to the network, focusing on zones most likely to generate internal vehicle trips based on their relative distance. In addition, the 13 percent growth on existing volumes described above, reflecting regional traffic growth, was included, as were the entitled pipeline project trips. The resulting Cumulative No Project traffic volumes are shown on Figure 4.2-12a and Figure 4.2-12b.

Cumulative No Project freeway ramp volumes were also derived from the Cumulative No Project intersection volumes.

Cumulative with Project Forecasts. The Cumulative with Project condition reflects traffic growth expected by 2040 under the North Downtown Specific Plan. As described above, the net-new development that could be expected under the proposed Specific Plan (including non-entitled pipeline projects), in lieu of the development that could occur under the current General Plan, includes the following:

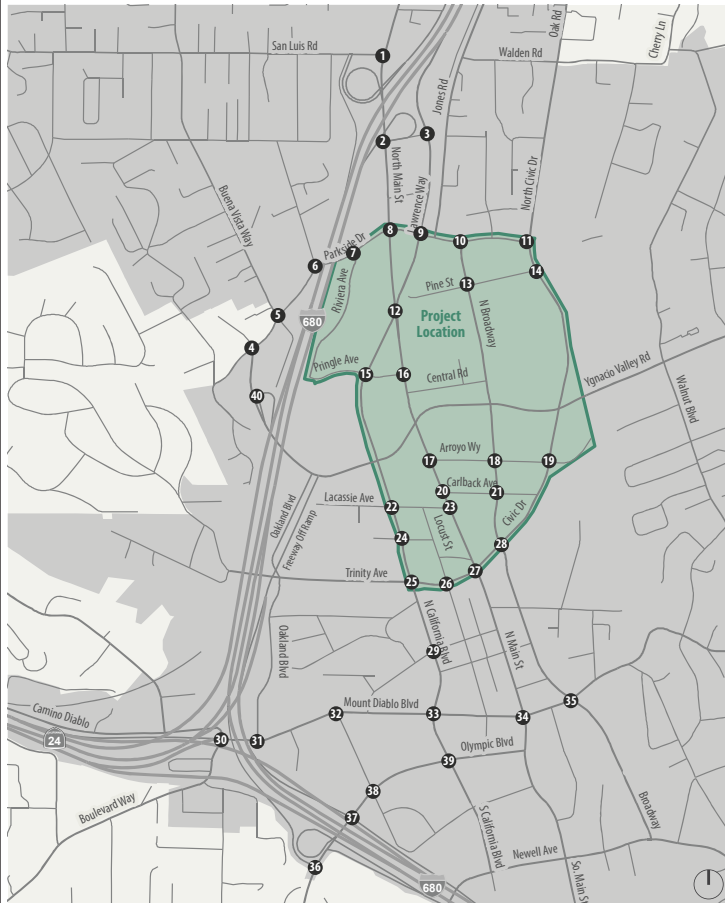
- Residential: 899 multi-family units
- Office: 818,000 square feet⁸
- Retail: 61,000 square feet
- Industrial: 16,000 square feet
- Auto Sales and Service: (37,000) square feet (net loss)
- Hotel: 200 rooms

Table 4.2.P, above, presents the trip generation, broken down into external vehicle trips, internal vehicle trips, transit trips, and pedestrian/bicycle trips. A detailed breakdown by development zone is included in the Transportation Appendix.

The external vehicle trips generated by the Specific Plan land uses (including the non-entitled pipeline projects) were distributed to the study area roadway network using the distribution patterns shown on Figure 4.2-7, and the assignment is shown on Figure 4.2-10a and Figure 4.2-10b. In addition, the 13 percent growth on existing volumes described above, reflecting regional traffic growth, was included, as were the entitled pipeline project trips. The resulting Cumulative with Project traffic volumes are shown on Figure 4.2-13a and Figure 4.2-13b.

Cumulative with Project freeway ramp volumes were calculated by adding external vehicle trips generated by the Specific Plan land uses to the Cumulative No Project forecasts.

⁸ All commercial uses rounded to the nearest 1,000.



XX (YY) AM (PM) Peak Hour Traffic Volumes Signalized Intersection Stop Sign Study Intersection

<p>1. N.Main St/San Luis Rd.</p>	<p>2. N.Main St/Penniman Rd.</p>	<p>3. I-680 On-ramp/Lawrence Way/Penniman Rd.</p>	<p>4. Hillside Ave/Parkside Dr</p>	<p>5. Buena Vista/Parkside Dr</p>
<p>6. San Juan Ave/Parkside Dr</p>	<p>7. Riviera Ave/Parkside Dr</p>	<p>8. N.Main St/Parkside Dr/Parkside Dr.</p>	<p>9. Lawrence Way On-ramp/Parkside Dr.</p>	<p>10. N.Broadway/Parkside Dr.</p>
<p>11. N Civic Dr./N.Civic Dr./Parkside Dr.</p>	<p>12. N. Main St/N. California Blvd/Lawrence Way</p>	<p>13. N.Broadway/Pine St.</p>	<p>14. N.Civic Dr./Pine St.</p>	<p>15. California Blvd./Pringle Ave</p> <p><i>Not Analyzed in Cumulative Scenario</i></p>
<p>16. N.Main St/Pringle Ave</p> <p><i>Not Analyzed in Cumulative Scenario</i></p>	<p>17. N. Main St/N. Main St./Arroyo Way</p>	<p>18. N Broadway/Arroyo Way</p>	<p>19. Civic Dr/Civic Dr/Arroyo Way</p>	<p>20. N. Main St/Carlbak Ave</p> <p><i>Not Analyzed in Cumulative Scenario</i></p>

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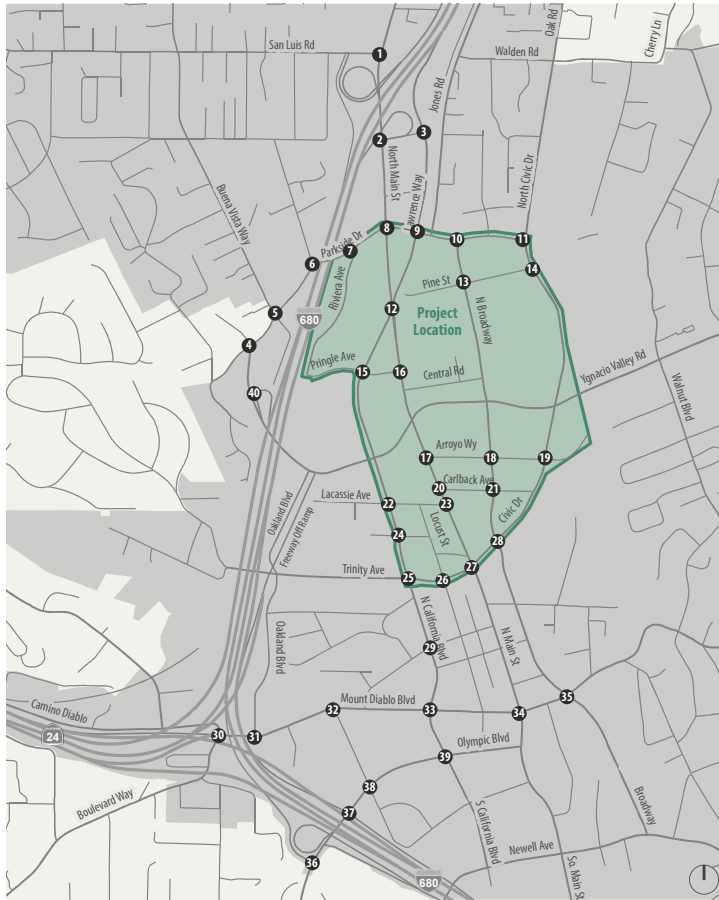


SOURCE: FEHR & PEERS, 2018.

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FIGURE 4.2-12a

North Downtown Specific Plan EIR
Cumulative No Project Peak Hour
Intersection Traffic Volumes, Lane Configurations and Traffic Controls



21. N Broadway/Carback Ave <i>Not Analyzed in Cumulative Scenario</i>	22. California Blvd/LaCassie Ave 	23. N. Main St./Main St./LaCassie Ave 	24. California Blvd./Cole Ave 	25. California Blvd./Civic Dr/Civic Drive <i>Not Analyzed in Cumulative Scenario</i>
26. Locust St./Civic Drive <i>Not Analyzed in Cumulative Scenario</i>	27. Main St./Civic Drive 	28. Broadway/Civic Drive/Civic Dr 	29. California Blvd./Bonanza St. <i>Not Analyzed in Cumulative Scenario</i>	30. Boulevard Way/Mt. Diablo Blvd. <i>Not Analyzed in Cumulative Scenario</i>
31. Oakland Blvd./Mt. Diablo Blvd. <i>Not Analyzed in Cumulative Scenario</i>	32. Alpine Rd./Mt. Diablo Blvd. <i>Not Analyzed in Cumulative Scenario</i>	33. California Blvd./Mt. Diablo Blvd. 	34. Main St./Mt. Diablo Blvd. <i>Not Analyzed in Cumulative Scenario</i>	35. Broadway/Mt. Diablo Blvd.
36. SB I680 Off-ramp/Paulsen Ln/Olympic Blvd 	37. NB I680 Ramps/Olympic Blvd 	38. Alpine Rd/Olympic Blvd 	39. California Blvd./Olympic Blvd 	40. Broadway/Cypress St

XX (YY) AM (PM) Peak Hour Traffic Volumes Signalized Intersection Stop Sign Study Intersection

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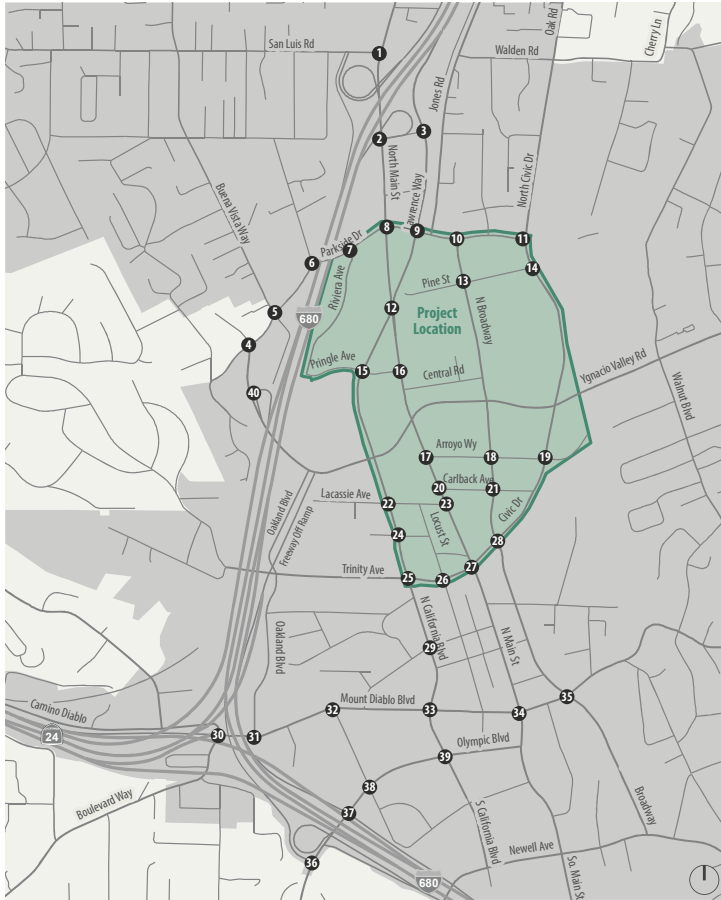


FIGURE 4.2-12b

North Downtown Specific Plan EIR
 Cumulative No Project Peak Hour
 Intersection Traffic Volumes, Lane Configurations and Traffic Controls

SOURCE: FEHR & PEERS, 2018.

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<p>1. N.Main St./San Luis Rd.</p>	<p>2. N.Main St./Penninan Rd.</p>	<p>3. I-680 On-ramp/Lawrence Way/Penninan Rd.</p>	<p>4. Hillside Ave/Parkside Dr</p>	<p>5. Buena Vista/Parkside Dr</p>
<p>6. San Juan Ave/Parkside Dr</p>	<p>7. Riviera Ave/Parkside Dr</p>	<p>8. N.Main St./Parkside Dr/Parkside Dr.</p>	<p>9. Lawrence Way On-ramp/Parkside Dr.</p>	<p>10. N.Broadway/Parkside Dr.</p>
<p>11. N Civic Dr./N.Civic Dr./Parkside Dr.</p>	<p>12. N. Main St./N. California Blvd./Lawrence Way</p>	<p>13. N.Broadway/Pine St.</p>	<p>14. N.Civic Dr./Pine St.</p>	<p>15. California Blvd./Pringle Ave</p> <p style="text-align: center;"><i>Not Analyzed in Cumulative Scenario</i></p>
<p>16. N.Main St./Pringle Ave</p> <p style="text-align: center;"><i>Not Analyzed in Cumulative Scenario</i></p>	<p>17. N. Main St./N. Main St./Arroyo Way</p>	<p>18. N Broadway/Arroyo Way</p>	<p>19. Civic Dr./Civic Dr./Arroyo Way</p>	<p>20. N. Main St./Carlbck Ave</p> <p style="text-align: center;"><i>Not Analyzed in Cumulative Scenario</i></p>

XX (YY) AM (PM) Peak Hour Traffic Volumes Signalized Intersection Stop Sign Study Intersection

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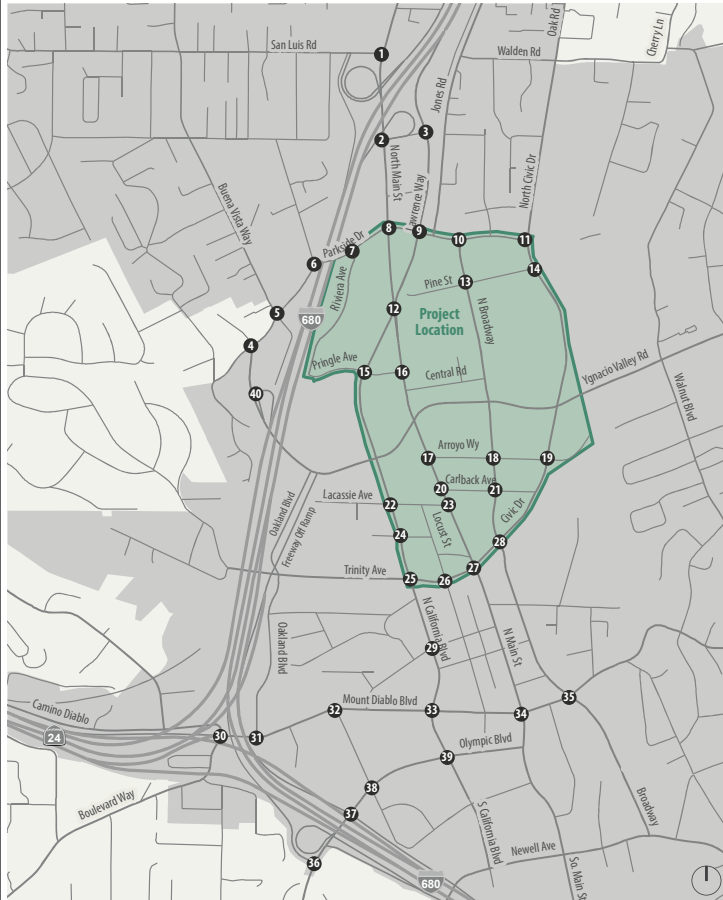


SOURCE: FEHR & PEERS, 2018.

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FIGURE 4.2-13a

North Downtown Specific Plan EIR
Cumulative with Project Peak Hour
Intersection Traffic Volumes, Lane Configurations and Traffic Controls



XX (YY) AM (PM) Peak Hour Traffic Volumes Signalized Intersection Stop Sign Study Intersection

21. N Broadway/Carback Ave <i>Not Analyzed in Cumulative Scenario</i>	22. California Blvd/LaCassie Ave 59 (45) / 1,683 (688) / 60 (94) 23 (40) / 12 (26) / 20 (30) 42 (156) / 18 (18) / 46 (94)	23. Main St./Main St./LaCassie Ave 136 (122) / 385 (473) 59 (246) / 11 (33) 25 (35) / 232 (501)	24. California Blvd./Cole Ave 21 (41) / 942 (708) / 166 (84) 13 (82) / 0 (10) / 28 (24) 30 (30) / 1 (12) / 20 (50) 30 (40) / 444 (1,283) / 48 (79)	25. California Blvd./Civic Dr/Civic Drive <i>Not Analyzed in Cumulative Scenario</i>
26. Locust St./Civic Drive <i>Not Analyzed in Cumulative Scenario</i>	27. Main St./Civic Drive 51 (88) / 329 (385) / 34 (93) 33 (87) / 370 (664) / 33 (63) 30 (50) / 523 (397) / 122 (127) 50 (41) / 185 (64) / 88 (92)	28. Broadway/Civic Drive/Civic Dr 112 (150) / 310 (524) / 13 (32) 112 (102) / 329 (716) / 60 (110) 20 (20) / 522 (344) / 851 (437) 40 (60) / 298 (650) / 475 (851)	29. California Blvd./Bonanza St. <i>Not Analyzed in Cumulative Scenario</i>	30. Boulevard Way/Mt. Diablo Blvd <i>Not Analyzed in Cumulative Scenario</i>
31. Oakland Blvd./Mt. Diablo Blvd. <i>Not Analyzed in Cumulative Scenario</i>	32. Alpine Rd./Mt. Diablo Blvd. <i>Not Analyzed in Cumulative Scenario</i>	33. California Blvd./Mt. Diablo Blvd. 215 (334) / 553 (540) / 70 (110) 150 (280) / 290 (548) / 250 (280) 100 (110) / 480 (490) / 150 (171) 170 (310) / 451 (1,038) / 70 (140)	34. Main St./Mt. Diablo Blvd. <i>Not Analyzed in Cumulative Scenario</i>	35. Broadway/Mt. Diablo Blvd. 170 (181) / 637 (637) / 113 (179) 99 (164) / 490 (341) / 90 (110) 130 (240) / 211 (441) / 106 (93) 57 (158) / 453 (832) / 70 (80)
36. SB I680 Off-ramp/Pausen Ln/Olympic Blvd 750 (370) / 0 (0) / 450 (610) 456 (430) / 27 (10) 1,115 (820) / 10 (10) / 10 (10) / 20 (10)	37. NB I680 Ramps/Olympic Blvd 410 (660) / 563 (680) 450 (320) / 985 (990) 130 (80) / 435 (550)	38. Alpine Rd/Olympic Blvd 333 (281) / 120 (80) / 40 (20) 440 (278) / 850 (1,198) / 130 (110) 20 (50) / 520 (831) / 20 (30) 100 (140) / 40 (70) / 20 (10)	39. California Blvd./Olympic Blvd 260 (261) / 623 (540) / 30 (80) 20 (110) / 80 (190) / 10 (30) 340 (600) / 190 (356) / 390 (300) 220 (410) / 401 (858) / 10 (30)	40. Broadway/Cypress St 0 (0) / 693 (904) / 194 (182) 0 (0) / 0 (0) / 0 (0) 0 (0) / 0 (0) / 0 (0) 0 (0) / 224 (498) / 773 (1,175)

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FIGURE 4.2-13b

North Downtown Specific Plan EIR
 Cumulative with Project Peak Hour
 Intersection Traffic Volumes, Lane Configurations and Traffic Controls

SOURCE: FEHR & PEERS, 2018.

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Near-Term Traffic Impacts

Intersection Impacts: Signalized Intersections. The Near-Term No Project and Near-Term with Project signalized intersection service levels were evaluated using the methods described in Section 4.2.1.3 and the volumes shown on Figures 4.2-8a, 4.2-8b, 4.2-11a, and 4.2-11b. The results are presented in Table 4.2.R.

Table 4.2.R: Peak Hour Signalized Intersection LOS – Near-Term Conditions

	Intersection	Peak Hour	Near Term No Project Conditions		Near Term With Project Conditions	
			V/C Ratio	LOS	V/C Ratio	LOS
1	North Main Street & San Luis Road	AM	0.56	A	0.58	A
		PM	0.48	A	0.50	A
2	North Main Street & Penniman Way	AM	0.56	A	0.61	B
		PM	0.56	A	0.61	B
3	Penniman Way & Lawrence Way/NB I680 Ramp	AM	0.38	A	0.45	A
		PM	0.92	E	1.01	F
8	North Main Street & Parkside Drive	AM	0.79	C	0.88	D
		PM	0.89	D	0.94	E
9	Parkside Drive & Lawrence Way	AM	0.34	A	0.35	A
		PM	0.30	A	0.36	A
10	North Broadway & Parkside Drive	AM	0.39	A	0.50	A
		PM	0.57	A	0.71	C
11	North Civic Drive & Parkside Drive	AM	0.78	C	0.82	D
		PM	0.61	B	0.65	B
12	North Main Street & North California Blvd/Lawrence Way	AM	0.62	B	0.63	B
		PM	0.72	C	0.74	C
14	North Civic Drive & Pine Street	AM	0.52	A	0.57	A
		PM	0.47	A	0.52	A
25	North California Boulevard & Trinity Avenue/Civic Dr.	AM	0.52	A	0.55	A
		PM	0.59	A	0.61	B
27	Civic Drive & North Main Street	AM	0.58	A	0.63	B
		PM	0.78	C	0.84	D
28	Civic Drive & North Broadway	AM	0.62	B	0.68	B
		PM	0.73	C	0.75	C
33	Mt. Diablo Boulevard & California Boulevard	AM	0.62	B	0.63	B
		PM	0.84	D	0.84	D
35	Mt. Diablo Boulevard & Broadway	AM	0.53	A	0.54	A
		PM	0.70	B	0.71	C
36	Olympic Boulevard & Paulson Ln/SB I-680 Ramps	AM	0.73	C	0.75	C
		PM	0.47	A	0.48	A
37	Olympic Boulevard & NB I-680 Ramps	AM	0.59	A	0.60	B
		PM	0.75	C	0.76	C
38	Olympic Boulevard & Alpine Road	AM	0.53	A	0.55	A
		PM	0.51	A	0.52	A
39	Olympic Boulevard & S. California Boulevard	AM	0.49	A	0.50	A
		PM	0.69	B	0.70	B

Source: Fehr & Peers (March 2018).

LOS = Level of Service. LOS calculations conducted using the 2000 HCM method in the Synchro 9 analysis software.

Bold text indicates below-standard intersection operations based on the Walnut Creek General Plan LOS standards. For signals in the Core Area, the LOS standard is mid-LOS E (v/c=0.94). For Non-Core Area signalized intersections, the LOS standard is mid-LOS D (v/c=0.84).

In the Near-Term No Project condition, all signalized study intersections operate within the City's LOS Standard. Under Near-Term with Project conditions, one intersection is projected to worsen from an above-standard LOS to a below-standard LOS. Intersection #3, Penniman Way/Lawrence Way/I-680 Northbound On-Ramp falls from LOS E with a v/c ratio of 0.92 to LOS F with a v/c ratio of 1.01, in the PM peak hour. This is a significant impact based on the significance criteria.

Impact TRA-1: The implementation of the Specific Plan is projected to significantly impact intersection #3, Penniman Way/Lawrence Way/I-680 Northbound On-Ramp, in the PM peak hour. (S)

No physical capacity improvements are feasible at this intersection, as it is constrained by adjacent development and the freeway; furthermore, peak hour congestion at this location is related to freeway congestion, and thus increasing the capacity of the intersection would not resolve the root source of the congestion. The City will work with Caltrans to periodically review and adjust the traffic signal timing to adapt to changing traffic volumes over time. However, signal timing adjustments would not necessarily reduce this impact to a less than significant level. Therefore, this impact would remain significant and unavoidable.

Mitigation Measure TRA-1: The City of Walnut Creek will coordinate with Caltrans to review and adjust the timing of the signal at Penniman Way/Lawrence Way/I-680 Northbound On-Ramp to respond to traffic volume changes over time, to balance the demands of freeway traffic flows and City street traffic flows. However, signal timing adjustments would not necessarily reduce this impact to a less than significant level. Therefore, this impact would remain significant and unavoidable with mitigation. (SU)

Intersection Impacts: Unsignalized Intersections. The Near-Term No Project and Near-Term with Project unsignalized intersection service levels were evaluated using the methods described in Section 4.2.1.3 and the volumes shown on Figures 4.2-8a, 4.2-8b, 4.2-11a, and 4.2-11b. The results are presented in Table 4.2.S.

In the Near-Term No Project condition, peak hour signal warrants are satisfied at three unsignalized intersections: intersection #5 (Parkside/Buena Vista Avenue) in the AM peak hour; intersection #7 (Parkside Drive/Riviera Avenue) in the PM peak hour, and #17 (North Main Street/Arroyo Way) in the PM peak hour. Several intersection also operate at an overall LOS E/F, or have side-street movements that operate at LOS E/F.

The addition of Specific Plan traffic causes several intersections for worsen from LOS D or better to LOS E or F, including intersection #5 (Parkside/Buena Vista Avenue) in the AM peak hour (overall intersection); intersection #7 (Parkside Drive/Riviera Avenue) in the PM peak hour (worst movement); intersection #13 (North Broadway/Pine Street) in PM peak hour (overall), intersection #18 (North Broadway/Arroyo Way) in the PM peak hour (worst movement); and intersection #24 (North California Boulevard/Cole Avenue) in the PM peak hour (worst movement).

Table 4.2.S: Peak Hour Unsignalized Intersection LOS – Near-Term Conditions

	Intersection	Peak Hour	Control	Near Term No Project Conditions		Near Term With Project Conditions	
				Delay	LOS	Delay	LOS
4	Parkside Drive & Hillside Avenue	AM	AWSC	39.3	E	41.5	E
		PM		21.2	C	22.2	C
5	Parkside Drive & Buena Vista Avenue	AM	AWSC	32.6	D	36.2	E
		PM		22.4	C	24.0	C
6	Parkside Drive & San Juan Avenue	AM	AWSC	21.1	C	22.1	C
		PM		11.1	B	11.4	B
7	Riviera Avenue & Parkside Drive	AM	SSSC	8.9 (66.7)	A (F)	21.8 (>120)	C (F)
		PM		12.6 (24)	B (C)	30.2 (59.3)	D (F)
13	North Broadway & Pine Street	AM	AWSC	11.1	B	24.8	C
		PM		28.1	D	111.6	F
17	North Main Street & Arroyo Way	AM	SSSC	4.7 (46)	A (E)	6.7 (73.8)	A (F)
		PM		55.9 (>120)	F (F)	>120 (>120)	F (F)
18	North Broadway & Arroyo Way	AM	SSSC	3 (12.3)	A (B)	3.2 (14.5)	A (B)
		PM		5 (23.6)	A (C)	9.4 (52.5)	A (F)
19	Civic Drive & Arroyo Way	AM	SSSC	3.2 (>120)	A (F)	5 (>120)	A (F)
		PM		15.2 (>120)	C (F)	22.7 (>120)	C (F)
24	North California Boulevard & Cole Avenue	AM	SSSC	1.5 (23.8)	A (C)	1.9 (24.8)	A (C)
		PM		1.9 (26.6)	A (D)	3.3 (45.1)	A (E)
40	Parkside Drive & WB SR 24 On-Ramp	AM	Yield	2.9 (5.9)	A (A)	3.1 (6.5)	A (A)
		PM		2.9 (12.5)	A (B)	3.6 (16.1)	A (C)

Source: Fehr & Peers (March 2018).

For All-Way Stop-Controlled (AWSC) intersections, service levels are based on the whole intersection weighted average control delay expressed in seconds per vehicle calculated using methods described in the 2000 Highway Capacity Manual. For Side-Street Stop-Controlled (SSSC) intersections, the total delay and LOS is reported, followed by the worst movement or approach in parentheses.

Bold text indicates the peak hour signal warrant is met.

The signal warrants identified for the existing condition at intersections #5, #7 and #17 would continue to be met under Near Term No Project and Near Term with Project conditions. The addition of Specific Plan traffic would cause one additional intersection, #13 (North Broadway/Pine Street) to meet the warrant in the PM peak hour.

As noted in Section 4.2.4.1, the City of Walnut Creek does not maintain LOS standards or significance criteria for unsignalized intersections. Therefore, the above findings will be used by the City in planning for potential improvements to the affected intersections, but no significant impacts under CEQA are identified.

Ygnacio Valley Road Delay Index Impacts. The Near-Term No Project and Near-Term with Project Delay Index was evaluated using the methods described in Section 4.2.1.3 and the volumes shown on Figures 4.2-8a, 4.2-8b, 4.2-11a, and 4.2-11b. (Additional volumes for the remainder of the corridor to the east are included in the City’s Synchro model). The results are presented in Table 4.2.T. The addition of Specific Plan traffic causes the average travel speeds to drop slightly, and for the eastbound direction in the PM peak hour, the additional traffic causes the average travel speed to drop below the acceptable level, from 15.9 mph to 14.6 mph. The Delay Index increases from 1.3 to 1.4 for the eastbound direction in the PM peak hour, but the

index remains below 2.0 for both peak hours, without and with the Project. The impact on average travel speed in the eastbound direction in the PM peak hour is a significant impact.

Table 4.2.T: Peak Hour Delay Index – Near-Term Conditions

Direction		Peak Hour	Near Term No Project Conditions		Near Term With Project Conditions	
			Delay Index	Average Speed (mph)	Delay Index	Average Speed (mph)
1	Ygnacio Valley Road Eastbound (Interstate 680 to Oak Grove Road)	AM	1.2	24.9	1.2	24.4
		PM	1.3	15.9	1.4	14.6
2	Ygnacio Valley Road Westbound (Oak Grove Road to Interstate 680)	AM	1.2	25.4	1.2	23.9
		PM	1.2	19.9	1.3	18.0

Source: Fehr & Peers (March 2018).

Bold indicates a condition that does not meet the City of Walnut Creek standard.

Impact TRA-2: The implementation of the Specific Plan is projected to significantly impact the average travel speed on eastbound Ygnacio Valley Road in the PM peak hour, causing it to drop from 15.9 mph to 14.6 mph. (S)

This impact is based on estimated Specific Plan vehicle trip generation and estimates of how many of these trips would use the intersections on Ygnacio Valley Road to travel to the east and west, as well as to traverse these intersections to travel to the north and south. The Specific Plan contains travel demand management (TDM) policies and programs to support the residents, employees and visitors in the Plan Area in using alternative modes to the single occupant vehicle. The Plan also proposes many non-auto infrastructure improvements and development standards that will make walking, bicycling and taking transit more comfortable and convenient. These elements of the Specific Plan will work together to minimize the auto trip growth as the Plan area develops. However, because the Specific Plan will generate some automobile traffic regardless of these elements, this impact remains significant and unavoidable.

Mitigation Measure TRA-2: Ygnacio Valley Road is a regional transportation facility that serves travel demand generated by Walnut Creek and several other communities, including Concord, Clayton, and East Contra Costa County cities. The City of Walnut Creek will continue working with the Contra Costa Transportation Authority, the Metropolitan Transportation Commission, Caltrans, and other jurisdictions to develop and implement regional solutions to traffic congestion along this corridor. (SU)

Freeway Impacts. The Near-Term No Project and Near-Term with Project freeway mainline and ramp merge/diverge sections were evaluated using the methods described in Section 4.2.1.3 and the volumes developed as described in Section 4.2.4.2. The results are presented in Table 4.2.U and Table 4.2.V. While several freeway mainline and ramp merge/diverge/weave segments operate below Caltrans standard of D in both the Near-Term No Project and Near-Term with Project conditions, the addition of Specific Plan traffic generally causes an increase of 0.1 to 1.0 in the vehicle density; at one location, the Ygnacio Valley Road off-ramp from eastbound SR 24 in the AM peak hour, the addition of Specific Plan traffic causes an increase in vehicle density of 3.0 passenger cars per hour per lane, but the LOS remains at E.

Based on the significance criteria for freeway impacts, the Specific Plan would have a significant impact on freeway operations.

Table 4.2.U: Freeway Segment LOS – Near-Term Conditions

Segment	Peak Hour	Type	Near Term No Project Conditions		Near Term With Project Conditions	
			Density	LOS	Density	LOS
<i>I-680 Northbound</i>						
Interstate 680: North of North Main Street	AM	Basic	23.7	C	23.7	C
	PM		30.9	D	31.6	D
Interstate 680: South of Olympic Boulevard	AM	Basic	23.7	C	23.7	C
	PM		In Queue	F	In Queue	F
<i>I-680 Southbound</i>						
Interstate 680: South of Olympic Boulevard	AM	Basic	29.9	D	30.0	D
	PM		22.2	C	22.2	C
Interstate 680: North of North Main Street	AM	Basic	In Queue	F	In Queue	F
	PM		19.2	C	19.2	C
<i>SR-24 Eastbound</i>						
State Route 24: West of Interstate 680	AM	Basic	20.4	C	20.4	C
	PM		In Queue	F	In Queue	F
<i>SR-24 Westbound</i>						
State Route 24: West of Interstate 680	AM	Basic	30.2	D	30.2	D
	PM		21.6	C	21.6	C

Source: Fehr & Peers (March 2018).

Bold indicates a condition below the Caltrans standard.

Table 4.2.V: Freeway Ramp LOS – Near-Term Conditions

Segment	Peak Hour	Near Term No Project Conditions		Near Term With Project Conditions	
		Density	LOS	Density	LOS
<i>I-680 Northbound</i>					
North Main Street On-Ramp	AM	19.3	B	20.2	C
	PM	In Queue	F	In Queue	F
Ygnacio Valley Road Off-Ramp	AM	21.1	C	21.1	C
	PM	In Queue	F	In Queue	F
Olympic Boulevard Off-Ramp	AM	26.2	C	26.3	C
	PM	28.3	D	28.3	D
Olympic Boulevard On-Ramp ^a	AM	41.4	E	41.4	E
	PM	In Queue	F	In Queue	F
<i>I-680 Southbound</i>					
North Main Street Off-Ramp	AM	In Queue	F	In Queue	F
	PM	9.9	A	9.9	A
Ygnacio Valley Road On-Ramp	AM	In Queue	F	In Queue	F
	PM	In Queue	F	In Queue	F
Olympic Boulevard Off-Ramp	AM	In Queue	F	In Queue	F
	PM	35.1	E	35.2	E
Olympic Boulevard On-Ramp	AM	In Queue	F	In Queue	F
	PM	23.8	C	23.9	C
<i>SR-24 Eastbound</i>					
Ygnacio Valley Road Off-Ramp	AM	35.6	E	38.6	E
	PM	In Queue	F	In Queue	F
Mount Diablo Boulevard Off-Ramp	AM	36.5	E	36.5	E
	PM	In Queue	F	In Queue	F
<i>SR-24 Westbound</i>					
Ygnacio Valley Road On-Ramp	AM	In Queue	F	In Queue	F
	PM	37.6	E	38.6	E
Mount Diablo Boulevard On-Ramp	AM	25.3	C	25.4	C
	PM	22.0	C	22.1	C

Source: Fehr & Peers (March 2018).

Bold indicates a condition below the Caltrans standard.

^a Walnut Creek intends to construct improvements to the Olympic Boulevard/I-680 Northbound Ramps intersection to prevent traffic from diverting through the intersection during the congested PM peak hours. This would improve operations at the merge onto northbound I-680, but the condition would remain LOS F. This improvement has been approved at a concept level by Caltrans.

Impact TRA-3: The implementation of the Specific Plan is projected to add traffic to freeway segments that currently operate below the Caltrans standard or are projected to operate below the standard without Specific Plan traffic. (S)

The addition of Specific Plan traffic increases the vehicle density on several freeway segments, generally by less than one passenger car per hour per lane; at the off-ramp from eastbound SR 24 to Ygnacio Valley Road in the AM peak hour, the vehicle density increases from 35.6 to 38.6 with the addition of Specific Plan traffic. No segments change by a LOS grade with the addition of Specific Plan traffic.

Mitigation Measure TRA-3: The City of Walnut Creek will contribute to regional freeway system improvements such as the Innovate 680 improvements, and the SR 4 widening projects, through sales tax increment funds accruing from new development in the Plan Area. The Innovate 680 project includes seven strategies that are projected to substantially relieve congestion on I-680. The strategies include:

1. Completing the HOV/Express Lanes
2. Cooling Corridor Hot Spots
3. Increasing efficiency of bus service
4. Enhancing travel demand management strategies
5. Providing first mile/last mile connections
6. Implementing innovative operational strategies
7. Preparing the corridor for the future

The first two strategies above are projected to reduce PM peak period congestion by up to 90 percent. The CCTA is anticipated to release an RFP in 2018 to study and implement all of these strategies. Because Walnut Creek does not control the funding, prioritization, and construction of these projects, this impact would remain significant and unavoidable after mitigation. (SU)

Cumulative Traffic Impacts

Intersection Impacts: Signalized Intersections. The Cumulative No Project and Cumulative with Project signalized intersection service levels were evaluated using the methods described in Section 4.2.1.3 and the volumes shown on Figures 4.2-12a, 4.2-12b, 4.2-13a, and 4.2-13b. The results are presented in Table 4.2.W.

In the Cumulative No Project condition, four signalized intersections operate below the applicable standard: intersection #3 (Penniman Way/Lawrence Way/I-680 Northbound Ramps) in the PM peak hour; intersection #8 (North Main Street/Parkside Drive) in both peak hours; intersection #27 (Civic Drive/North Main Street) in the PM peak hour; and intersection #36 (Olympic Boulevard/Paulson Lane/I-680 Southbound Ramps) in the AM peak hour. The addition of Specific Plan traffic to these intersections does not increase the v/c ratio by 0.05 or more; therefore the Plan's impact on these intersections is less than significant. The addition of Specific Plan traffic does not cause any other intersections to fall from an above-standard LOS to a below-standard LOS. Therefore, no significant impacts to signalized intersections are identified.

Table 4.2.W: Peak Hour Signalized Intersection LOS – Cumulative Conditions

	Intersection	Peak Hour	Cumulative No Project Conditions		Cumulative With Project Conditions	
			V/C Ratio	LOS	V/C Ratio	LOS
1	North Main Street & San Luis Road	AM	0.66	B	0.66	B
		PM	0.56	A	0.57	A
2	North Main Street & Penniman Way	AM	0.68	B	0.69	B
		PM	0.69	B	0.71	C
3	Penniman Way & Lawrence Way/NB I680 Ramp	AM	0.48	A	0.51	A
		PM	1.10	F	1.14	F
8	North Main Street & Parkside Drive	AM	0.96	E	0.99	E
		PM	1.05	F	1.06	F
9	Parkside Drive & Lawrence Way	AM	0.40	A	0.40	A
		PM	0.40	A	0.41	A
10	North Broadway & Parkside Drive	AM	0.53	A	0.53	A
		PM	0.76	C	0.79	C
11	North Civic Drive & Parkside Drive	AM	0.88	D	0.88	D
		PM	0.70	B	0.72	C
12	North Main Street & North California Blvd/Lawrence Way	AM	0.70	B	0.71	C
		PM	0.82	D	0.84	D
14	North Civic Drive & Pine Street	AM	0.64	B	0.65	B
		PM	0.57	A	0.58	A
25	North California Boulevard & Trinity Avenue/Civic Dr.	AM	0.63	B	0.64	B
		PM	0.68	B	0.69	B
27	Civic Drive & North Main Street	AM	0.68	B	0.71	C
		PM	0.97	E	0.99	E
28	Civic Drive & North Broadway	AM	0.75	C	0.76	C
		PM	0.84	D	0.85	D
33	Mt. Diablo Boulevard & California Boulevard	AM	0.71	C	0.72	C
		PM	0.94	E	0.94	E
35	Mt. Diablo Boulevard & Broadway	AM	0.61	B	0.62	B
		PM	0.81	D	0.81	D
36	Olympic Boulevard & Paulson Ln/SB I-680 Ramps	AM	0.91	E	0.92	E
		PM	0.54	A	0.54	A
37	Olympic Boulevard & NB I-680 Ramps	AM	0.69	B	0.70	B
		PM	0.90	D	0.90	D
38	Olympic Boulevard & Alpine Road	AM	0.65	B	0.66	B
		PM	0.59	A	0.60	B
39	Olympic Boulevard & S. California Boulevard	AM	0.56	A	0.57	A
		PM	0.78	C	0.78	C

Source: Fehr & Peers (March 2018).

LOS = Level of Service. LOS calculations conducted using the 2000 HCM method in the Synchro 9 analysis software.

Bold text indicates below-standard intersection operations based on the Walnut Creek General Plan LOS standards. For signals in the Core Area, the LOS standard is mid-LOS E (v/c=0.94). For Non-Core Area signalized intersections, the LOS standard is mid-LOS D (v/c=0.84).

Intersection Impacts: Unsignalized Intersections. The Cumulative No Project and Cumulative with Project unsignalized intersection service levels were evaluated using the methods described in Section 4.2.1.3 and the volumes shown on Figures 4.2-12a, 4.2-12b, 4.2-13a, and 4.2-13b. The results are presented in Table 4.2.X.

In the Cumulative condition, all but one of the unsignalized intersections operates at LOS F (for all-way stop-controlled intersections, for the whole intersection, or at side-street stop-controlled intersections, for the worst approach) under Cumulative No Project and Cumulative with Project conditions, in one or both peak hours. The Cumulative with Project case, which reflects the development of the Specific Plan, results in delay increases of less than one second to over ten seconds, relative to the Cumulative No Project case, which reflects development under the current General Plan. The largest delay increases are at intersection #13 (North Broadway/Pine Street), with an AM peak hour delay increase of 18 seconds and a drop from LOS D to LOS E; and at intersection #24 (North California Boulevard/Cole Avenue), with an average intersection delay increase of 20 seconds in the PM peak hour and a drop from LOS B to LOS D.

Table 4.2.X: Peak Hour Unsignalized Intersection LOS – Cumulative Conditions

Intersection		Peak Hour	Control	Cumulative No Project Conditions		Cumulative With Project Conditions	
				Delay	LOS	Delay	LOS
4	Parkside Drive & Hillside Avenue	AM	AWSC	55.7	F	55.9	F
		PM		33.2	D	33.2	D
5	Parkside Drive & Buena Vista Avenue	AM	AWSC	75.2	F	76.5	F
		PM		52.8	F	53.6	F
6	Parkside Drive & San Juan Avenue	AM	AWSC	38.2	E	38.6	E
		PM		13.3	B	13.4	B
7	Rivera Avenue & Parkside Drive	AM	SSSC	88.9 (>120)	F (F)	90.2 (>120)	F (F)
		PM		118.6 (>120)	F (F)	>120 (>120)	F (F)
13	North Broadway & Pine Street	AM	AWSC	29.2	D	48.6	E
		PM		>120	F	>120	F
17	North Main Street & Arroyo Way	AM	SSSC	12.2 (>120)	B (F)	16.9 (>120)	C (F)
		PM		>120 (>120)	F (F)	>120 (>120)	F (F)
18	North Broadway & Arroyo Way	AM	SSSC	4 (17.2)	A (C)	4.4 (18.2)	A (C)
		PM		36.2 (>120)	E (F)	47.8 (>120)	E (F)
19	Civic Drive & Arroyo Way	AM	SSSC	17.6 (>120)	C (F)	25.4 (>120)	D (F)
		PM		>120 (>120)	F (F)	>120 (>120)	F (F)
24	North California Boulevard & Cole Avenue	AM	SSSC	2.3 (37.7)	A (E)	2.8 (40)	A (E)
		PM		10.7 (>120)	B (F)	31.8 (>120)	D (F)
40	Parkside Drive & WB SR 24 On-Ramp	AM	Yield	4.1 (8.7)	A (A)	4.2 (8.9)	A (A)
		PM		6.3 (27.5)	A (D)	6.6 (29.3)	A (D)

Source: Fehr & Peers (March 2018).

For All-Way Stop-Controlled intersections, service levels are based on the whole intersection weighted average control delay expressed in seconds per vehicle calculated using methods described in the 2000 Highway Capacity Manual. For Side-Street Stop-Controlled (SSSC) intersections, the total delay and LOS is reported, followed by the worst movement or approach in parentheses. **Bold** text indicates the peak hour signal warrant is met.

In both the Cumulative No Project and Cumulative with Project cases, the peak hour signal warrants are met at the following intersections:

- Intersection #5 (Parkside Drive/Buena Vista Avenue) – AM peak hour
- Intersection #6 (Parkside Drive/San Juan Avenue) – AM peak hour
- Intersection #7 (Parkside Drive/Riviera Avenue) – PM peak hour
- Intersection #13 (North Broadway/Pine Street) – PM peak hour
- Intersection #17 (North Main Street/Arroyo Way) – PM peak hour
- Intersection #18 (North Broadway/Arroyo Way) – PM peak hour

As noted in Section 4.2.4.1, the City of Walnut Creek does not maintain LOS standards or significance criteria for unsignalized intersections. Therefore, the above findings will be used by the City in planning for potential improvements to the affected intersections, but no significant impacts are identified.

Ygnacio Valley Road Delay Index Impacts. The Cumulative No Project and Cumulative with Project Delay Index was evaluated using the methods described in Section 4.2.1.3 and the volumes shown on Figures 4.2-12a, 4.2-12b, 4.2-13a, and 4.2-13b. (Additional volumes for the remainder of the corridor to the east are included in the City’s Synchro model). The results are presented in Table 4.2.Y. In both the Cumulative No Project and Cumulative with Project cases, the delay index standard of 2.0 would be exceeded in the westbound direction in the AM peak hour, and the eastbound direction in the PM peak hour. The minimum average travel speed standard of 15 miles per hour would also be exceeded for these cases. Because these conditions would exist with or without implementation of the Project (the proposed Specific Plan), no significant impact is identified.

Table 4.2.Y: Peak Hour Delay Index – Cumulative Conditions

Direction		Peak Hour	Cumulative No Project Conditions		Cumulative With Project Conditions	
			Delay Index	Average Speed (mph)	Delay Index	Average Speed (mph)
1	Ygnacio Valley Road Eastbound (Interstate 680 to Oak Grove Road)	AM	1.6	18.8	1.6	19.1
		PM	2.2	9.0	2.3	8.8
2	Ygnacio Valley Road Westbound (Oak Grove Road to Interstate 680)	AM	2.1	13.7	2.2	13.5
		PM	1.5	16.3	1.5	15.8

Source: Fehr & Peers (March 2018).

Bold indicates a condition that does not meet the City of Walnut Creek standard.

Freeway Impacts. The Cumulative No Project and Cumulative with Project freeway mainline and ramp merge/diverge sections were evaluated using the methods described in Section 4.2.1.3 and the volumes developed as described in Section 4.2.4.2. The results are presented in Table 4.2.Z and Table 4.2.AA. While several freeway mainline and ramp merge/diverge/weave segments operate below Caltrans standard of D in both the Cumulative No Project and Cumulative with Project conditions, the vehicle densities in the Cumulative with Project case (i.e. development of the Specific Plan in addition to other regional growth) are generally the same as or 0.1 higher than the densities for the Cumulative No Project case (i.e. development under the current General Plan in addition to other regional growth). The segment levels of service are the same for both cases.

Based on the significance criteria for freeway impacts, the Specific Plan would have a significant impact on freeway operations.

Table 4.2.Z: Freeway Segment LOS – Cumulative Conditions

Segment	Peak Hour	Type	Cumulative No Project Conditions		Cumulative With Project Conditions	
			Density	LOS	Density	LOS
<i>I-680 Northbound</i>						
Interstate 680: North of North Main Street	AM PM	Basic	28.4 In Queue	D F	28.4 In Queue	D F
Interstate 680: South of Olympic Boulevard	AM PM	Basic	27.1 In Queue	D F	27.1 In Queue	D F
<i>I-680 Southbound</i>						
Interstate 680: South of Olympic Boulevard	AM PM	Basic	34.9 25.2	D C	34.9 25.2	D C
Interstate 680: North of North Main Street	AM PM	Basic	In Queue 21.4	F C	In Queue 21.4	F C
<i>SR-24 Eastbound</i>						
State Route 24: West of Interstate 680	AM PM	Basic	22.8 In Queue	C F	22.8 In Queue	C F
<i>SR-24 Westbound</i>						
State Route 24: West of Interstate 680	AM PM	Basic	36.0 24.3	E C	36.0 24.3	E C

Source: Fehr & Peers (March 2018).

Bold indicates a condition below the Caltrans standard.

Table 4.2.AA: Freeway Ramp LOS – Cumulative Conditions

Segment	Peak Hour	Cumulative No Project Conditions		Cumulative With Project Conditions	
		Density	LOS	Density	LOS
<i>I-680 Northbound</i>					
North Main Street On-Ramp	AM	22.7	C	22.9	C
	PM	In Queue	F	In Queue	F
Ygnacio Valley Road Off-Ramp	AM	30.3	D	30.3	D
	PM	In Queue	F	In Queue	F
Olympic Boulevard Off-Ramp	AM	29.5	D	29.5	D
	PM	31.7	D	31.7	D
Olympic Boulevard On-Ramp ^a	AM	In Queue	F	In Queue	F
	PM	In Queue	F	In Queue	F
<i>I-680 Southbound</i>					
North Main Street Off-Ramp	AM	In Queue	F	In Queue	F
	PM	11.5	B	11.6	B
Ygnacio Valley Road On-Ramp	AM	In Queue	F	In Queue	F
	PM	In Queue	F	In Queue	F
Olympic Boulevard Off-Ramp	AM	In Queue	F	In Queue	F
	PM	39.5	E	In Queue	F
Olympic Boulevard On-Ramp	AM	In Queue	F	In Queue	F
	PM	26.9	C	26.9	C
<i>SR-24 Eastbound</i>					
Ygnacio Valley Road Off-Ramp	AM	37.7	E	37.8	E
	PM	In Queue	F	In Queue	F
Mount Diablo Boulevard Off-Ramp	AM	39.3	E	39.3	E
	PM	In Queue	F	In Queue	F
<i>SR-24 Westbound</i>					
Ygnacio Valley Road On-Ramp	AM	In Queue	F	In Queue	F
	PM	42.7	E	42.9	E
Mount Diablo Boulevard On-Ramp	AM	29.0	D	29.1	D
	PM	24.2	C	24.2	C

Source: Fehr & Peers (March 2018).

Bold indicates a condition below the Caltrans standard.

^a Walnut Creek intends to construct improvements to the Olympic Boulevard/I-680 Northbound Ramps intersection to prevent traffic from diverting through the intersection during the congested PM peak hours. This would improve operations at the merge onto northbound I-680, but the condition would remain LOS F. This improvement has been approved at a concept level by Caltrans.

Impact TRA-4: The implementation of the Specific Plan is projected to add traffic to freeway segments that currently operate below the Caltrans standard or are projected to operate below the standard under Cumulative No Project conditions. (S)

Several freeway mainline and ramp merge/diverge/weave segments operate below Caltrans standard of D in both the Cumulative No Project and Cumulative with Project conditions. The vehicle densities in the Cumulative with Project case (i.e. development of the Specific Plan in addition to other regional growth) are generally the same as or 0.1 higher than the densities for the Cumulative No Project case (i.e. development under the current General Plan in addition to other regional growth). The segment levels of service are the same for both cases.

Mitigation Measure TRA-4: Refer to Mitigation TRA-3. (SU)

Transit Impacts. Implementation of the proposed Plan would not conflict with adopted transportation policies, plans or programs regarding public transit, or otherwise decrease the performance or safety of such facilities.

Implementation of the proposed Plan would increase the use of the Walnut Creek BART Station and local and regional bus service by bringing new residents, employees, and visitors to the Plan Area for commute and non-commute purposes. As discussed in Section 4.2.4.2 and shown in Table 4.2.P, the North Downtown Specific Plan is projected to add approximately 720 daily transit trips, which would include both BART and bus trips (total of boardings and alightings). These would include an estimated 124 AM peak hour trips and 130 PM peak hour trips. This would add ridership to the Walnut Creek BART Station and to the bus routes serving the Plan Area. As shown in Table 4.2.Q, the No Project case (land uses developed per the current General Plan) would also add transit trips: about 370 daily trips and 80 trips in both peak hours.

The Walnut Creek General Plan and the North Downtown Specific Plan both contain policies supporting increasing transit ridership, encouraging transit accessibility, and improving transit service in Walnut Creek. The Specific Plan includes policies and infrastructure improvements that encourage and anticipate increased transit use. The projected increase in transit ridership is thus a desired outcome and is not identified as an adverse impact under CEQA. Transit load is not part of the permanent physical environment; in fact, transit service changes over time due to a variety of factors. Any resulting shifts from driving to transit would be in keeping with the City's goals and policies in the General Plan and in the West Downtown Specific Plan.

In addition to the above findings, the California Governor's Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* states that, when evaluating multimodal transportation networks:

[L]ead agencies generally should not treat the addition of new users as an adverse impact. Any travel-efficient infill development is likely to add riders to transit systems, potentially slowing transit vehicle mobility, but also potentially improving overall destination proximity. Meanwhile, such development improves regional vehicle flow generally by loading less travel onto the regional network than if that development were to occur elsewhere.

OPR recognizes that increased demand throughout a region may cause a cumulative impact requiring new or additional transit infrastructure. However, OPR states such impacts may be best addressed through a fee program that fairly allocates the cost of improvements not just to projects that locate near transit, but rather across a region to all projects that impose burdens on the entire transportation system.

The new ridership may cause CCCTA to consider route adjustments to better serve the new demand. The Specific Plan includes policies promoting bus use, including provisions for the City to work with CCCTA to provide bus stop amenities as a part of new land use development projects, as well as in the implementation of its complete streets vision for the roadways within the Plan Area. The City of Walnut Creek General Plan also has transit-supportive goals and policies, including Goal 7, which is to increase transit ridership and service to employment, schools, shopping, and recreation, and associated Policies 7.3 and 7.5. Thus, the BART and bus ridership projections are consistent with the

City of Walnut Creek's adopted General Plan and with the proposed North Downtown Specific Plan, and no significant impacts are identified with regard to transit facilities, performance or safety.

Pedestrian Impacts. Implementation of the proposed Plan would not conflict with adopted transportation policies, plans or programs regarding pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The Specific Plan proposes substantial improvements in pedestrian infrastructure, to be funded and constructed as development occurs. Some of the most notable improvements include:

- A new pedestrian pass-through between North Broadway and North Main Street, mid-block between Carlback Avenue/Lacassie Avenue and Civic Drive
- Completion of the sidewalk network on the north side of Pine Street, the south side of Arroyo Way between North Main Street and North Broadway, and the west side of North Broadway south of Arroyo Way
- Enhanced pedestrian crossing facilities (signal, high-visibility striping, curb extensions, and/or other treatments)
- A new east-west shared-use path on the south side of Parkside Drive between Riviera Avenue and North Broadway
- A new north-south shared-use path on the west side of North Main Street between Parkside Drive and Pringle Avenue
- A new east-west shared-use path on Pine Street between North Main Street and Civic Drive (long-term) and widened sidewalks (near-term)
- A new north-south shared-use path on the east side of North Main Street between Pine Street and Pringle Avenue.
- A new east-west mid-block shared-use path connecting North Main Street and Civic Drive, mid-way between Pine Street and Pringle Avenue
- A new east-west shared-use path on Pringle Avenue between North California Boulevard and North Main Street
- A new north-south shared-use path on the east side of North California Boulevard, between the planned new mid-block pedestrian crossing to the BART station and Ygnacio Valley Road
- A new east-west shared-use path on the north side of Ygnacio Valley Road between North California Boulevard and Civic Drive

These improvements are intended to enhance the walking environment within the Plan Area, such that existing and new residents, employees, and visitors will be encouraged to walk to destinations that might otherwise be reached by car. The trip generation estimate for the Specific Plan, shown

above in Table 4.2.P, includes about 1,390 new daily walking and bicycling trips, with the majority of these expected to be walking trips. By comparison, the Cumulative No Project case, which reflects development as allowed in the General Plan, would generate about 620 walking and bicycling trips. These trips include both internal trips (between uses in the Plan Area) and external trips (between a use in the Plan Area and a use outside the Plan Area, such as a resident walking to dinner in the downtown core, or an employee in the downtown walking to their residence in the Plan Area. Such trips would be further encouraged by the City's robust pedestrian infrastructure in the downtown.

Because the Specific Plan pedestrian infrastructure improvements and the projected increase in walking are consistent with the City's General Plan goals and policies regarding non-motorized transportation as well as the Specific Plan's goals and policies, this is a beneficial impact of the Plan.

Bicycle Impacts. Implementation of the proposed Plan would not conflict with adopted transportation policies, plans or programs regarding bicycle facilities, or otherwise decrease the performance or safety of such facilities.

The Specific Plan proposes substantial improvements in bicycle infrastructure, to be funded and constructed as development occurs. Some of the most notable improvements include:

- Bicycle lanes, with a buffer between adjacent on-street parking, on North Broadway between Parkside Drive and Ygnacio Valley Road
- Bicycle lanes on North Broadway between Ygnacio Valley Road and Civic Drive
- Bicycle lanes on Arroyo Way between North Main Street and Civic Drive
- A signed bicycle route on Civic Drive between North California Boulevard and Parkside Drive
- A signed bicycle route on North Main Street between Arroyo Way and Civic Drive
- A signed bicycle route on Arroyo Way between Civic Drive and the Iron Horse Trail

These improvements are intended to enhance the bicycling environment within the Plan Area, such that existing and new residents, employees, and visitors will be encouraged to bicycle to destinations that might otherwise be reached by car. The trip generation estimate for the Specific Plan, shown above in Table 4.2.P, includes about 1,390 new daily walking and bicycling trips, with the primary mode expected to be walking. By comparison, the Cumulative No Project case estimates about 620 daily walking and bicycling trips, with the primary mode also expected to be walking. The bicycling trips include both internal trips (between uses in the Plan Area) and external trips (between a use in the Plan Area and a use outside the Plan Area, such as a resident bicycling to dinner downtown, or an employee in the downtown bicycling to their residence in the Plan Area.

Because the Specific Plan bicycle infrastructure improvements and the projected increase in bicycling are consistent with the City's General Plan goals and policies regarding non-motorized transportation as well as the Specific Plan's goals and policies, this is a beneficial impact of the Plan.

Emergency Access Impacts. Implementation of the proposed Plan would not result in inadequate emergency access.

The Specific Plan would create multi-modal improvements that improve comfort, convenience and mobility primarily for bicyclists, pedestrians and transit vehicles; new vehicle capacity is not proposed in the Plan. Where vehicle level of service impacts are identified in this chapter, mitigations are proposed to reduce the impacts to a less than significant level. While traffic volumes would increase with the development allowed by the Plan, these mitigations would maintain acceptable traffic levels of service. All development applications would undergo the City's comprehensive development review process to ensure that site emergency access meets the City's standards. Therefore, the impact of the Specific Plan on emergency access would be less than significant.

Hazards. Implementation of the proposed Plan would not substantially increase hazards or congestion due to excessive queuing or design features.

The development projects and roadway improvements constructed under the proposed Plan would be designed to conform to City code requirements, and would be reviewed by City planning and engineering staff prior to final design approval; therefore, implementation of the proposed Plan would not result in hazards due to design features or incompatible uses.

Therefore, implementation of the proposed Plan would avoid hazards or congestion due to excessive queuing or design features, and resulting impacts would be less than significant.

Air Traffic Patterns. Implementation of the proposed Plan would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks.

The proposed Plan does not affect the location, design, or operation of any of the region's airports. While the new air travel demand potentially generated by development allowed by the Plan has not been estimated, it is not expected to cause any of the region's airports to reach or exceed operational capacity. Airports in the Bay Area, including Oakland International Airport, San Francisco International Airport, and San Jose International Airport, as well as Buchanan Field in Concord, maintain operational plans to manage existing and projected future demand generated by land use development throughout the region. Because the level of development in the proposed Plan is a fraction of the total development envisioned in the City of Walnut Creek's General Plan, this growth is not expected to substantially alter existing or future airport operations, and impact would be less than significant.

4.2.4.3 Vehicle Miles Travelled

The total vehicle miles travelled per resident (for residential uses) and per employee (for office uses) was calculated as described in Section 4.2.1.3. Table 4.2.BB presents the results. The North Downtown Specific Plan is estimated to generate VMT per capita that is 2 to 3 percent lower than existing VMT per capita in the Plan Area, and 1 to 2 percent lower than the estimated VMT per capita under Future No Project (General Plan alternative) conditions. The reductions reflect higher trip internalization and increased bike/walk trips relative to the No Project and Existing conditions.

Table 4.2.BB: VMT per Capita in Plan Area

Trip Generator	VMT per Resident or Employee			Percent Change: Existing to Future With Project	Percent Change: Future No Project to Future With Project
	Existing	Future No Project	Future With Project		
Residential Trips	24.57	24.36	23.95	-3%	-2%
Office Trips	13.55	13.49	13.34	-2%	-1%

Notes: Consistent with OPR Guidelines on VMT estimations for different trip generators, and the relatively small amount of new retail space in the proposed Specific Plan and in the No Project (General Plan) alternative, this analysis focuses on residential and office uses in the Plan Area. VMT reflects external vehicle trips only. VMT is presented “per capita” (i.e., per resident) for residential uses, and per employee for office uses. Residential VMT accounts for Home-Based Work and Home-Based Other trips, with average trip lengths of 17.9 miles and 6.1 miles, respectively. Office VMT accounts for Home-Based Work trips, with an average trip length of 17.9 miles. Reductions with the project reflect higher trip internalization within the Plan Area, as well as increased bike/walk trips relative to the No Project case. Source: Fehr & Peers, June 2018

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4.3 AIR QUALITY

This section has been prepared using the methodologies and assumptions contained in the Bay Area Air Quality Management District's (BAAQMD) CEQA Air Quality Guidelines.¹ In keeping with these guidelines, this section describes existing air quality and the regulatory framework for air quality. The section also describes the potential effects of the Specific Plan on air quality, including the effects of construction and operational traffic associated with the Specific Plan on regional pollutant levels and health risks. Mitigation measures to reduce potentially significant air quality impacts are identified, as necessary.

4.3.1 Setting

The following discussion provides an overview of existing air quality conditions in the region and in the City of Walnut Creek. Ambient air quality standards and the regulatory framework are summarized and climate, air quality conditions, and typical air pollutant types and sources are also described.

4.3.1.1 Air Pollutants and Health Effects

Both State and federal governments have established health-based Ambient Air Quality Standards for six criteria air pollutants: carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), and suspended particulate matter. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Two criteria pollutants, O₃ and NO₂, are considered regional pollutants because they (or their precursors) affect air quality on a regional scale. Pollutants such as CO, SO₂, and Pb are considered local pollutants that tend to accumulate in the air locally.

The primary pollutants of concern in the Plan Area are O₃, CO, and suspended particulate matter. Significance thresholds established by an air district are used to manage total regional and local emissions within an air basin based on the air basin's attainment status for criteria pollutants. These emission thresholds were established for individual development projects that would contribute to regional and local emissions and could adversely affect or delay the air basin's projected attainment target goals for nonattainment criteria pollutants.

Because of the conservative nature of the significance thresholds, and the basin-wide context of individual development project emissions, there is no direct correlation between a single project and localized air quality-related health effects. One individual project that generates emissions exceeding a threshold does not necessarily result in adverse health effects for residents in the project vicinity. This condition is especially true when the criteria pollutants exceeding thresholds are those with regional effects, such as ozone precursors like nitrogen oxides (NO_x) and reactive organic gases (ROG).

Occupants of facilities such as schools, daycare centers, parks and playgrounds, hospitals, and nursing and convalescent homes are considered to be more sensitive than the general public to air pollutants because these population groups have increased susceptibility to respiratory disease. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality.

¹ Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.

Residential areas are considered more sensitive to air quality conditions, compared to commercial and industrial areas, because people generally spend longer periods of time at their residences, with greater associated exposure to ambient air quality conditions. Recreational uses are also considered sensitive compared to commercial and industrial uses due to greater exposure to ambient air quality conditions associated with exercise.

Air pollutants and their health effects, and other air pollution-related considerations are summarized in Table 4.3.A and are described in more detail below.

Table 4.3.A: Sources and Health Effects of Air Pollutants

Pollutants	Sources	Primary Effects
Ozone (O ₃)	<ul style="list-style-type: none"> Precursor sources:^a motor vehicles, industrial emissions, and consumer products. 	<ul style="list-style-type: none"> Respiratory symptoms. Worsening of lung disease leading to premature death. Damage to lung tissue. Crop, forest, and ecosystem damage. Damage to a variety of materials, including rubber, plastics, fabrics, paints, and metals.
Particulate Matter Less than 2.5 Microns in Aerodynamic Diameter (PM _{2.5})	<ul style="list-style-type: none"> Cars and trucks (especially diesels). Fireplaces, woodstoves. Windblown dust from roadways, agriculture, and construction. 	<ul style="list-style-type: none"> Premature death. Hospitalization for worsening of cardiovascular disease. Hospitalization for respiratory disease. Asthma-related emergency room visits. Increased symptoms, increased inhaler usage.
Particulate Matter Less than 10 Microns in Aerodynamic Diameter (PM ₁₀)	<ul style="list-style-type: none"> Cars and trucks (especially diesels). Fireplaces, woodstoves. Windblown dust from roadways, agriculture, and construction. 	<ul style="list-style-type: none"> Premature death and hospitalization, primarily for worsening of respiratory disease. Reduced visibility and material soiling.
Nitrogen Oxides (NO _x)	<ul style="list-style-type: none"> Any source that burns fuels such as cars, trucks, construction and farming equipment, and residential heaters and stoves. 	<ul style="list-style-type: none"> Lung irritation. Enhanced allergic responses.
Carbon Monoxide (CO)	<ul style="list-style-type: none"> Any source that burns fuels such as cars, trucks, construction and farming equipment, and residential heaters and stoves. 	<ul style="list-style-type: none"> Chest pain in patients with heart disease. Headache. Light-headedness. Reduced mental alertness.
Sulfur Oxides (SO _x)	<ul style="list-style-type: none"> Combustion of sulfur-containing fossil fuels. Smelting of sulfur-bearing metal ores. Industrial processes. 	<ul style="list-style-type: none"> Worsening of asthma: increased symptoms, increased medication usage, and emergency room visits.
Lead (Pb)	<ul style="list-style-type: none"> Contaminated soil. 	<ul style="list-style-type: none"> Impaired mental functioning in children. Learning disabilities in children. Brain and kidney damage.
Toxic Air Contaminants	<ul style="list-style-type: none"> Cars and trucks (especially diesels). Industrial sources, such as chrome platers. Neighborhood businesses, such as dry cleaners and service stations. Building materials and products. 	<ul style="list-style-type: none"> Cancer. Reproductive and developmental effects. Neurological effects.

Source: California Air Resources Board (2018).

^a Ozone is not generated directly by these sources. Rather, chemicals emitted by these precursor sources react with sunlight to form ozone in the atmosphere.

Ozone. Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG and NO_x. The main sources of ROG and NO_x, often referred to as ozone precursors, are combustion processes (including combustion in motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide. CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles. CO transport is limited - it disperses with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthy levels that adversely affect local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue, impair central nervous system function, and induce angina (chest pain) in persons with serious heart disease. Extremely high levels of CO, such as those generated when a vehicle is running in an unventilated garage, can be fatal.

Particulate Matter. Particulate matter is a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from manmade and natural sources. Particulate matter is categorized in two size ranges: PM₁₀ for particles less than 10 microns in diameter and PM_{2.5} for particles less than 2.5 microns in diameter. In the Bay Area, motor vehicles generate about half of the air basin's particulates, through tailpipe emissions as well as brake pad, tire wear, and entrained road dust. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction are other sources of such fine particulates. These fine particulates are small enough to be inhaled into the deepest parts of the human lung and can cause adverse health effects. According to the California Air Resources Board (CARB), studies in the United States and elsewhere have demonstrated a strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks, and studies of children's health in California have demonstrated that particle pollution may significantly reduce lung function growth in children. The CARB also reports that Statewide attainment of particulate matter standards could prevent thousands of premature deaths, lower hospital admissions for cardiovascular and respiratory disease and asthma-related emergency room visits, and avoid hundreds of thousands of episodes of respiratory illness in California.²

Nitrogen Dioxide. NO₂ is a reddish brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO₂. Aside from its contribution to ozone formation, NO₂ also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO₂ may be visible as a coloring component

² California Air Resources Board, 2009. *Air Pollution – Particulate Matter Brochures*. Website: www.arb.ca.gov/html/brochure/pm10.htm (accessed February 12, 2018). October.

on high pollution days, especially in conjunction with high ozone levels. NO₂ decreases lung function and may reduce resistance to infection.

Sulfur Dioxide. SO₂ is a colorless acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO₂ has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease. SO₂ also reduces visibility and the level of sunlight at the ground surface.

Lead. Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery factories. Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the U. S. Environmental Protection Agency (USEPA) established national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The USEPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of USEPA regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically.

Odors. Odors are also an important element of local air quality conditions. Specific activities can raise concerns related to odors on the part of nearby neighbors. Major sources of odors include restaurants and manufacturing plants. Other odor producers include the industrial facilities within the region. While sources that generate objectionable odors must comply with air quality regulations, the public's sensitivity to locally-produced odors often exceeds regulatory thresholds.

Toxic Air Contaminants. In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. Some examples of TACs include: benzene, butadiene, formaldehyde, and hydrogen sulfide. Potential human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

TACs do not have ambient air quality standards, but are regulated by the USEPA and CARB. In 1998, CARB identified particulate matter from diesel-fueled engines as a toxic air contaminant. CARB has completed a risk management process that identified potential cancer risks for a range of activities and land uses that are characterized by use of diesel-fueled engines.³ High volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic (distribution centers, truck stops) were identified as posing the highest risk to adjacent receptors. Other facilities associated with increased risk include warehouse distribution centers, large retail or industrial facili-

³ California Air Resources Board, 2000. *Fact Sheet – California's Plan to Reduce Diesel Particulate Matter Emissions*. Available online at: www.arb.ca.gov/diesel/factsheets/rrpfactsheet.pdf (accessed February 12, 2018). October.

ties, high volume transit centers, and schools with a high volume of bus traffic. Health risks from TACs are a function of both concentration and duration of exposure.

The BAAQMD regulates TACs using a risk-based approach. This approach uses a health risk assessment to determine what sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in which human health exposure to toxic substances is estimated, and considered together with information regarding the toxic potency of the substances, in order to provide a quantitative estimate of health risks.⁴ As part of ongoing efforts to identify and assess potential health risks to the public, the BAAQMD has collected and compiled air toxics emissions data from industrial and commercial sources of air pollution throughout the Bay Area. Monitoring data and emissions inventories of TACs help the BAAQMD determine health risk to Bay Area residents.

Ambient monitoring concentrations of TACs indicate that pollutants emitted primarily from motor vehicles (1,3-butadiene and benzene) account for slightly over 50 percent of the average calculated cancer risk from ambient air in the Bay Area.⁵ According to the BAAQMD, ambient benzene levels declined dramatically in 1996 with the advent of Phase 2 reformulated gasoline. Due to this reduction, the calculated average cancer risk based on monitoring results has been reduced to 143 in 1,000,000; however, this risk does not include the risk resulting from exposure to diesel particulate matter or other compounds not monitored.

Unlike TACs emitted from industrial and other stationary sources noted above, most diesel particulate matter is emitted from mobile sources – primarily “off-road” sources such as construction and mining equipment, agricultural equipment, and truck-mounted refrigeration units, as well as trucks and buses traveling on freeways and local roadways. Agricultural and mining equipment is not commonly used in urban parts of the Bay Area, while construction equipment typically operates for a limited time at various locations. As a result, the readily identifiable locations where diesel particulate matter is emitted in the Bay Area include high-traffic roadways and other areas with substantial truck traffic.

Although not specifically monitored, recent studies indicate that exposure to diesel particulate matter may contribute significantly to a cancer risk (a risk of approximately 500 to 700 in 1,000,000) that is greater than all other measured TACs combined.⁶ The CARB Diesel Risk Reduction Plan is intended to substantially reduce diesel particulate matter emissions and associated health risks through introduction of ultra-low-sulfur diesel fuel – a step already implemented – and cleaner-burning diesel engines. The technology for reducing diesel particulate matter emissions from heavy-duty trucks is well established, and both State and federal agencies are moving aggressively to regulate engines and emission control systems to reduce and remediate diesel emissions. CARB

⁴ In general, a health risk assessment is required if the BAAQMD concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggests a potential public health risk. Such an assessment generally evaluates chronic, long term effects, including the increased risk of cancer as a result of exposure to one or more TACs.

⁵ Bay Area Air Quality Management District, 2015. *Toxic Air Contaminant Control Program Annual Report, Volume 1*. Website: www.baaqmd.gov/research-and-data/air-toxics/annual-report (accessed February 12, 2018). May.

⁶ Ibid.

anticipates that by 2020 average Statewide diesel particulate matter concentrations will decrease by 85 percent from levels in 2000 with full implementation of the Diesel Risk Reduction Plan, meaning that the Statewide health risk from diesel particulate matter is expected to decrease from 540 cancer cases in 1,000,000 to 21.5 cancer cases in 1,000,000. It is likely that the Bay Area cancer risk from diesel particulate matter will decrease by a similar factor by 2020.

High Volume Roadways. Air pollutant exposures and their associated health burdens vary considerably within places in relation to sources of air pollution. Motor vehicle traffic is perhaps the most important source of intra-urban spatial variation in air pollution concentrations. Air quality research consistently demonstrates that pollutant levels are substantially higher near freeways and busy roadways, and human health studies have consistently demonstrated that children living within 100 to 200 meters (328 to 656 feet) of freeways or busy roadways have reduced lung function and higher rates of respiratory disease. At present, it is not possible to attribute the effects of roadway proximity on non-cancer health effects to one or more specific vehicle types or vehicle pollutants. Engine exhaust, from diesel, gasoline, and other combustion engines, is a complex mixture of particles and gases, with collective and individual toxicological characteristics.

4.3.1.2 Existing Climate and Air Quality

The following provides a discussion of the local and regional air quality and climate in the Walnut Creek area.

Regional and Local Air Quality. The City of Walnut Creek is located in the eastern part of the San Francisco Bay Area Air Basin, a large shallow air basin ringed by hills that taper into a number of sheltered valleys around the perimeter. Two primary atmospheric outlets exist. One is through the strait known as the Golden Gate, a direct outlet to the Pacific Ocean. The second extends to the northeast, along the west delta region of the Sacramento and San Joaquin Rivers.

The City of Walnut Creek is within the jurisdiction of the BAAQMD, which regulates air quality in the San Francisco Bay Area. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen dramatically. Neither State nor national ambient air quality standards of these chemicals have been violated in recent decades: nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and vinyl chloride. Those exceedances of air quality standards that do occur primarily happen during meteorological conditions conducive to high pollution levels, such as cold, windless nights or hot, sunny summer afternoons.

Ozone levels, measured by peak concentrations and the number of days over the State 1-hour standard, have declined substantially as a result of aggressive programs by the BAAQMD and other regional, State and federal agencies. The reduction of peak concentrations represents progress in improving public health; however the Bay Area still exceeds the State standard for 1-hour ozone as well as the State and federal 8-hour standards. Levels of PM₁₀ have exceeded State standards two of the last three years, and the area is considered a nonattainment area for this pollutant relative to the State standards. The San Francisco Bay Area is an unclassified area for the federal PM₁₀ standard.

No exceedances of the State or federal CO standards have been recorded at any of the region's monitoring stations since 1991. The San Francisco Bay Area is currently considered a maintenance area for State and federal CO standards.

Local Climate and Air Quality. Air quality is a function of both local climate and local sources of air pollution. Air quality is the balance of the natural dispersal capacity of the atmosphere and emissions of air pollutants from human uses of the environment. Two meteorological factors affect air quality in Walnut Creek: wind and temperature. Winds affect the direction of transport of any air pollution emissions and wind also controls the volume of air into which pollution is mixed in a given period of time. While winds govern horizontal mixing processes, temperature inversions determine the vertical mixing depth of air pollutants.

The City of Walnut Creek is located in Contra Costa County, which lies east of the San Pablo Bay, bounded by Alameda County to the south, San Joaquin County to the east, and Solano and Sacramento counties to the north. Temperatures in and around Contra Costa County are warm in the summer and cool in the winter, largely because of their distance from the moderating effect of water bodies and because the California Coast Range blocks marine air flow into the valleys. The Carquinez Strait region remains temperate due to its proximity to water and oceanic air flows. In winter, average daily temperatures are mild, with tule fog common at night. Average summer temperatures are typically mild overnight and warm during the day, with cooler temperatures and stronger winds more common along the western coast. Wind speeds are generally low throughout the region and winds typically blow from northwest to southwest. However, strong afternoon gusts are common in the northern portion of the County around the Carquinez Strait. Annual rainfall averages between 18 and 23 inches across the County.⁷

Ozone and fine particle pollution, or PM_{2.5}, are the major regional air pollutants of concern in the San Francisco Bay Area. Ozone is primarily a problem in the summer, and fine particle pollution in the winter.⁸

Ozone and PM_{2.5} infrequently exceed health standards in the portion of Contra Costa County west of the East Bay hills. The San Francisco Bay keeps air temperatures above freezing in winter and well below 100 degrees on even the warmest summer days.⁹

In eastern Contra Costa County, summer afternoon temperatures frequently approach triple digits, spurring ozone levels to exceed health standards. In winter, PM_{2.5} can be transported westward through the Carquinez Strait from the Central Valley where it adds to wood smoke, causing health standards to be exceeded.¹⁰

⁷ Bay Area Air Quality Management District, 2016. *Climate and Air Quality in Contra Costa County*. Website: www.baaqmd.gov/in-your-community/contra-costa-county (accessed February 12, 2018). April 25.

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

Air Quality Monitoring Results. Air quality monitoring stations are located throughout the nation and maintained by the local air pollution control district and State air quality regulating agencies. Ambient air data collected at permanent monitoring stations are used by the USEPA to identify regions as attainment or nonattainment depending on whether the regions met the requirements stated in the primary National Ambient Air Quality Standards (NAAQS). Attainment areas are required to maintain their status through moderate, yet effective air quality maintenance plans. Nonattainment areas are imposed with additional restrictions as required by the USEPA. In addition, different classifications of attainment such as marginal, moderate, serious, severe, and extreme are used to classify each air basin in the State on a pollutant-by-pollutant basis. Different classifications have different mandated attainment dates and are used as guidelines to create air quality management strategies to improve air quality and comply with the NAAQS by the attainment date. A region is determined to be unclassified when the data collected from the air quality monitoring stations do not support a designation of attainment or nonattainment, due to lack of information, or a conclusion cannot be made with the available data.

Pollutant monitoring results for the years 2015 to 2017 at the 2975 Treat Boulevard, Concord ambient air quality monitoring station (the closest station to the Plan Area) indicate that air quality in the Walnut Creek area has generally been good. Table 4.3.C summarizes the last three years of published data from this monitoring station. As indicated, 1-hour ozone concentrations exceeded the State standard once in 2016 and the 8-hour ozone concentrations exceeded the federal standard four times in 2015 and twice in 2016 and the State standard twice in 2015 and 2016. No other federal or State standards were exceeded during this three-year period.

Table 4.3.B: San Francisco Bay Area Basin Attainment Status

	Averaging Time	California Standards ^a		National Standards ^b	
		Concentration	Attainment Status	Concentration ^c	Attainment Status
Ozone (O₃)	8-Hour	0.070 ppm (137 µg/m ³)	Nonattainment ^l	0.070 ppm	Nonattainment ^d
	1-Hour	0.09 ppm (180 µg/m ³)	Nonattainment	Not Applicable	^e
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m ³)	Attainment	9 ppm (10 mg/m ³)	Attainment ^f
	1-Hour	20 ppm (23 mg/m ³)	Attainment	35 ppm (40 mg/m ³)	Attainment
Nitrogen Dioxide (NO₂)	1-Hour	0.18 ppm (339 µg/m ³)	Attainment	0.100 ppm ^k	^k
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	Not Applicable	0.053 ppm (100 µg/m ³)	Attainment
Sulfur Dioxide (SO₂) ^l	24-Hour	0.04 ppm (105 µg/m ³)	Attainment	0.14 ppm (365 µg/m ³)	^l
	1-Hour	0.25 ppm (655 µg/m ³)	Attainment	0.075 ppm (196 µg/m ³)	^l
	Annual Arithmetic Mean	Not Applicable	Not Applicable	0.030 ppm (80 µg/m ³)	^l
Particulate Matter (PM₁₀)	Annual Arithmetic Mean	20 µg/m ³	Nonattainment ^g	Not Applicable	Not Applicable
	24-Hour	50 µg/m ³	Nonattainment	150 µg/m ³	Unclassified
Fine Particulate Matter (PM_{2.5})	Annual Arithmetic Mean	12 µg/m ³	Nonattainment ^g	15 µg/m ³⁰	Unclassified/Attainment
	24-Hour	Not Applicable	Not Applicable	35 µg/m ^{3j}	Nonattainment
Sulfates	24-Hour	25 µg/m ³	Attainment	Not Applicable	Not Applicable
Lead (Pb) ^m	30-Day Average	1.5 µg/m ³	Not Applicable	Not Applicable	Attainment
	Calendar Quarter	Not Applicable	Not Applicable	1.5 µg/m ³	Attainment
	Rolling 3-Month Average ⁿ	Not Applicable	Not Applicable	0.15 µg/m ³	ⁿ
Hydrogen Sulfide	1-Hour	0.010 ppm (26 µg/m ³)	Unclassified	Not Applicable	Not Applicable
Vinyl Chloride (chloroethene)	24-Hour	0.010 ppm (26 µg/m ³)	No Information Available	Not Applicable	Not Applicable
Visibility Reducing Particles	8-Hour (10:00 to 18:00 PST)	^h	Unclassified	Not Applicable	Not Applicable

Source: Bay Area Air Quality Management District, Bay Area Attainment Status (2017).
 Table notes are provided on the following page.

- ^a California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM₁₀, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM₁₀ annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the State standard.
- ^b National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm (70 ppb) or less. The 24-hour PM₁₀ standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m³. The 24-hour PM_{2.5} standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m³.
Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM₁₀ is met if the 3-year average falls below the standard at every site. The annual PM_{2.5} standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.
- ^c National air quality standards are set by US EPA at levels determined to be protective of public health with an adequate margin of safety.
- ^d On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. EPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.
- ^e The national 1-hour ozone standard was revoked by USEPA on June 15, 2005.
- ^f In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.
- ^g In June 2002, CARB established new annual standards for PM_{2.5} and PM₁₀.
- ^h Statewide VRP Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.
- ⁱ The 8-hour CA ozone standard was approved by the Air Resources Board on April 28, 2005 and became effective on May 17, 2006.
- ^j On January 9, 2013, EPA issued a final rule to determine that the Bay Area attains the 24-hour PM_{2.5} national standard. This EPA rule suspends key SIP requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this EPA action, the Bay Area will continue to be designated as "non-attainment" for the national 24-hour PM_{2.5} standard until such time as the Air District submits a "redesignation request" and a "maintenance plan" to EPA, and EPA approves the proposed redesignation.
- ^k To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100ppm (effective January 22, 2010). The US Environmental Protection Agency (EPA) expects to make a designation for the Bay Area by the end of 2017.
- ^l On June 2, 2010, the U.S. EPA established a new 1-hour SO₂ standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO₂ NAAQS however must continue to be used until one year following U.S. EPA initial designations of the new 1-hour SO₂ NAAQS. EPA expects to make designation for the Bay Area by the end of 2017.
- ^m CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure below which there are no adverse health effects determined.
- ⁿ National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.
- ^o In December 2012, EPA strengthened the annual PM_{2.5} National Ambient Air Quality Standards (NAAQS) from 15.0 to 12.0 micrograms per cubic meter (µg/m³). In December 2014, EPA issued final area designations for the 2012 primary annual PM_{2.5} NAAQS. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

ppm = parts per million

mg/m³ = milligrams per cubic meter

µg/m³ = micrograms per cubic meter

Table 4.3.C: Ambient Air Quality at the 2975 Treat Boulevard, Concord Monitoring Station

Pollutant	Standard	2015	2016	2017 ^a
Carbon Monoxide (CO)				
Maximum 1-hour concentration (ppm)		1.4	1.2	1.7
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		1.3	1.0	1.3
Number of days exceeded:	State: > 9 ppm	0	0	0
	Federal: > 9 ppm	0	0	0
Ozone (O₃)				
Maximum 1-hour concentration (ppm)		0.088	0.095	0.082
Number of days exceeded:	State: > 0.09 ppm	0	1	0
Maximum 8-hour concentration (ppm)		0.074	0.075	0.07
Number of days exceeded:	State: > 0.07 ppm	4	2	0
	Federal: > 0.07 ppm	2	2	0
Coarse Particulates (PM₁₀)				
Maximum 24-hour concentration (µg/m ³)		24.0	19.0	41.0
Number of days exceeded:	State: > 50 µg/m ³	0	0	0
	Federal: > 150 µg/m ³	0	0	0
Annual arithmetic average concentration (µg/m ³)		14.1	13.1	ND
Exceeded for the year:	State: > 20 µg/m ³	No	No	ND
	Federal: > 50 µg/m ³	No	No	ND
Fine Particulates (PM_{2.5})				
Maximum 24-hour concentration (µg/m ³)		31.0	20.7	89.4
Number of days exceeded:	Federal: > 35 µg/m ³	0	0	ND
Annual arithmetic average concentration (µg/m ³)		8.8	6.1	ND
Exceeded for the year:	State: > 12 µg/m ³	No	No	ND
	Federal: > 15 µg/m ³	No	No	ND
Nitrogen Dioxide (NO₂)				
Maximum 1-hour concentration (ppm)		0.033	0.034	0.031
Number of days exceeded:	State: > 0.250 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.007	0.007	0.006
Exceeded for the year:	Federal: > 0.053 ppm	No	No	No
Sulfur Dioxide (SO₂)				
Maximum 1-hour concentration (ppm)		0.007	0.011	0.012
Number of days exceeded:	State: > 0.25 ppm	0	0	0
Maximum 3-hour concentration (ppm)		ND	ND	ND
Number of days exceeded:	Federal: > 0.50 ppm	ND	ND	ND
Maximum 24-hour concentration (ppm)		0.002	0.002	0.002
Number of days exceeded:	State: > 0.04 ppm	0	0	0
	Federal: > 0.14 ppm	0	0	0
Annual arithmetic average concentration (ppm)		ND	ND	ND
Exceeded for the year:	Federal: > 0.030 ppm	ND	ND	ND

Source: CARB, EPA, and BAAQMD (2018).

^a Annual statistics for 2017 are not final until May 1, 2018.

ppm = parts per million

µg/m³ = micrograms per cubic meter

ND = No data. There was insufficient (or no) data to determine the value.

4.3.1.3 Regulatory Framework

Air quality standards, the regulatory framework, and State and federal attainment status are discussed below.

The BAAQMD is primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and indirect sources (e.g., traffic associated with new development), as well as for monitoring ambient pollutant concentrations. BAAQMD jurisdiction encompasses seven counties – Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa – and portions of Solano and Sonoma counties. CARB and the USEPA regulate direct emissions from motor vehicles.

United States Environmental Protection Agency. At the federal level, the USEPA has been charged with implementing national air quality programs. USEPA air quality mandates are drawn primarily from the Federal Clean Air Act (FCAA), which was enacted in 1963. The FCAA was amended in 1970, 1977, and 1990.

The FCAA required USEPA to establish primary and secondary NAAQS and required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The FCAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. USEPA has responsibility to review all state SIPs to determine conformity with the mandates of the FCAA and determine if implementation will achieve air quality goals. If the USEPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area, which imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated timeframe may result in sanctions on transportation funding and stationary air pollution sources in the air basin.

The USEPA is also required to develop National Emission Standards for Hazardous Air Pollutants, which are defined as those which may reasonably be anticipated to result in increased deaths or serious illness and which are not already regulated. An independent science advisory board reviews the health and exposure analyses conducted by the USEPA on suspected hazardous pollutants prior to regulatory development.

California Air Resources Board. CARB is the agency responsible for the coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), adopted in 1988. The CCAA requires that all air districts in the State achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. The CCAA specifies that districts should focus on reducing the emissions from transportation and air-wide emission sources, and provides districts with the authority to regulate indirect sources.

CARB is also primarily responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. CARB is primarily responsible for Statewide pollution sources and produces a major part of the SIP. Local air districts provide additional strategies for sources under their jurisdiction. CARB combines this data and submits the completed SIP to USEPA.

Other CARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS (which are more stringent than the NAAQS), determining and updating area designations and maps, and setting emissions standards for mobile sources, consumer products, small utility engines, and off-road vehicles. CARB's Diesel Risk Reduction Plan¹¹ is intended to substantially reduce diesel particulate matter emissions and associated health risks through introduction of ultra-low-sulfur diesel fuel – a step already implemented – and cleaner-burning diesel engines.

Because of the robust evidence relating proximity to roadways and a range of non-cancer and cancer health effects, the CARB also created guidance for avoiding air quality conflicts in land use planning in its Air Quality and Land Use Handbook: A Community Health Perspective.¹² In its guidance, CARB advises that new sensitive uses (e.g., residences, schools, day care centers, playgrounds, and hospitals) not be located within 500 feet of a freeway or urban roads carrying 100,000 vehicles per day, or within 1,000 feet of a distribution center (warehouse) that accommodates more than 100 trucks or more than 90 refrigerator trucks per day.

CARB guidance suggests that the use of these guidelines be customized for individual land use decisions, and take into account the context of development projects. The Air Quality and Land Use Handbook specifically states that these recommendations are advisory and acknowledges that land use agencies must balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

National and State Ambient Air Quality Standards. Pursuant to the FCAA of 1970, the USEPA established NAAQS. The NAAQS were established for major pollutants, termed “criteria” pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health.

Both the USEPA and the CARB have established ambient air quality standards for the following common pollutants: CO, O₃, NO₂, SO₂, Pb, and suspended particulate matter. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. These ambient air quality standards are levels of contaminants that avoid specific adverse health effects associated with each pollutant.

¹¹ California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. Prepared by the Stationary Source Division and Mobile Source Control Division. Available online at: www.arb.ca.gov/diesel/documents/rrpFinal.pdf (accessed February 12, 2018). October.

¹² California Environmental Protection Agency and California Air Resources Board, 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. Available online at: www.arb.ca.gov/ch/handbook.pdf (accessed February 12, 2018). April.

Table 4.3.D: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ^a		Federal Standards ^b		
		Concentration ^c	Method ^d	Primary ^{c,e}	Secondary ^{c,f}	Method ^g
Ozone (O ₃) ^h	1-Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.07 ppm (137 µg/m ³)		0.070 ppm (137 µg/m ³)		
Respirable Particulate Matter (PM ₁₀) ⁱ	24-Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		–		
Fine Particulate Matter (PM _{2.5}) ⁱ	24-Hour	–	Gravimetric or Beta Attenuation	35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³		12.0 µg/m ³		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	–	Non-Dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		–		
Nitrogen Dioxide (NO ₂) ^j	Annual Arithmetic Mean	0.03 ppm (57 µg/m ³)	Gas Phase Chemiluminescence	53 ppb (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1-Hour	0.18 ppm (339 µg/m ³)		100 ppb (188 µg/m ³)	–	
Lead (Pb) ^{l,m}	30-Day Average	1.5 µg/m ³	Atomic Absorption	–	Same as Primary Standard	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m ³ (for certain areas) ^l		
	Rolling 3-Month Average ⁱ	–		0.15 µg/m ³		
Sulfur Dioxide (SO ₂) ^k	24-Hour	0.04 ppm (105 µg/m ³)	Ultraviolet Fluorescence	0.14 ppm (for certain areas)	–	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	–		–	0.5 ppm (1300 µg/m ³)	
	1-Hour	0.25 ppm (655 µg/m ³)		75 ppb (196 µg/m ³) ^k	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas) ^k	–	
Visibility-Reducing Particles ⁱ	8-Hour	See footnote ⁿ	Beta Attenuation and Transmittance through Filter Tape	Federal Standards		
Sulfates	24-Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ^j	24-Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

Source: California Air Resources Board, 2016. Ambient Air Quality Standards. Available online at: www.arb.ca.gov/research/aaqs/aaqs2.pdf (accessed February 12, 2018).

Table notes are provided on the following page.

- ^a California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM₁₀, PM_{2.5}, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- ^b National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact USEPA for further clarification and current national policies.
- ^c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- ^d Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
- ^e National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- ^f National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- ^g Reference method as described by the USEPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the USEPA.
- ^h On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
- ⁱ On December 14, 2012, the national annual PM_{2.5} primary standard was lowered from 15 µg/m³ to 12.0 µg/m³. The existing national 24-hour PM_{2.5} standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 µg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
- ^j To attain the 1-hour national standard, the three-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
- ^k On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the three-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
- ^l The CARB has identified lead and vinyl chloride as ‘toxic air contaminants’ with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- ^m The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
- ⁿ In 1989, the CARB converted both the general Statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and “extinction of 0.07 per kilometer” for the Statewide and Lake Tahoe Air Basin standards, respectively.

°C = degrees Celsius

CARB = California Air Resources Board

USEPA = United States Environmental Protection Agency

ppb = parts per billion

ppm = parts per million

mg/m³ = milligrams per cubic meter

µg/m³ = micrograms per cubic meter

Federal standards include both primary and secondary standards. Primary standards establish limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, and damage to animals, crops, vegetation, and buildings.¹³ State and federal standards for the criteria air pollutants are listed in Table 4.3.D.

Bay Area Air Quality Management District. The BAAQMD seeks to attain and maintain air quality conditions in the San Francisco Bay Area Air Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and education. The clean air strategy includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. The BAAQMD also inspects stationary sources and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by law.

BAAQMD Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds.¹⁴ This regulation limits the “discharge of any odorous substance which causes the ambient air at or beyond the property line...to be odorous and to remain odorous after dilution with four parts of odor-free air.” The BAAQMD must receive odor complaints from ten or more complainants within a 90-day period in order for the limitations of this regulation to go into effect. If this criterion has been met, an odor violation can be issued by the BAAQMD if a test panel of people can detect an odor in samples collected periodically from the source.

Clean Air Plan. The Clean Air Plan¹⁵ guides the region’s air quality planning efforts to attain the CAAQS. The BAAQMD 2017 Clean Air Plan, which was adopted on April 19, 2017, by the BAAQMD Board of Directors, is the current Clean Air Plan which contains district-wide control measures to reduce ozone precursor emissions (i.e., ROG and NO_x), particulate matter and greenhouse gas emissions.

The Bay Area 2017 Clean Air Plan:

- Describes the BAAQMD’s plan towards attaining all State and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities;
- Defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious greenhouse gas reduction targets for 2030 and 2050;

¹³ U.S. Environmental Protection Agency, 2017. Criteria Air Pollutants. Website: www.epa.gov/criteria-air-pollutants (accessed February 12, 2018). October.

¹⁴ Bay Area Air Quality Management District, 1982. *Rules and Regulations, Regulation 7: Odorous Substances*. March.

¹⁵ Bay Area Air Quality Management District, 2017. *Final 2017 Clean Air Plan*. Available online at: www.baaqmd.gov/~media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a-proposed-final-cap-vol-1-pdf.pdf?la=en (accessed February 12, 2018). April 19.

- Provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve greenhouse gas (GHG) reduction targets; and
- Includes a wide range of control measures designed to decrease emissions of air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of methane and other “Super-GHGs” that are potent climate pollutants in the near term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

BAAQMD CARE Program. The Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area. The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that include an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TACs, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and a high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area.

For commercial and industrial sources, the BAAQMD regulates TACs using a risk-based approach. This approach uses a health risk assessment (HRA) to determine what sources and pollutants to control as well as the degree of control. An HRA is an analysis in which human health exposure to toxic substances is estimated and considered together with information regarding the toxic potency of the substances, in order to provide a quantitative estimate of health risks.¹⁶ As part of ongoing efforts to identify and assess potential health risks to the public, the BAAQMD has collected and compiled air toxics emissions data from industrial and commercial sources of air pollution throughout the Bay Area. The BAAQMD has identified seven impacted communities; portions of Contra Costa County, including areas of Walnut Creek, have been identified as an affected community.

BAAQMD CEQA Air Quality Guidelines. The BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. They also include recommended assessment methodologies for air toxics, odors, and greenhouse gas emissions.

¹⁶ In general, a health risk assessment is required if the BAAQMD concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggests a potential public health risk. Such an assessment generally evaluates chronic, long-term effects, including the increased risk of cancer as a result of exposure to one or more TACs.

In June 2010, BAAQMD adopted updated draft CEQA Air Quality Guidelines and finalized them in May 2011. These guidelines superseded previously adopted agency air quality guidelines of 1999 and were intended to advise lead agencies on how to evaluate potential air quality impacts.

In May 2017, the BAAQMD published an updated version of the CEQA Guidelines. The 2017 CEQA Guidelines include thresholds to evaluate project impacts in order to protectively evaluate the potential effects of the project on air quality. These protective thresholds are appropriate in the context of the size, scale, and location of the project.

City of Walnut Creek General Plan. The City of Walnut Creek General Plan¹⁷ addresses air quality in Chapter 4, Built Environment. The Built Environment chapter aims to promote better air quality by recognizing that the cumulative results of transportation and land use policies can assist or negate regional air quality planning and accomplishments and strives to meet State and federal air quality standards. The following policies and actions from the Built Environment chapter would be applicable to the Specific Plan.

Chapter 4: Built Environment

- **Goal 31: Strive to meet State and federal air quality standards for the region.**
 - Policy 31.1: Work with the Bay Area Air Quality Management District (BAAQMD) and the County in promoting better air quality.
 - Action 31.1.1: Support local transportation control measures (TCMs) and other ideas in the latest Bay Area Clean Air Plan.
 - Action 31.1.2: Develop a local, voluntary Clean Air Plan.
 - Action 31.1.3: Participate in the BAAQMD Spare the Air program.
 - Policy 31.2: Consider additional land use and development criteria, standards, and decisions that have positive impacts on air quality and quality of life in general.
 - Action 31.2.1: Review parking lot landscaping requirements to ensure adequate width and depth to allow for appropriate tree canopy.
 - Action 31.2.2: Investigate policies that promote cleaner air, such as commercial reflective roofing ordinances.
 - Action 31.2.3: Promote residential development and redevelopment opportunities near transit and commercial centers, and encourage walking, bicycling, and transit use.

¹⁷ Walnut Creek, City of, 2006. *Walnut Creek General Plan 2025*. April 4.

- Policy 31.3: Proactively manage local air quality issues.
 - Action 31.3.1: Control emission of dust from construction sites.
 - Action 31.3.3: Provide buffers between identified stationary sources of odors and sensitive land uses.
 - Action 31.3.4: Projects that locate new sensitive receptors (facilities or land uses such as hospitals, day care centers, schools and residences that are occupied for substantial amounts of time by members of the population particularly sensitive to the effects of air pollutants, such as children, the elderly and people with illnesses) proposed within 500 feet from the edge of the closest travel lane of Interstate 680 (I-680) or Highway 24 should include an analysis of mobile source toxic air contaminant health risks, based on appropriate air dispersion modeling. Project review should include an evaluation of the adequacy of the setback from the highway, and, if necessary, identify design mitigation measures to reduce health risks to acceptable levels.

4.3.2 Impacts and Mitigation Measures

This section provides an assessment of the potential impacts related to air quality that could result from implementation of the Specific Plan. The section begins with the criteria of significance, which establish the thresholds for determining whether an impact is significant. The latter part of this section presents potential impacts associated with implementation of the Specific Plan and identifies mitigation measures, as appropriate.

4.3.2.1 Criteria of Significance

Implementation of the Specific Plan would result in a significant impact to air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

According to the BAAQMD CEQA Air Quality Guidelines, to meet the threshold of significance for operational-related criteria air pollutant and precursor impacts, a proposed plan must satisfy the following criteria: Consistency with current air quality plan control measures (this requirement applies to project-level as well as plan-level analyses); and a proposed plan's projected vehicle miles traveled (VMT) or vehicle trips increase is less than or equal to its projected population increase.

For toxic air contaminants, the BAAQMD CEQA Air Quality Guidelines also call for showing special overlay zones around existing and planned sources of TACs and overlay zones of at least 500 feet from all freeways and high volume roadways.

In addition, as discussed in *California Building Industry Association v. BAAQMD*, the California Supreme Court¹⁸ held that CEQA generally does not require analysis or mitigation of the impact of existing environmental conditions on a project, including a project's future users or residents. However, as with other laws and regulations enforced by other agencies that protect public health and safety, the City as the lead agency has authority other than CEQA to require measures to protect public health and safety. Therefore, this document includes *for informational purposes* an evaluation of the environment's impacts on the Specific Plan consistent with the current version of the CEQA Checklist provided in Appendix G of the CEQA Guidelines. The evaluation includes an assessment of the Specific Plan's potential to expose future sensitive receptors that would be located within the Plan Area to substantial pollutant concentrations by individual exposure to the existing sources of toxic air contaminants in the project vicinity and if future sensitive receptors would be exposed to existing odors within the Plan Area. This analysis of the impacts of the environment on the Specific Plan is provided for informational purposes only.

4.3.2.2 Project Impacts

The following section discusses the potential air quality impacts associated with implementation of the Specific Plan.

Conflict with Current Air Quality Plans. The applicable air quality plan is the BAAQMD's 2017 Clean Air Plan, which was adopted on April 19, 2017. The Clean Air Plan is a comprehensive plan to improve Bay Area air quality and protect public health. Consistency with the Clean Air Plan can be determined if the project does the following: 1) supports the goals of the Clean Air Plan; 2) includes applicable control measures from the Clean Air Plan; and 3) would not disrupt or hinder implementation of any control measures from the Clean Air Plan.

Stationary Source Control Measures. The stationary source measures, which are designed to reduce emissions from stationary sources such as metal melting facilities, cement kilns, refineries, and glass furnaces, are incorporated into rules adopted by the BAAQMD and then enforced by the BAAQMD's Permit and Inspection programs. Since implementation of the Specific Plan would not include any stationary sources, the Stationary Source Measures of the Clean Air Plan are not applicable.

Transportation Control Measures. The BAAQMD identifies control measures as part of the Clean Air Plan to reduce ozone precursor emissions from stationary, area, mobile, and transportation sources. The Transportation Control Measures are designed to reduce emissions from motor vehicles by reducing vehicle trips and VMT in addition to vehicle idling and traffic congestion. Implementation of the Specific Plan would support the development of medium- and high-density office, residential, and local serving retail near and around the Walnut Creek Bay Area Rapid Transit (BART) station and the City's Core Area, reducing the demand for travel

¹⁸ California Supreme Court, 2015. *California Building Industry Association v. Bay Area Air Quality Management District 62 Cal.4th 369, Case No. S213478*. December.

by single occupancy vehicles. In addition, the Specific Plan would support and expand existing transit, bicycle, and pedestrian transportation, which would support the ability to use alternative modes of transportation. Therefore, the Specific Plan would support the ability to use alternative modes of transportation and would promote initiatives to reduce vehicle trips and vehicle miles traveled and would increase the use of alternate means of transportation. Therefore, the Specific Plan would not conflict with the identified Transportation and Mobile Source Control Measures of the Clean Air Plan.

Energy Control Measures. The Clean Air Plan also includes Energy and Climate Control Measures, which are designed to reduce ambient concentrations of criteria pollutants and reduce emissions of CO₂. Implementation of these measures is intended to promote energy conservation and efficiency in buildings throughout the community, promote renewable forms of energy production, reduce the “urban heat island” effect by increasing reflectivity of roofs and parking lots, and promote the planting of (low-volatile organic compound (VOC)-emitting) trees to reduce biogenic emissions, lower air temperatures, provide shade, and absorb air pollutants. The measures include voluntary approaches to reduce the heat island effect by increasing shading in urban and suburban areas through the planting of trees. Implementation of the Specific Plan would include paved areas that could result in a heating effect. The Specific Plan would include street trees and landscaping throughout the Plan Area. In addition, the Specific Plan would include policies that implement green building standards and individual projects allowed under the Specific Plan would be required to comply with the latest CALGreen standard building measures and Title 24 standards. Therefore, the Specific Plan would not conflict with the Energy and Climate Control Measures. As discussed above, implementation of the Specific Plan would not disrupt or hinder implementation of the applicable measures outlined in the Clean Air Plan, including Transportation and Mobile Source Control Measures, Land Use and Local Impact Measures, and Energy Measures.

Building Control Measures. The BAAQMD has authority to regulate emissions from certain sources in buildings such as boilers and water heaters, but has limited authority to regulate buildings themselves. Therefore, the strategies in the control measures for this sector focus on working with local governments that do have authority over local building codes, to facilitate adoption of best GHG control practices and policies. As identified above, the Specific Plan would include policies that apply to green building standards and projects allowed under the Specific Plan would be required to comply with the latest CALGreen standard building measures and Title 24 standards. Therefore, the Specific Plan would not conflict with these measures.

Agriculture Control Measures. The Agriculture Control Measures are designed to primarily reduce emissions of methane. Since the Specific Plan does not include any agricultural activities, the Agriculture Control Measures of the Clean Air Plan are not applicable.

Natural and Working Lands Control Measures. The Natural and Working Lands Control Measures focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to ordinances that promote urban-tree plantings. Since implementation of the Specific Plan would not include the disturbance of any rangelands or wetlands, the Natural and Working Lands Control Measures of the Clean Air Plan would not be applicable.

Waste Management Control Measures. The Waste Management Measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. Individual projects associated with implementation of the Specific Plan would comply with local requirements for waste management (e.g., recycling and composting services). Therefore, the Specific Plan would be consistent with the Waste Management Control Measures of the Clean Air Plan.

Water Control Measures. The Water Control Measures focus on reducing emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned treatment works, and promoting the use of biogas recovery systems. Since these measures apply to publicly owned treatment works and local government agencies, the Water Control Measures are not applicable to the Specific Plan.

Super GHG Control Measures. The Super-GHG Control Measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. As identified above, the Specific Plan would include policies that apply to green building standards and projects allowed under the Specific Plan would be required to comply with the latest CALGreen standard building measures and Title 24 standards reducing GHG emissions. In addition, as discussed in Section 4.4, Greenhouse Gas Emissions, individual projects allowed under the Specific Plan would be required to demonstrate consistency with the City's Climate Action Plan. Therefore, the Specific Plan would not conflict with the Super-GHG Control Measures.

Violate Air Quality Standards. According to the BAAQMD's CEQA Air Quality Guidelines, a proposed plan would not have a significant operational-related criteria air pollutant and air precursor impact, if it satisfies the following criteria: 1) consistency with current air quality plan control measures and 2) the percentage of the proposed plan's projected VMT increase is less than or equal to its population increase. Additionally, construction of individual projects allowed under the Specific Plan could generate dust and exhaust emissions that could violate air quality standards; therefore, such impacts are evaluated in this section.

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 excavation, grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, ROG, directly-emitted particulate matter (PM_{2.5} and PM₁₀), and TACs such as diesel exhaust particulate matter. Development allowed under the Specific Plan would require construction which could contribute to violations of air quality standards.

Site preparation and project construction associated with the Specific Plan would involve clearing, cut-and-fill activities, grading, and other activities. Construction-related effects on air quality would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils on the site. If not properly controlled, these activities would temporarily generate PM₁₀, PM_{2.5}, and to a lesser extent CO, SO₂, NO_x, and volatile organic compounds. Sources of fugitive dust would include disturbed soils

at the construction sites and trucks carrying uncovered loads of soils. 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, the 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. These emissions would be temporary and limited to the immediate area surrounding the construction sites.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. The BAAQMD has established standard measures for reducing fugitive dust emissions (PM₁₀). With the implementation of these Basic Construction Mitigation Measures, fugitive dust emissions from construction activities would not result in adverse air quality impacts.

In addition to dust-related PM₁₀ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO₂, NO_x, and VOCs and some soot (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 could increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction sites. However, development allowed under the Specific Plan would allow for construction of multiple projects in the Plan Area which could contribute to a violation of air quality standards.

The BAAQMD CEQA Air Quality Guidelines suggest that the significance of construction-period emissions should be based on implementation of a set of feasible control measures designed to reduce particulate and exhaust emissions near construction sites.

Impact AIR-1: Construction of individual projects associated with implementation of the Specific Plan would generate air pollutant emissions that could violate air quality standards. (S)

The BAAQMD recommends the implementation of Basic Construction Mitigation Measures to reduce construction impacts to a less-than-significant level. Therefore, construction of individual projects associated with implementation of the Specific Plan would be required to implement Mitigation Measure AIR-1 to reduce construction dust impacts to a less-than-significant level as follows:

Mitigation Measure AIR-1:

Project contractors shall follow Basic Construction Mitigation Measures as recommended by the BAAQMD, including:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

- All visible mud or dirt tracked-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer’s specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and person to contact at the City of Walnut Creek regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD phone number shall also be visible to ensure compliance with applicable regulations. (LTS)

Vehicle Miles Traveled Analysis. Section 4.2, Transportation and Circulation, of this EIR discusses the traffic modeling for the Specific Plan. Based on the transportation analysis and as shown in Table 4.3.E, under Specific Plan conditions, average daily VMT would increase by 56.7 percent from the existing conditions, while the rate of population growth would increase by 95.3 percent.

Table 4.3.E: Specific Plan Vehicle Miles Traveled and Population Growth

Factors	Year 2017 Projections	Year 2040 Projections ^a		Percent Increase
	Existing	No Specific Plan ^b	Specific Plan	
Daily VMT	403,562	538,909	632,175	56.7
Population	1,595	2,068	3,115	95.3

Source: LSA (March 2018).

^a While the Specific Plan horizon is 2038, the Year 2040 daily VMT analysis is based on Section 4.2, Transportation and Circulation.

^b Year 2040 No Specific Plan projections include development under the General Plan.

VMT = Vehicle Miles Traveled

A significant impact would occur if the project-related VMT increase is greater than the increase in population. The development facilitated by the Specific Plan would increase population in the Plan Area by approximately 95.3 percent compared to existing conditions, while VMT is estimated to increase in the Plan Area by approximately 56.7 percent. Total VMT would increase at a lower rate than population growth because the forecasted growth is expected to occur in proximity to local and regional transit service and increase the overall development density, which would result in complementary land uses in closer proximity, and encourage transit use, bicycling, and walking due to shorter trips.

As shown in Table 4.3.E, the projected VMT increase would be less than the projected increase in population in the Plan Area related to implementation of the Specific Plan. Therefore, the Specific Plan would not be expected to result in a violation of air quality standards or contribute substantially to an existing or projected air quality violation.

Localized CO Impacts. The BAAQMD has established a screening methodology that provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to the BAAQMD's CEQA Guidelines, a proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, and the regional transportation plan and local congestion management agency plans.
- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, or below-grade roadway).

Implementation of the Specific Plan would not conflict with the Contra Costa County Countywide Transportation Plan for designated roads or highways, a regional transportation plan, or other agency plans. The Plan Area is not located in an area where vertical or horizontal mixing of air is substantially limited. Implementation of Mitigation Measure TRA-1 would ensure that intersection level of service associated with the Specific Plan would not substantially decline with implementation of the Specific Plan. As described in Section 4.2, Transportation and Circulation, implementation of the Specific Plan would generate 1,843 AM peak hour trips and 2,039 PM peak hour trips.¹⁹ The intersection with the highest traffic volume in the Plan Area has peak hour traffic of 4,075 vehicles per hour, therefore total intersection traffic volumes would be well below the screening criteria level of 44,000 vehicles per hour. Therefore, the

¹⁹ "Peak hour" represents the one hour when morning and evening traffic is highest between 7:00 a.m. and 9:00 a.m. and between 4:00 p.m. and 6:00 p.m., respectively.

Specific Plan would not result in localized CO concentrations that exceed State or federal standards and this impact would be less than significant.

Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant. The San Francisco Bay Area Air Basin is a nonattainment area for federal and State 8-hour ozone standards, nonattainment for the State 1-hour standard and nonattainment for State and federal PM_{2.5} standards. Air pollution is a regional issue affected by climate, land uses and topography. Development projects from the past, present, and future contribute to the region's adverse air quality impacts on a cumulative basis because air pollutants, once emitted at a particular location, move throughout the atmosphere and air basin. If a project's contribution at the individual level is considerable, then the project's cumulative impact on air quality would also be considered significant.

The analysis presented above discusses air quality conditions related to implementation of the Specific Plan and conformance with the BAAQMD's 2017 Clean Air Plan. The BAAQMD 2017 Clean Air Plan is the region's plan for attaining criteria pollutant air quality standards (including ozone and PM_{2.5}) and accounts for future cumulative regional growth. Therefore, at the plan level, consistency with the Clean Air Plan would indicate the project would not result in a cumulative considerable net increase of any criteria pollutant.

As discussed above, implementation of the project would cause the overall regional VMT to increase in the Year 2040; however, the VMT growth would not result in a cumulatively considerable net increase in ozone precursor emissions according to the BAAQMD because the VMT growth rate would be lower than the rate of growth in population. Therefore, implementation of the Specific Plan would not result in the substantial increase in criteria air quality pollutants at the project level or under cumulative conditions.

Substantial Pollutant Concentrations. According to the BAAQMD, for proposed plans to have a less-than-significant impact with respect to potential TACs, special overlay zones should be included in proposed plan policies, land use maps, and implementing ordinances. A land use diagram must identify the following: 1) special overlay zones around existing and planned sources of TACs; and 2) special overlay zones of at least 500 feet on each side of all freeways and high-volume roadways (10,000 average daily trips or more). The proposed plan must also identify goals and policies to minimize potential impacts and create overlay zones for sources of TACs and receptors.

Construction Impacts. Construction of new development associated with implementation of the Specific Plan would occur over a period of approximately 20 years. Construction would result in dust and diesel exhaust emissions. Toxic construction-related health risks are dependent on the type of construction equipment used and duration of the construction period. Because of the lack of specific construction information given the program-level analysis of the Specific Plan, an estimate of project construction health risks cannot be determined at the plan level.

Impact AIR-2: Construction of new projects associated with implementation of the Specific Plan could result in exposure of sensitive receptors to substantial pollutant concentrations. (S)

To ensure that construction impacts do not adversely affect sensitive receptors, the following mitigation measure shall be implemented:

Mitigation Measure AIR-2: All proposed development projects associated with implementation of the Specific Plan which would include construction activities within 1,000 feet of a residential dwelling unit, shall conduct a construction health risk assessment to assess emissions from all construction equipment during each phase of construction prior to issuance of building permits. Equipment usage shall be modified as necessary to ensure that equipment use would not result in a carcinogenic health risk of more than 10 in 1 million, an increased non-cancer risk of greater than 1.0 on the hazard index (chronic or acute), or an annual average ambient PM_{2.5} increase greater than 0.3 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). (LTS)

Operation Impacts. Individual projects associated with the Specific Plan that emit TACs would require review under the BAAQMD rules and regulations or project-level review under CEQA, especially if located near sensitive receptors. Projects with sensitive receptors proposed near localized sources of TAC emissions. (e.g., residences to be located near major roadways or stationary sources) could expose new sensitive populations to TACs and PM_{2.5}. According to the CARB and BAAQMD, exposure to elevated levels of TACs and PM_{2.5} contributes to elevated health risks. The BAAQMD recommends that buffers should be reflected in land use maps and included in plans to avoid the exposure of sensitive receptors to TAC sources. Risk levels and PM_{2.5} concentrations drop dramatically beyond 500 feet from a source due to dispersion of emissions with distance.

According to the BAAQMD's database of permitted sources in the Plan Area, stationary sources with TAC emissions are from diesel generators, dry cleaners and laundry facilities, gasoline stations, and auto shops throughout the Plan Area. Dry cleaners are a source of Perchloroethylene (Perc) a substance known to the State of California as a toxic air contaminant. The most prevalent TACs in Walnut Creek and Contra Costa County are benzene and 1,3-Butadiene from combustion of gasoline by vehicles. Other sources of toxic air contaminants include generators in various locations.

On July 1, 2010, the CARB required the elimination of Perc for use at co-residential dry cleaning facilities. Therefore, use of Perc at facilities that share a wall or are in the same building as a residence is no longer permitted. Additionally, the CARB requires that all use of Perc in dry cleaning be phased out by 2023. The regulations established by the CARB related to dry cleaning will reduce impacts related to Perc exposure to sensitive receptors in Walnut Creek.

Table 4.3.F lists the permitted stationary sources found in or within 1,000 feet of the Plan Area. Figure 4.3-1 graphically depicts the location of each source within the Plan Area boundary.

Additionally, high-volume roadways are significant sources of toxic air contaminants. Traffic on I-680 is one of the primary sources of TACs from motor vehicles in the Plan Area.

Table 4.3.F: Stationary Sources within 1,000 feet of the Plan Area

Source Number	Facility ID	Plant ID	Stationary Source (Type)	Distance (feet)	Adjusted Risk (in one million)	PM _{2.5} Conc. (µg/m ³)	Hazard
1	787	G12050	Main Street Chevron 2329 N. Main Street (gas station)	0 ¹	36.19	n/a	0.051
2	429	13307	Cooks Collision, 2198 N. Main Street	0 ¹	0.00	0.015	0.002
3	795	4972	Marshall Steel Cleaners 1297 Parkside Drive	0 ¹	44.90	0.000	0.0120
4	821	11281	Mike Rose's Auto Body of Walnut Creek, 2288 N. Main Street	0 ¹	0.00	0.009	0.000
5	842	17659	Mt. Diablo Pizza, 2175 & 2185 N. California Boulevard (generator)	0 ¹	38.27	0.068	0.014
6	428	5439	Cook's Collision, 1414 Pine Street	0 ¹	0.00	0.013	0.004
7	183	13767	California Plaza at Walnut Creek Inc., 2121 N. California Boulevard (generator)	0 ¹	43.88	0.078	0.016
8	1351	15686	Virgin Mobile 2185 N. California Boulevard	0 ¹	2.38	0.001	0.001
9	238	G11654	Chevron 699 Ygnacio Valley Road (gas station)	0 ¹	15.15	n/a	0.022
10	752	19859	Legacy Partners III Walnut Creek III, LL 2001 Main Street	0 ¹	19.35	0.004	0.007
11	1398	G1716	Xtra Oil Company, 1980 N. Main Street (gas station)	0 ¹	48.31	n/a	0.069
12	759	G1747	Lil Bear Car Wash 604 Ygnacio Valley Road (gas station)	0 ¹	17.17	n/a	0.024
13	343	15934	Comcast of California/ Massachusetts/Mich 1267 Arroyo Way (generator)	0 ¹	32.72	0.009	0.012
14	1219	G9298	Tosco Northwest Company 690 Ygnacio Road (gas station)	0 ¹	6.74	n/a	0.004
15	1364	G10512	Walnut Creek Valero 605 Ygnacio Valley Road (gas station)	0 ¹	53.36	n/a	0.076
16	1288	18184	Valero Marketing and Supply Co/c/o GES, 605 Ygnacio Valley Road	0 ¹	0.11	0.000	0.000
17	1178	15848	Target Corporation #1208 1871 N. Main Street (generator)	0 ¹	0.01	0.001	0.000
18	815	19757	Mercer Owners Association c/o Helsing Gr, 1655 N. California Boulevard (generator)	0 ¹	63.14	0.015	0.022
19	917	13410	Pacific Bell Corporation 1755 Locust Street (generator)	0 ¹	93.53	0.022	0.033
20	659	13917	Growers Square 1666 California Boulevard (generator)	0 ¹	56.39	0.013	0.020
21	949	4101	Parker-Robb Chevrolet, Inc. 1707 Main Street	0 ¹	0.00	0.000	0.006
22	1277	G11835	USA Gas #863 265 Ygnacio Valley Road (gas station)	165	10.86	n/a	0.006

Table 4.3.F: Stationary Sources within 1,000 feet of the Plan Area

Source Number	Facility ID	Plant ID	Stationary Source (Type)	Distance (feet)	Adjusted Risk (in one million)	PM _{2.5} Conc. (µg/m ³)	Hazard
23	1041	14069	SF Bay Area Rapid Transit District 200 Ygnacio Valley Road (generator)	560	49.59	0.088	0.018
24	1123	18599	SRS Development 101 Ygnacio Valley Road (generator)	985	2.72	0.002	0.001
25	987	14049	Property California SCJLW One Corp. 1333 N. California Boulevard (generator)	967	97.92	0.023	0.035
26	673	14452	Herald's Cleaner's Inc. 1525 Cypress Street	953	0.00	0.000	0.000
I-680 Health Risk					176.174	1.479	0.164

Source: LSA, March 2018 and BAAQMD (2017).

¹ Source is located within the Plan Area.

Impact AIR-3: Implementation of the Specific Plan could result in exposure of sensitive receptors to substantial pollutant concentrations. (S)

As shown in Table 4.3.F and Figure 4.3-1, there are several sources of air toxic contaminants within or near the Plan Area. Risk levels and PM_{2.5} concentrations drop dramatically beyond 500 feet from a source due to dispersion of emissions with distance. For plan level documents, the BAAQMD recommends the use of overlay zones around sources of TACs. The precise location of future residential units within the Plan Area is unknown at this time. Therefore, to reduce impacts from toxic air contaminants and the individual and cumulative level for future sensitive receptors in the Plan Area, the following measure shall be implemented.

Mitigation Measure AIR-3: For residential or other sensitive use projects proposed within 500 feet of I-680, and/or any of the stationary sources identified in Table 4.3.F, the City of Walnut Creek shall require an evaluation of potential health risk exposure. The applicant for a sensitive use project within the Plan Area shall prepare a report using the latest BAAQMD permit data and roadway risk estimates to determine impacts to future residents. The report shall outline any measures that would be incorporated into the project necessary to reduce carcinogenic health risk of to less than 10 in 1 million, reduce the non-cancer risk of to less than 1.0 on the hazard index (chronic or acute), and ensure the annual average ambient PM_{2.5} increase is less than 0.3 µg/m³. Measures to reduce impacts could include upgrading air filtration systems of fresh air supply, tiered plantings of trees, and site design to increase distance from source to the receptor. (LTS)

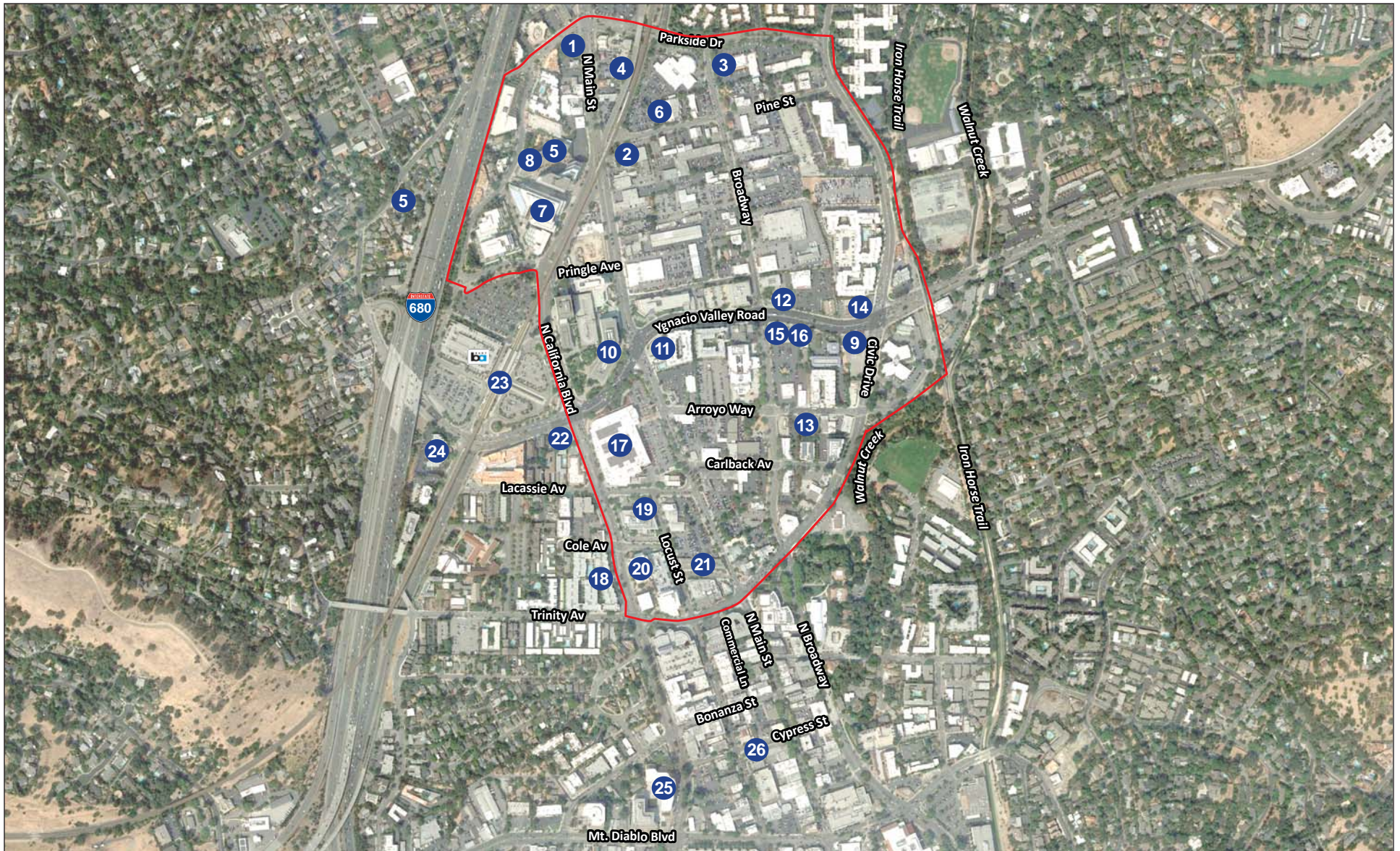
Implementation of Mitigation Measure AIR-3 would require an analysis at the project level to determine the potential health risk to future sensitive receptors and would ensure that future residents of the Specific Plan would not be exposed to substantial pollutant concentrations.

Objectionable Odors. During construction of new development associated with implementation of the proposed Specific Plan, the various diesel-powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and are not likely to be noticeable for extended periods of time beyond the Plan Area. The potential for diesel odor impacts is therefore considered less than significant.

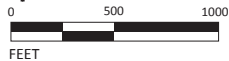
Odor impacts could result from siting a new odor source near existing sensitive receptors or siting a new sensitive receptor near an existing odor source. The BAAQMD considers a significant odor impact as a substantial number of odor complaints, specifically, more than five confirmed complaints per year average over the past three years. Examples of land uses that have the potential to generate considerable odors include wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries, and chemical plants.

The proposed uses that would be developed under the Specific Plan are not expected to produce any offensive odors that would result in frequent odor complaints. Therefore implementation of the Specific Plan would not create objectionable odors affecting a substantial number of people and would have a less-than-significant impact in terms of odors.

In addition, for informational purposes, a public records request to the BAAQMD which included potential complaints from nearby off-site residents, revealed two odor complaints within 1,000 feet of the Plan Area between 2015 and 2018. One odor complaint was associated with 1755 Trinity Avenue, which is located approximately 280 feet west of the Plan Area and the other odor complaint was associated with 1401 North Broadway Avenue, which is located 895 feet south of the Plan Area. Both odor complaints were listed as unconfirmed. In addition, the BAAQMD received five unconfirmed odor complaints without a specified location in the City. These odors could be detected in the Plan Area; however, since there are no confirmed odor complaints recorded in the Plan Area, this impact would be less than significant.



LSA



SOURCES: GOOGLE EARTH, 8/31/17; LSA, 2018.

Stationary Sources

- | | | | | |
|---------------------------|-----------------------|----------------------|-----------------------|--------------------------------|
| 1 Chevron Gas Station | 6 Cooks Collision | 11 Xtra Oil Co. | 16 Valero Marketing | 21 Parker-Robb Chevrolet |
| 2 Cooks Collision | 7 California Plaza | 12 Lil Bear Car Wash | 17 Target #1208 | 22 USA Gas #863 |
| 3 Marshall Steel Cleaners | 8 Virgin Mobile | 13 Comcast | 18 Mercer Assoc. | 23 SF-BART |
| 4 Mike Rose's Auto Body | 9 Chevron Gas Station | 14 Tosco NW Co. | 19 Pacific Bell Corp. | 24 SRS Development |
| 5 Mt. Diablo Pizza | 10 Legacy Partners | 15 Valero | 20 Grower's Square | 25 Property CA SCILW One Corp. |
| | | | | 26 Herald's Cleaners, Inc. |

Plan Area

FIGURE 4.3-1

North Downtown Specific Plan EIR
TAC Sources within 1,000 feet of the Plan Area

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4.3.2.3 Cumulative Impacts

As discussed above, air pollution is a regional issue affected by climate, land uses, and topography. Development projects from the past, present, and future contribute to the region's adverse air quality impacts on a cumulative basis because air pollutants, once emitted at a particular location, move throughout the atmosphere and air basin. If a project's contribution at the individual level is considerable, then the project's cumulative impact on air quality would also be considered significant.

The analysis presented above discusses air quality conditions related to implementation of the Specific Plan as well as the Specific Plan's conformance with the Bay Area 2017 Clean Air Plan. The BAAQMD's Clean Air Plan is the region's plan for attaining air quality standards and accounts for future cumulative regional growth. Therefore, consistency with the Clean Air Plan would indicate the project would not result in a cumulative air quality impact.

Implementation of the Specific Plan would not result in a substantial change in the rate of increase of VMT compared to the rate of population growth in the Plan Area as described above and would therefore not contribute to a cumulatively considerable net increase in ozone precursor emissions. Additionally, as described above, implementation of the Specific Plan would result in less-than-significant impacts related to construction activity, exposure of sensitive receptors to substantial pollutant concentrations, and exposure of residents to odors at the existing and cumulative level.

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4.4 GREENHOUSE GAS EMISSIONS

This section summarizes existing greenhouse gas emissions and discusses global climate change, its causes, and the contribution of human activities. This section also estimates the likely greenhouse gas emissions that would result from construction and operational activities associated with implementation of the Specific Plan, including vehicular traffic, energy consumption and other emission sources. Mitigation measures are recommended where appropriate to reduce impacts to a less-than-significant level. The analysis performed for this section is based on the Bay Area Air Quality Management District's (BAAQMD) CEQA Air Quality Guidelines.¹

4.4.1 Setting

The following discussion describes existing greenhouse gas emissions in the City of Walnut Creek and the Bay Area, beginning with a discussion of typical greenhouse gas types and sources, impacts of global climate changes, the regulatory framework surrounding these issues, and current emission levels.

4.4.1.1 Background

This section provides background information on greenhouse gases and global climate change.

Global Climate Change. Global climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. The Earth's average near-surface atmospheric temperature rose $0.6 \pm 0.2^\circ$ Celsius ($^\circ\text{C}$) or $1.1 \pm 0.4^\circ$ Fahrenheit ($^\circ\text{F}$) in the 20th century. The prevailing scientific consensus on climate change is that most of the warming observed over the last 50 years is attributable to human activities. The increased amounts of carbon dioxide (CO_2) and other greenhouse gases are the primary causes of the human-induced component of warming. Greenhouse gases are released by the burning of fossil fuels, land clearing, agriculture, and other activities, and lead to an increase in the greenhouse effect.²

Greenhouse gases 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 the following:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)

¹ Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.

² The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse lets heat from sunlight in and reduces the heat escaping, greenhouse gases like carbon dioxide, methane, and nitrous oxide in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe; thus, although an excess of greenhouse gas results in global warming, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF₆)

Over the last 200 years, humans have caused substantial quantities of greenhouse gases to be released into the atmosphere. These extra emissions are increasing greenhouse gas concentrations in the atmosphere, and enhancing the natural greenhouse effect, which is believed to be causing global warming. While manmade greenhouse gases include naturally-occurring greenhouse gases 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 greenhouse gases above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation. For the purposes of this air quality analysis, the term “greenhouse gases” will refer collectively to the six gases listed above only.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each greenhouse gas to trap heat in the atmosphere relative to another gas. The global warming potential 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 carbon dioxide, the most abundant greenhouse gas; the definition of GWP for a particular greenhouse gas is the ratio of heat trapped by one unit mass of the greenhouse gas to the ratio of heat trapped by one unit mass of CO₂ over a specified time period. Greenhouse gas emissions are typically measured in terms of pounds or tons of “CO₂ equivalents” (CO₂e). [Table 4.4.A](#) shows the GWP for each type of greenhouse gas. For example, sulfur hexafluoride is 22,800 times more potent at contributing to global warming than carbon dioxide.

Table 4.4.A: Global Warming Potential of Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100-year Time Horizon)
Carbon Dioxide	50-200	1
Methane	12	25
Nitrous Oxide	114	298
HFC-23	270	14,800
HFC-134a	14	1,430
HFC-152a	1.4	124
PFC: Tetrafluoromethane (CF ₄)	50,000	7,390
PFC: Hexafluoromethane (C ₂ F ₆)	10,000	12,200
Sulfur Hexafluoride (SF ₆)	3,200	22,800

Source: Intergovernmental Panel on Climate Change (2007). *Climate Change 2007: The Physical Science Basis*. Contribution of Working Group I to the Fourth Assessment Report of the IPCC.

The following discussion summarizes the characteristics of the six greenhouse gases and black carbon.

Carbon Dioxide. In the atmosphere, carbon generally exists in its oxidized form, as CO₂. Natural sources of CO₂ include the respiration (breathing) of humans, animals and plants, volcanic outgassing, decomposition of organic matter and evaporation from the oceans. Human caused sources of CO₂ include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. Natural sources release approximately 150 billion tons of CO₂ each year, far outweighing the 7 billion tons of man-made emissions of CO₂ each year. Nevertheless, natural removal processes, such as photosynthesis by land- and ocean-dwelling plant species, cannot keep pace with this extra input of man-made CO₂, and consequently, the gas is building up in the atmosphere.

In 2015, CO₂ emissions accounted for approximately 84 percent of California's overall greenhouse gas emissions.³ The transportation sector accounted for California's largest portion of CO₂ emissions, approximately 44 percent, with gasoline consumption making up the greatest portion of these emissions. Electricity generation was California's second largest category of greenhouse gas emissions.

Methane. Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Decomposition occurring in landfills accounts for the majority of human-generated CH₄ emissions in California and in the United States as a whole. Agricultural processes such as intestinal fermentation, manure management, and rice cultivation are also significant sources of CH₄ in California. Methane accounted for approximately 9.0 percent of greenhouse gas emissions in California in 2015.⁴

Total annual emissions of methane are approximately 500 million tons, with manmade emissions accounting for the majority. As with CO₂, the major removal process of atmospheric methane—a chemical breakdown in the atmosphere—cannot keep pace with source emissions, and methane concentrations in the atmosphere are increasing.

Nitrous Oxide. Nitrous oxide is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. Nitrous oxide is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion emit N₂O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N₂O

³ California Air Resources Board, 2017. *California Greenhouse Gas Emission Inventory - 2017 Edition*. June 6. Website: www.arb.ca.gov/cc/inventory/data/data.htm (accessed February 14, 2018).

⁴ Ibid.

emissions in California. Nitrous oxide emissions accounted for approximately 2.7 percent of greenhouse gas emissions in California in 2015.⁵

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride. HFCs are primarily used as substitutes for ozone-depleting substances regulated under the Montreal Protocol.⁶ PFCs and SF₆ are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry leads to greater use of PFCs. HFCs, PFCs, and SF₆ accounted for about 4.3 percent of man-made greenhouse gas emissions (CO₂e) in California, 2015.⁷

Black Carbon. Black carbon is the most strongly light-absorbing component of PM formed by burning fossil fuels such as coal, diesel, and biomass. Black carbon is emitted directly into the atmosphere in the form of fine particulate matter (PM_{2.5}) and is the most effective form of PM, by mass, at absorbing solar energy. Per unit of mass in the atmosphere, black carbon can absorb a million times more energy than CO₂.⁸ Black carbon contributes to climate change both directly, such as absorbing sunlight, and indirectly, such as affecting cloud formation. However, because black carbon is short-lived in the atmosphere, it can be difficult to quantify its effect on global-warming.

Most U.S. emissions of black carbon come from mobile sources (52 percent), particularly from diesel fueled vehicles. The other major source of black carbon is open biomass burning, including wildfires, although residential heating and industry also contribute. The California Air Resources Board (CARB) estimates that the annual black carbon emissions in California have decreased approximately 70 percent between 1990 and 2010 and are expected to continue to decline significantly due to controls on mobile diesel emissions.

Impacts of Climate Change. The potential impacts of global climate change are described in the following section.

Temperature Increase. The latest projections, based on state-of-the art climate models, indicate that temperatures in California are expected to rise 3 to 10.5°F by the end of the century.⁹ Because greenhouse gases persist for a long time in the atmosphere, accumulate over time, and are generally well-mixed, their impact on the atmosphere cannot be tied to a specific point of emission.

⁵ Ibid.

⁶ The Montreal Protocol is an international treaty that was approved on January 1, 1989, and was designated to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for ozone depletion.

⁷ Ibid.

⁸ U.S. Environmental Protection Agency, 2015. *Black Carbon*. Website: www3.epa.gov/blackcarbon/basic.html (accessed on February 14, 2018). September.

⁹ California Climate Change Center, 2006. *Our Changing Climate. Assessing the Risks to California*. July.

Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from the following:

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- Natural processes within the climate system (i.e., changes in ocean circulation and reduction in sunlight from the addition of greenhouse gases and other gases to the atmosphere from volcanic eruptions); or
- Human activities that change the atmosphere's composition (i.e., through burning fossil fuels) and the land surface (i.e., from deforestation, reforestation, urbanization, and desertification).

The primary effect of global climate change has been a rise in the average global temperature. The impact of human activities on global climate change is readily apparent in the observational record. For example, surface temperature data show that 11 of the 12 years from 1995 to 2006 rank among the 12 warmest since 1850, the beginning of the instrumental record for global surface temperature.¹⁰ Climate change modeling shows that further warming could occur, which would induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California could include but are not limited to the following:

- The loss of sea ice and mountain snowpack resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;
- Rise in global average sea level primarily due to thermal expansion and melting of glaciers and ice caps in the Greenland and Antarctic ice sheets;
- Changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;
- Decline of the Sierra snowpack, which accounts for a significant amount of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years;
- Increase in the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high ozone areas of Los Angeles and the San Joaquin Valley by the end of the 21st century; and

¹⁰ California, State of, 2008. California Energy Commission's Public Interest Energy Research Program. *The Future is Now: An Update on Climate Change Science, Impacts, and Response Options for California*. September.

- High potential for erosion of California's coastlines and seawater intrusion into the Delta and levee systems due to the rise in sea level.

Precipitation and Water Supply. Global average precipitation is expected to increase overall during the 21st century as the result of climate change but will vary in different parts of the world. However, global climate models are generally not well-suited for predicting regional changes in precipitation because of the scale of regionally important factors (e.g., proximity of mountain ranges) that affect precipitation.¹¹

Most of California's precipitation falls in the northern part of the State during the winter. A vast network of man-made reservoirs and aqueducts capture and transport water throughout the State from northern California rivers, as the greatest demand for water comes from users in the southern part of the State during the spring and summer.¹² The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

Some models predict drier conditions and decreased water flows, while others predict wetter conditions in various parts of the world. If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, thus reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent over the next 100 years.

The extent to which various meteorological conditions will impact groundwater supply is unknown. Warmer temperatures could increase the period when water is on the ground by reducing soil freeze. However, warmer temperatures could also lead to higher evaporation or shorter rainfall seasons, shortening the recharge season. Warmer winters could increase the amount of runoff available for groundwater recharge. However, the additional runoff would occur at a time when some basins, particularly in Northern California, are being recharged at their maximum capacity.

Where precipitation is projected to increase in California, the increases are focused in Northern California. However, various California climate models provide mixed results regarding changes in total annual precipitation in the State through the end of this century; therefore, no conclusion on an increase or decrease can be made. Considerable uncertainties about the precise effects of climate change on California hydrology and water resources will remain until there is more precise and consistent information about how precipitation patterns, timing, and intensity will change.¹³

¹¹ Intergovernmental Panel on Climate Change, 2007, op. cit.

¹² California Climate Change Center, 2006, op. cit.

¹³ California, State of, 2006. Department of Water Resources. *Progress on Incorporating Climate Change into Management of California's Water Resources*. July.

The East Bay Municipal Utility District (EBMUD) supplies water to the City of Walnut Creek. EBMUD serves approximately 1.4 million customers within 332 square miles of service area.¹⁴ In July 2016, the City prepared an Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act to report EBMUD progress in implementing conservation and water recycling programs, along with efforts to secure supplemental water supply sources.¹⁵ The UWMP also includes EBMUD progress on complying with SBx7-7, the state law mandating urban water agencies to reduce water use so as to achieve a statewide reduction of 20 percent by the year 2020.

The EBMUD water supply system consists of a network of reservoirs, aqueducts, water treatment plants, pumping plants, and other distribution facilities that collect, transmit, treat, and distribute water from its primary water source, the Mokelumne River. Approximately 90 percent of the water used by EBMUD comes from the Mokelumne River watershed, located within the Sierra Nevada mountain range. EBMUD conveys water from the Pardee reservoir, located approximately 38 miles northeast of Stockton, approximately 91 miles to EBMUD water treatment plants and terminal reservoirs through the Pardee Tunnel, the Mokelumne Aqueducts, and the Lafayette Aqueducts.¹⁶

EBMUD has water rights that allow for delivery of up to 325 million gallons per day (mgd). However, this allocation may be constrained by: (1) upstream water use by prior water right holders; (2) downstream water use and other downstream obligations, including protection of public trust resources; (3) drought, or less-than-normal rainfall for more than a year; and (4) emergency shortages. EBMUD's secondary water supply source is local runoff from the East Bay area watersheds that is stored in the terminal reservoirs located within service area boundaries. The availability of water from local runoff is dependent on hydrologic conditions and terminal reservoir storage availability.¹⁷

Emissions Inventories. The emissions inventory identifies and quantifies the primary human-generated sources and sinks of greenhouse gases is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on global, United States, California, and local greenhouse gas emission inventories.

Global Emissions. Worldwide net emissions (including the effects of land use and forestry) of greenhouse gases in 2010 were 46 billion metric tons¹⁸ of CO₂e per year.¹⁹ This represents a 35 percent increase from 1990.

¹⁴ East Bay Municipal Utility District, 2018. *Service Area*. Website: www.ebmud.com/about-us/who-we-are/service-area (accessed February 14, 2018).

¹⁵ East Bay Municipal Utility District, 2016. *Urban Water Management Plan 2015*. July.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ A metric ton is equivalent to approximately 1.1 tons.

¹⁹ U.S. Environmental Protection Agency, 2017. *Inventory of U.S. Greenhouse Gas Emissions and Sinks. 1990-2015*. Available online at: www.epa.gov/sites/production/files/2017-02/documents/2017_complete_report.pdf (accessed February 14, 2018).

United States Emissions. In 2015, the United States emitted about 6.5 billion metric tons of CO₂e or about 21 metric tons per year per person. The total 2015 CO₂e emissions represent a 3.5 percent increase since 1990 but a 10 percent decrease since 2005. Of the six major sectors nationwide – residential, commercial, agricultural, industry, transportation, and electricity generation – electricity generation accounts for the highest amount of greenhouse gas emissions (approximately 29 percent), with transportation second at 27 percent; these emissions are generated entirely from direct fossil fuel combustion.²⁰

State of California Emissions. The CARB is responsible for developing the California Greenhouse Gas Emission Inventory. This inventory estimates the amount of greenhouse gases emitted to and removed from the atmosphere by human activities within the State and supports the Assembly Bill 32 (AB 32) Climate Change Program.

According to CARB emission inventory estimates, California emitted approximately 441.5 million metric tons of CO₂e emissions in 2014.²¹ This represents an overall decrease of 9.4 percent since peak levels in 2004. During the 2000 to 2014 period, per capita greenhouse gas emissions in California have continued to drop from a peak in 2001 of 13.9 metric tons per person to 11.4 metric tons per person in 2014, which is an 18 percent decrease.²² Overall trends in the inventory also demonstrate that the carbon intensity of California’s economy (the amount of carbon pollution per million dollars of gross domestic product (GDP)) is declining, representing a 28 percent decline since the 2001 peak, while the state’s GDP has grown 28 percent during this period.²³

California greenhouse gas emissions from the transportation sector—still the State’s largest single source of greenhouse gases, contributing 36 percent of total emissions—grew by 1 percent in 2014, although emissions from this sector are still 13 percent lower than peak levels in 2005.²⁴ The CARB attributes much of this decrease to the growing Statewide fleet of fuel-efficient vehicles—the hybrid vehicle market share increased in 2012 to 7.4 percent from the 2011 level of 5.4 percent.²⁵

CARB staff has projected 2020 unregulated greenhouse gas emissions, which represent the emissions that would be expected to occur in the absence of any greenhouse gas reduction actions, would be 507 million metric tons (MMT) of CO₂e.²⁶ The total emissions are lower than originally forecast (596 MMT) in the AB 32 Scoping Plan to account for new estimates for future fuel and energy demand and accounting for the recent economic recession.

²⁰ Ibid.

²¹ California Air Resources Board, 2014. *Greenhouse Gas Inventory Data for 2000–2014*. Website: www.arb.ca.gov/cc/inventory/data/data.htm (accessed February 14, 2018).

²² Ibid.

²³ Ibid.

²⁴ Ibid.

²⁵ Ibid.

²⁶ California Air Resources Board, 2013. *Greenhouse Gas Inventory: 2020 Emissions Forecast*. Website: www.arb.ca.gov/cc/inventory/data/bau.htm (accessed February 14, 2018).

Greenhouse gas emissions in 2020 from the transportation sector as a whole are expected to increase to 184 MMT of CO₂e (2012 inventory is 167 MMT of CO₂e). The industrial sector consists of large stationary sources of greenhouse gas emissions and includes oil and gas production and refining facilities, cement plants, and large manufacturing facilities. Emissions for this sector are forecast to grow to 91.5 MMT of CO₂e by 2020, an increase of approximately 3 percent from the 2012 emissions inventory level. The commercial and residential sectors are expected to contribute 45.3 MMT of CO₂e, or about 9 percent of the total Statewide greenhouse gas emissions in 2020.²⁷

San Francisco Bay Area Emissions. The BAAQMD established a climate protection program in 2005 to acknowledge the link between climate change and air quality. The BAAQMD regularly prepares inventories of criteria and toxic air pollutants to support planning, regulatory and other programs. The most recent emissions inventory estimates greenhouse gas emissions produced by the San Francisco Bay Area in 2011.²⁸ The inventory, which was published January 2015, updates the BAAQMD's previous greenhouse gas emission inventory for base year 2007.

In 2011, 86.6 million metric tons of CO₂e of greenhouse gases were emitted by the San Francisco Bay Area. Fossil fuel consumption in the transportation sector was the single largest source of the San Francisco Bay Area's greenhouse gas emissions in 2011. The transportation sector (including on-road motor vehicles, locomotives, ships and boats, and aircraft) contributed 39.7 percent of greenhouse gas emissions and the industrial and commercial sectors (excluding electricity and agriculture) contributed 35.7 percent of greenhouse gas emissions in the Bay Area. Energy production activities such as electricity generation and co-generation were the third largest contributor with approximately 14 percent of the total greenhouse gas emissions. Off-road equipment such as construction, industrial, commercial, and lawn and garden equipment contributed 1.5 percent of greenhouse gas emissions.

In addition, the BAAQMD collaborated with the Cool Climate Network at UC Berkeley to develop a consumption-based inventory of greenhouse gas emissions for the San Francisco Bay Area, including the City of Walnut Creek. The consumption-based inventory is intended to supplement and complement the BAAQMD's production-based inventory of greenhouse gases that are emitted within the geographic boundaries of the BAAQMD. The consumption-based inventory found that the carbon footprint of the average San Francisco Bay Area household is approximately 44.3 metric tons of CO₂e, which includes 14.6 tons (33 percent) from transportation sources, 5.8 tons (13 percent) from housing, 8.5 tons (19 percent) from food, 8.0 tons (18 percent) from goods, and 7.9 tons (18 percent) from services.²⁹

City of Walnut Creek Emissions. The City of Walnut Creek developed a baseline greenhouse gas emissions inventory for both community-wide and government facilities and activities for the

²⁷ Ibid.

²⁸ Bay Area Air Quality Management District, 2015. *Source Inventory of Bay Area Greenhouse Gas Emissions*. January.

²⁹ Jones, Christopher M; Kammen, Daniel M, 2015. *A Consumption-Based Greenhouse Gas Inventory of San Francisco Bay Area Neighborhoods, Cities and Counties: Prioritizing Climate Action for Different Locations*. December 15.

year 2005. This baseline is used to measure progress as the City works to reduce greenhouse gas emissions by implementing their Climate Action Plan. [Table 4.4.B](#) below identifies the sources of emissions from communitywide activities. In 2005, the City emitted 643,596 metric tons of CO₂e, most of which were from the transportation sector (59 percent), residential energy use (18 percent), and commercial/industrial energy use (18 percent).

Table 4.4.B: 2005 Greenhouse Gas Emissions Inventory

Source	Metric Tons CO ₂ e	Percent Greenhouse Gas Emissions
Residential	117,868	18
Commercial/Industrial	117,312	18
Transportation – Highway	174,369	27
Transportation – Local Road	202,936	32
Waste	9,892	2
Water	6,736	1
Off-Road	12,293	2
BART	2,191	>1
Total	643,596	100

Source: City of Walnut Creek (2012).

Note: Calculated totals may differ from shown totals due to rounding.

In addition, as discussed above, the BAAQMD collaborated with the Cool Climate Network at UC Berkeley to develop a consumption-based inventory of greenhouse gas emissions for the San Francisco Bay Area, including the City of Walnut Creek. The consumption-based inventory found that the carbon footprint of the average household in Walnut Creek is approximately 46.0 metric tons of CO₂e, which includes 11.8 tons (26 percent) from transportation sources, 5.9 tons (13 percent) from housing, 8.1 tons (18 percent) from food, 9.4 tons (20 percent) from goods, and 10.8 tons (23 percent) from services.³⁰

4.4.1.2 Regulatory Framework

This section describes regulations related to greenhouse gas emissions at the federal, State, and local level.

Federal Regulations. The United States has historically had a voluntary approach to reducing greenhouse gas emissions. However, on April 2, 2007, the United States Supreme Court ruled that the U.S. Environmental Protection Agency (USEPA) has the authority to regulate CO₂ emissions under the federal Clean Air Act. While there currently are no adopted federal regulations for the control or reduction of greenhouse gas emissions, the USEPA commenced several actions in 2009 to implement a regulatory approach to global climate change.

This includes the 2009 USEPA final rule for mandatory reporting of greenhouse gases from large greenhouse gas emission sources in the United States. Additionally, the USEPA Administrator signed an endangerment finding action in 2009 under the Clean Air Act, finding that six greenhouse gases (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆) constitute a threat to public health and welfare, and that the

³⁰ Ibid.

combined emissions from motor vehicles cause and contribute to global climate change, leading to national greenhouse gas emission standards.

State Regulations. The CARB is the lead agency for implementing climate change regulations in the State. Since its formation, the CARB has worked with the public, the business sector, and local governments to find solutions to California's air pollution problems. Key efforts by the State are described below.

Assembly Bill 1493 (2002). In a response to the transportation sector's significant contribution to California's CO₂ emissions, Assembly Bill 1493 (AB 1493) was enacted on July 22, 2002. AB 1493 requires the CARB to set greenhouse gas emission standards for passenger vehicles and light duty trucks (and other vehicles whose primary use is noncommercial personal transportation in the State) manufactured in 2009 and all subsequent model years. These standards (starting in model years 2009 to 2016) were approved by the CARB in 2004, but the needed waiver of CAA Preemption was not granted by the U.S. EPA until June 30, 2009. The CARB responded by amending its original regulation, now referred to as Low Emission Vehicle III, to take effect for model years starting in 2017 to 2025.

Executive Order S-3-05 (2005). Governor Arnold Schwarzenegger signed Executive Order S-3-05 on June 1, 2005, which proclaimed that California is vulnerable to the impacts of climate change. To combat those concerns, the executive order established California's greenhouse gas emissions reduction targets, which established the following goals:

- Greenhouse gas emissions should be reduced to 2000 levels by 2010;
- Greenhouse gas emissions should be reduced to 1990 levels by 2020; and
- Greenhouse gas emissions should be reduced to 80 percent below 1990 levels by 2050.

The Secretary of the California Environmental Protection Agency (CalEPA) is required to coordinate efforts of various State agencies in order to collectively and efficiently reduce greenhouse gases. A biannual progress report must be submitted to the Governor and State Legislature disclosing the progress made toward greenhouse emission reduction targets. In addition, another biannual report must be submitted illustrating the impacts of global warming on California's water supply, public health, agriculture, the coastline, and forestry, and report possible mitigation and adaptation plans to address these impacts.

The Secretary of CalEPA leads this Climate Action Team (CAT) made up of representatives from State agencies as well as numerous other boards and departments. The CAT members work to coordinate Statewide efforts to implement global warming emission reduction programs and the State's Climate Adaptation Strategy. The CAT is also responsible for reporting on the progress made toward meeting the Statewide greenhouse gas targets that were established in the executive order and further defined under AB 32, the "Global Warming Solutions Act of 2006." The first CAT Report to the Governor and the Legislature was released in March 2006, which it laid out 46 specific emission reduction strategies for reducing greenhouse gas emissions

and reaching the targets established in the Executive Order. The CAT Report to the Governor and Legislature; the most recent was released in December 2010.

Assembly Bill 32 (2006), California Global Warming Solutions Act. California's major initiative for reducing greenhouse gas emissions is AB 32, passed by the State legislature on August 31, 2006. This effort aims at reducing greenhouse gas emissions to 1990 levels by 2020. The CARB has established the level of greenhouse gas emissions in 1990 at 427 MMT CO₂e. The emissions target of 427 MMT requires the reduction of 169 MMT from the State's projected business-as-usual 2020 emissions of 596 MMT. AB 32 requires the CARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce greenhouse gases that contribute to global climate change. The Scoping Plan was approved by the CARB on December 11, 2008, and contains the main strategies California will implement to achieve the reduction of approximately 169 MMT of CO₂e, or approximately 30 percent, from the State's projected 2020 emission level of 596 MMT of CO₂e under a business-as-usual scenario (this is a reduction of 42 MMT CO₂e, or almost 10 percent from 2002-2004 average emissions). The Scoping Plan also includes CARB-recommended greenhouse gas reductions for each emissions sector of the State's greenhouse gas inventory. The Scoping Plan calls for the largest reductions in greenhouse gas emissions to be achieved by implementing the following measures and standards:

- Improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO₂e);
- The Low-Carbon Fuel Standard (15.0 MMT CO₂e);
- Energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO₂e); and
- A renewable portfolio standard for electricity production (21.3 MMT CO₂e).

The Scoping Plan identifies 18 emission reduction measures that address cap-and-trade programs, vehicle gas standards, energy efficiency, low carbon fuel standards, renewable energy, regional transportation-related greenhouse gas targets, vehicle efficiency measures, goods movement, solar roof programs, industrial emissions, high speed rail, green building strategies, recycling, sustainable forests, water, and air. The measures would result in a total reduction of 174 MMT CO₂e by 2020.

On August 24, 2011, the CARB unanimously approved both the new supplemental assessment and reapproved its Scoping Plan, which provides the overall roadmap and rule measures to carry out AB 32. The CARB also approved a more robust CEQA equivalent document supporting the supplemental analysis of the cap-and-trade program. The cap-and-trade took effect on January 1, 2012, with an enforceable compliance obligation that began January 1, 2013.

CARB has not yet determined what amount of greenhouse gas reductions it recommends from local government operations and local land use decisions; however, the Scoping Plan states that land use planning and urban growth decisions will play an important role in the State's

greenhouse gas reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions (meanwhile, CARB is also developing an additional protocol for community emissions). CARB further acknowledges that decisions on how land is used will have large impacts on the greenhouse gas emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The Scoping Plan states that the ultimate greenhouse gas reduction assignment to local government operations is to be determined. With regard to land use planning, the Scoping Plan expects an approximately 5.0 MMT CO₂e reduction due to implementation of Senate Bill 375 (SB 375).

In addition to reducing greenhouse gas emissions to 1990 levels by 2020, AB 32 directed the CARB and the CAT to identify a list of “discrete early action greenhouse gas reduction measures” that could be adopted and made enforceable by January 1, 2010. On January 18, 2007, Governor Schwarzenegger signed Executive Order S-1-07, further solidifying California’s dedication to reducing greenhouse gases by setting a new Low Carbon Fuel Standard. The Executive Order sets a target to reduce the carbon intensity of California transportation fuels by at least 10 percent by 2020 and directs the CARB to consider the Low Carbon Fuel Standard as a discrete early action measure. In 2011, U.S. District Court Judge Lawrence O’Neil issued an injunction preventing implementation of the Low Carbon Fuel Standard, ruling that it is unconstitutional. In 2012, the Ninth Circuit Court of Appeal stayed the District Court’s injunction, allowing implementation of the Low Carbon Fuel Standard. The Ninth Circuit decided to uphold the Low Carbon Fuel Standard.

In June 2007, the CARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on GWP Refrigerants, and Landfill CH₄ Capture).³¹ Discrete early action measures are measures that were required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code Section 38560.5. The CARB adopted additional early action measures in October 2007 that tripled the number of discrete early action measures. These measures relate to truck efficiency, port electrification, reduction of PFCs from the semiconductor industry, reduction of propellants in consumer products, proper tire inflation, and SF₆ reductions from the non-electricity sector. The combination of early action measures is estimated to reduce Statewide greenhouse gas emissions by nearly 16 MMT.³²

The CARB approved the First Update to the Climate Change Scoping Plan on May 22, 2014. The First Update identifies opportunities to leverage existing and new funds to further drive greenhouse gas emission reductions through strategic planning and targeted low carbon investments. The First Update defines CARB climate change priorities until 2020, and also sets the groundwork to reach long-term goals set forth in Executive Orders S-3-05 and B-16-2012. The Update highlights California’s progress toward meeting the “near-term” 2020 greenhouse gas emission reduction goals as defined in the initial Scoping Plan. It also evaluates how to align

³¹ California Air Resources Board, 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. October.

³² California Air Resources Board, 2007. “ARB approves tripling of early action measures required under AB 32” News Release 07-46. October 25.

the State's "longer-term" greenhouse gas reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use. CARB released a second update to the Scoping Plan, the 2017 Scoping Plan,³³ to reflect the 2030 target set by Executive Order B-30-15 and codified by Senate Bill 32 (SB 32).

Senate Bill 97 (2007). Senate Bill 97 (SB 97), signed by the Governor in August 2007 (Chapter 185, Statutes of 2007; Public Resources Code, Sections 21083.05 and 21097), acknowledges climate change is a prominent environmental issue that requires analysis under CEQA. This bill directed the OPR to prepare, develop, and transmit to the California Resources Agency guidelines for mitigating greenhouse gas emissions or the effects of greenhouse gas emissions, as required by CEQA.

The California Natural Resources Agency adopted the amendments to the CEQA Guidelines in January 2010, which went into effect in March 2010. The amendments do not identify a threshold of significance for greenhouse gas emissions, nor do they prescribe assessment methodologies or specific mitigation measures. The amendments encourage lead agencies to consider many factors in performing a CEQA analysis, but preserve the discretion granted by CEQA to lead agencies in making their own determinations based on substantial evidence. The amendments also encourage public agencies to make use of programmatic mitigation plans and programs when they perform individual project analyses.

Senate Bill 375 (2008). Signed into law on October 1, 2008, SB 375 supplements greenhouse gas reductions from new vehicle technology and fuel standards with reductions from more efficient land use patterns and improved transportation. Under the law, the CARB approved greenhouse gas reduction targets in February 2011 for California's 18 federally designated regional planning bodies, known as Metropolitan Planning Organizations (MPOs). The CARB may update the targets every four years and must update them every eight years. MPOs in turn must demonstrate how their plans, policies and transportation investments meet the targets set by the CARB through Sustainable Community Strategies (SCS). The SCS are included with the Regional Transportation Plan (RTP), a report required by State law. However, if an MPO finds that their SCS will not meet the greenhouse gas reduction target, they may prepare an Alternative Planning Strategy (APS). The APS identifies the impediments to achieving the targets.

Executive Order B-30-15 (2015). Governor Jerry Brown signed Executive Order B-30-15 on April 29, 2015, which added the immediate target of:

- Greenhouse gas emissions should be reduced to 40 percent below 1990 levels.

All State agencies with jurisdiction over sources of greenhouse gas emissions were directed to implement measures to achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 targets. CARB was directed to update the AB 32 Scoping Plan to reflect the 2030 target, and therefore, is moving forward with the update process. The mid-term target is critical to help frame the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure needed to continue reducing emissions.

³³ California Air Resources Board, 2017. *California's 2017 Climate Change Scoping Plan*. November.

Senate Bill 350 (2015) Clean Energy and Pollution Reduction Act. Senate Bill 350 (SB 350), signed by Governor Jerry Brown on October 7, 2015, updates and enhances AB 32 by introducing the following set of objectives in clean energy, clean air, and pollution reduction for 2030:

- Raise California’s renewable portfolio standard from 33 percent to 50 percent; and
- Increasing energy efficiency in buildings by 50 percent by the year 2030.

The 50 percent renewable energy standard will be implemented by the California Public Utilities Commission for the private utilities and by the California Energy Commission for municipal utilities. Each utility must submit a procurement plan showing it will purchase clean energy to displace other non-renewable resources. The 50 percent increase in energy efficiency in buildings must be achieved through the use of existing energy efficiency retrofit funding and regulatory tools already available to state energy agencies under existing law. The addition made by this legislation requires state energy agencies to plan for, and implement those programs in a manner that achieves the energy efficiency target.

Senate Bill 32, California Global Warming Solutions Act of 2016, and Assembly Bill 197. In summer 2016 the Legislature passed, and the Governor signed, SB 32, and Assembly Bill 197 (AB 197). SB 32 affirms the importance of addressing climate change by codifying into statute the greenhouse gas emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in Governor Brown’s April 2015 Executive Order B-30-15. 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, consistent with an Intergovernmental Panel on Climate Change (IPCC) analysis of the emissions trajectory that would stabilize atmospheric greenhouse gas concentrations at 450 parts per million CO₂e and reduce the likelihood of catastrophic impacts from climate change.

The companion bill to SB 32, AB 197, provides additional direction to CARB related to the adoption of strategies to reduce greenhouse gas emissions. Additional direction in AB 197 meant to provide easier public access to air emissions data that are collected by CARB was posted in December 2016.

Bay Area Air Quality Management District. The BAAQMD is the regional government agency that regulates sources of air pollution within the nine San Francisco Bay Area counties. The BAAQMD regulates greenhouse gas emissions through the following plans, programs, and guidelines.

Clean Air Plans. The Clean Air Plan guides the region’s air quality planning efforts to attain the California Air Resources Board California Ambient Air Quality Standards (CAAQS). The BAAQMD 2017 Clean Air Plan, which was adopted on April 19, 2017 by the BAAQMD Board of Directors, is the current Clean Air Plan which contains district-wide control measures to reduce ozone precursor emissions (i.e., reactive organic gases [ROG] and nitrogen oxide [NO_x]), particulate matter and greenhouse gas emissions.

The Bay Area 2017 Clean Air Plan:

- Describes the BAAQMD’s plan towards attaining all State and federal air quality standards and eliminating health risk disparities from exposure to air pollution among bay area communities;
- Defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious greenhouse gas reduction targets for 2030 and 2050;
- Provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve greenhouse gas reduction targets; and
- Includes a wide range of control measures designed to decrease emissions of air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of methane and other “Super Greenhouse Gases” that are potent climate pollutants in the near term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

BAAQMD Climate Protection Program. The BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the San Francisco Bay Area Air Basin. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy, all of which assist in reducing emissions of greenhouse gas and in reducing air pollutants that affect the health of residents. BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

BAAQMD CEQA Air Quality Guidelines. The BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. They also include recommended assessment methodologies for air toxics, odors, and greenhouse gas emissions.

In June 2010, BAAQMD adopted updated draft CEQA Air Quality Guidelines and finalized them in May 2011. These guidelines superseded previously adopted agency air quality guidelines of 1999 and were intended to advise lead agencies on how to evaluate potential air quality impacts.

In May 2017, the BAAQMD published an updated version of the CEQA Guidelines. The 2017 CEQA Guidelines include thresholds to evaluate project impacts in order to protectively evaluate the potential effects of the project on air quality. These protective thresholds are appropriate in the context of the size, scale, and location of the project.

Under the CEQA Air Quality Guidelines, a local government may prepare a Qualified Greenhouse Gas Reduction Strategy that is consistent with AB 32 goals. If a project is consistent with an adopted qualified Greenhouse Gas Reduction Strategy and General Plan that addresses the project's greenhouse gas emissions, it can be presumed that the project will not have significant greenhouse gas emissions under CEQA. The CEQA Air Quality Guidelines also included a quantitative threshold for project level analyses based on estimated greenhouse emissions as well as per capita metrics.

City of Walnut Creek General Plan. The City of Walnut Creek General Plan³⁴ addresses greenhouse gas in Chapter 4, Built Environment. The Built Environment chapter aims to reduce greenhouse gas emissions through promoting green development and promoting energy, water, and waste conservation. The following policies and actions from the Built Environment chapter would be applicable to the Specific Plan.

Built Environment

- **Goal 27: Promote “green” development and redevelopment.**
 - Policy 27.1: Encourage resource-efficient building techniques, materials, and technologies in new construction and renovation.
- **Goal 28: Promote energy conservation.**
 - Policy 28.2: Promote energy conservation throughout the City.
 - Action 28.2.1: Adopt residential and commercial energy-conservation ordinances.
 - Action 28.2.2. Adopt a solar-access ordinance.
 - Action 28.2.3. Develop incentives to help small businesses become more energy efficient.
 - Action 28.2.4: Develop incentives for new development or substantial redevelopment to incorporate energy conservation.
- **Goal 29: Promote water conservation.**
 - Policy 29.2: Promote water conservation throughout the community.
 - Action 29.2.1: Explore possibilities for safe and effective use of reclaimed or recycled water consistent with State law.
 - Action 29.2.3: Encourage water use consistent with the City's adopted water-conservation guidelines.

³⁴ Walnut Creek, City of, 2006. *Walnut Creek General Plan 2025*. April 4.

- Action 29.2.4: Follow existing standards and guidelines for water-conserving landscaping, and encourage the planting of native and drought-tolerant plants.
- **Goal 30: Meet or exceed state goals for source reduction and waste reduction.**
 - Policy 30.2: Promote source reduction and recycling throughout the community.
 - Action 30.2.5: Develop size, location, and design standards for commercial and multifamily trash and recycling facilities and enclosures.
 - Action 30.2.7: Require the recycling of construction waste for all City and private projects.
 - Policy 30.3: Provide opportunities for residents and businesses to divert organic waste from landfill disposal.
- **Goal 31: Strive to meet State and federal air-quality standards for the region.**
 - Policy 31.1: Work with the Bay Area Air Quality Management District (BAAQMD) and the County in promoting better air quality.
 - Action 31.1.1: Support local transportation control measures (TCMs) and other ideas in the latest Bay Area Clean Air Plan.
 - Action 31.1.2: Develop a local, voluntary Clean Air Plan.
 - Action 31.1.3: Participate in the BAAQMD Spare the Air program.
 - Policy 31.2: Consider additional land use and development criteria, standards, and decisions that have positive impacts on air quality and quality of life in general.
 - Action 31.2.1: Review parking lot landscaping requirements to ensure adequate width and depth to allow for appropriate tree canopy.
 - Action 31.2.2: Investigate policies that promote cleaner air, such as commercial reflective roofing ordinances.
 - Action 31.2.3: Promote residential development and redevelopment opportunities near transit and commercial centers, and encourage walking, bicycling, and transit use.
 - Policy 31.3: Proactively manage local air quality issues.
 - Action 31.3.1: Control emission of dust from construction sites.
 - Action 31.3.3: Provide buffers between identified stationary sources of odors and sensitive land uses.

- Action 31.3.4: Projects that locate new sensitive receptors (facilities or land uses such as hospitals, day care centers, schools and residences that are occupied for substantial amounts of time by members of the population particularly sensitive to the effects of air pollutants, such as children, the elderly and people with illnesses) proposed within 500 feet from the edge of the closest travel lane of Interstate 680 (I-680) or Highway 24 should include an analysis of mobile source toxic air contaminant health risks, based on appropriate air dispersion modeling. Project review should include an evaluation of the adequacy of the setback from the highway, and, if necessary, identify design mitigation measures to reduce health risks to acceptable levels.
- **Goal 32: Meet or exceed State and federal water-quality standards.**
 - Policy 32.1: Support regional, State, and federal clean water efforts.
 - Action 32.1.1: Implement the Stormwater Management Plan.
 - Action 32.1.2: Enforce the National Pollution Discharge Elimination System (NPDES) permit regulations.
 - Action 32.1.3: Seek Regional Water Quality Control Board NPDES exemptions for low- and moderate-income housing and transit village projects.
 - Action 32.1.5: Prepare information-and-action handouts on water-quality best-management practices and provide this information with project application packets.
 - Policy 32.2: In redevelopment projects in the Core Area, evaluate the desirability of specific, off-site, source-control measures.
 - Policy 32.3: Maximize infiltration of rain-water into the soil, where appropriate.
 - Action 32.3.1: Reduce the amount of impervious surfaces in new development and redevelopment. (See Safety and Noise Action 2.1.1.)
 - Action 32.3.2: Require that impervious surfaces not drain directly into storm drains. (See Safety and Noise Action 2.1.1.)
 - Policy 32.4: Reduce the transport of urban runoff and surface pollutants offsite.
 - Action 32.4.1: Verify the effectiveness of stormwater treatment facilities.

City of Walnut Creek Climate Action Plan. The City of Walnut Creek's Climate Action Plan (CAP) was adopted April 2012.³⁵ The City of Walnut Creek's CAP meets the BAAQMD requirements for a Qualified Greenhouse Gas Reduction Strategy. The CAP serves as an ongoing planning process that

³⁵ Walnut Creek, City of, 2012. *City of Walnut Creek Climate Action Plan*. April.

assesses, prepares, and mitigates to climate change. The CAP also identifies how the City will achieve its greenhouse gas reduction target. The CAP provides goal and associated measures, also referred to as climate change mitigation measures, in the sectors of energy use, transportation, land use, and solid waste. The CAP includes the following goals.

Energy Use and Efficiency

- **Goal 1: Increase energy efficiency and conservation efforts.**
- **Goal 2: Promote and support renewable energy generation and use.**
- **Goal 3: Facilitate green building and design.**
- **Goal 4: Reduce energy use through increased water conservation.**

Transportation and Land Use

- **Goal 1: Reduce greenhouse gas emissions through use of alternative vehicles, trip reduction and consolidation, and efficient traffic flow.**
- **Goal 2: Reduce vehicle miles traveled through smart land use and design.**
- **Goal 3: Convert vehicular trips to non-vehicular or transit trips.**

Waste Reduction

- **Goal 1: Implement a zero waste policy to reduce waste sent to the landfill.**

Environmentally Preferred Purchasing

- **Goal 1: Investigate promoting the purchase of local goods and services.**
- **Goal 2: Encourage residents in green lifestyles.**

4.4.2 Impacts and Mitigation Measures

The following section presents a discussion of the impacts related to greenhouse gas emissions that could result from implementation of the proposed Specific Plan.

A single project typically does not generate a sufficient quantity of greenhouse gas emissions to affect global climate change; therefore, the global climate change impacts of the proposed project are discussed in the context of cumulative impacts, following the approach recommended by the BAAQMD. Therefore, this section begins by establishing the thresholds to determine whether an impact is significant. The latter part of this section identifies greenhouse gas emissions associated with existing operations within the project area and evaluates the greenhouse gas emissions expected to result from the project and the recommended feasible mitigation measures, if required.

4.4.2.1 Criteria of Significance

The project would have a significant impact to greenhouse gas emissions if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Section 15064.4 of the CEQA Guidelines states that: “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 greenhouse gas 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 greenhouse gas emissions as 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 greenhouse gas emissions.

According to the BAAQMD CEQA Guidelines, if a project is consistent with an adopted qualified Greenhouse Gas Reduction Strategy that meets the standards, it can be presumed that the project will not have significant greenhouse gas emission impacts. This approach is consistent with the State CEQA Guidelines, Section 15183.5, and will be used in this analysis.

City of Walnut Creek’s CAP meets the BAAQMD requirements for a Qualified Greenhouse Gas Reduction Strategy. Therefore, the Specific Plan’s greenhouse gas emissions would not be considered a significant impact if the Specific Plan would be consistent with the City’s CAP.

4.4.2.2 Project Impacts

The following section describes potential impacts to greenhouse gas emissions associated with implementation of the Specific Plan.

Construction Impacts. Greenhouse gas emissions associated with the Specific Plan would occur over the short term from demolition and construction activities, consisting primarily of emissions from equipment exhaust. In determining the potential significance from such activities, it is important to note the BAAQMD has not established quantified construction greenhouse gas emissions threshold. The BAAQMD recommends that greenhouse gas emissions are quantified and lead agencies are encouraged to incorporate best management practices to reduce greenhouse gas emissions during construction, as feasible and applicable.³⁶

³⁶ Bay Area Air Quality Management District, 2017, op. cit.

Demolition and construction activities from projects associated with the proposed Specific Plan would produce combustion emissions from various sources. During demolition and construction, greenhouse gas emissions would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates greenhouse gases such as CO₂, CH₄, and N₂O. Furthermore, CH₄ is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

Impact GHG-1: Construction of proposed projects associated with the Specific Plan would produce substantial greenhouse gas emissions. (S)

The Specific Plan's impacts would be considered significant and in conflict with the City's CAP if projects associated with the Specific Plan do not incorporate all feasible measures to reduce greenhouse gas emissions during construction activities. Mitigation Measures GHG-1a and GHG-1b would require projects associated with the Specific Plan to implement all feasible measures recommended by the BAAQMD to reduce construction-related greenhouse gas emissions.

Mitigation Measure GHG-1a: Implement Mitigation Measure AIR-1.

Mitigation Measure GHG-1b: Project contractors shall ensure the following measures are implemented through all construction contracts and specifications for projects associated with the proposed Specific Plan:

- The idling time of diesel powered construction equipment shall be minimized to 2 minutes.
- Low volatile organic compounds (i.e., reactive organic gases) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings) shall be used.
- All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of nitrogen oxide (NO_x) and particulate matter.
- All contractors shall use equipment that meets the most recent CARB certification standard for off-road heavy-duty diesel engines.
- The project contractor shall use construction equipment that utilizes cleaner fuel and equipment, including equipment upgrades and/or equipment that uses renewable electricity and fuels.

- The project contractor shall prepare a waste plan prior to the issuance of building permits. The waste plan should show that it complies with State and local law and appropriate agencies should review the waste plan prior to approval. (LTS)

Implementation of Mitigation Measure GHG-1a and GHG 1b would incorporate all feasible means to reduce greenhouse gas emissions during construction of projects associated with the proposed Specific Plan to the extent feasible. Therefore, the proposed Specific Plan's construction-related impacts associated with greenhouse gas emissions would be considered less than significant.

Operational Emission Impacts. Long-term operation of the proposed Specific Plan would generate greenhouse gas emissions from area and mobile sources as well as indirect emissions from sources associated with energy consumption. Mobile-source greenhouse gas emissions would include Specific Plan-generated vehicle trips associated with resident, employee, and visitor trips to the Plan Area. Area-source emissions would be associated with consumption of natural gas and electricity and activities such as landscaping and maintenance of proposed land uses.

Impact GHG-2: Long-term operation of the projects associated with the Specific Plan could generate substantial greenhouse gas emissions from area and mobile sources as well as indirect emissions from sources associated with energy consumption, potentially in conflict with the City's Climate Action Plan. (S)

As discussed above, the City has an adopted CAP, which meets the BAAQMD requirements for a Qualified Greenhouse Gas Reduction Strategy. Therefore, the Specific Plan's greenhouse gas emissions would not be considered a significant impact if the Specific Plan is consistent with the City's CAP. Proposed projects may use the CAP as a performance-based threshold of significance for greenhouse gas emissions by demonstrating compliance with the CAP goals, measures, and actions. The Specific Plan's consistency with the relevant Citywide CAP strategies is provided in Table 4.4.C.

As demonstrated in Table 4.4.C, the Specific Plan's consistency with many of the CAP measures would be determined by design decisions that are currently not available at this Specific Plan level. Implementation of Mitigation Measure GHG-2 would ensure the proposed Specific Plan incorporates design features consistent with the applicable policies of the City's CAP.

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Table 4.4.C: Consistency with Climate Action Plan Measures

Measure	Description	Metric Tons CO ₂ e	Compliance	Discussion
Energy Use				
EU 1.1: Residential Energy Conservation Program	Create a Residential Energy Conservation Program in partnership with business and real estate stakeholders that leverages financial incentives, local partnerships, and education for voluntary home energy efficiency improvements, with a target of achieving an average 20 percent in energy savings for 6 percent of the existing housing stock by 2015, 13 percent of the existing housing stock by 2020, and 27 percent by 2030.	-10,568	Complies	<p>Specific Plan Policy IF 1.6 supports the application of renewable energy technologies and sustainable energy sources to promote energy conservation, as well as recommends that when installing new public energy infrastructure, use energy efficient models and systems whenever possible, incorporating new technologies as they become available. As stated under Specific Plan Policy IF 1.5, projects proposed under the Specific Plan are required to coordinate with the appropriate agency to provide electric and gas service to the proposed site.</p> <p>In addition, the Specific Plan encourages projects to design high-performance buildings consistent with either of the following criteria:</p> <ul style="list-style-type: none"> • LEED Certified to at least the Gold level for non-residential, mixed-use, or residential buildings; or • GreenPoint Rated with at least 75 points for residential buildings. <p>The Specific Plan would also include air, light, and privacy guidelines for multifamily residential development relating to solar orientation, building separation, operable windows, window orientation, ground-floor unit windows, glazing transparency, outdoor space screening, noise considerations for operable windows, and absorptive surfaces to limit reverberation.</p>

Table 4.4.C: Consistency with Climate Action Plan Measures

Measure	Description	Metric Tons CO ₂ e	Compliance	Discussion
EU 1.2: Commercial Energy Conservation Program	Work with the stakeholders, and PG&E to develop a voluntary Commercial Energy Conservation Program for highly collaborative, incentive-based energy efficiency efforts, with a target of achieving an average of 25 percent energy savings for 360 businesses by 2015, 600 by 2020, and 800 by 2030.	-5,807	Complies	<p>Specific Plan Policy IF 1.6 supports the application of renewable energy technologies and sustainable energy sources to promote energy conservation, as well as recommends that when installing new public energy infrastructure, use energy efficient models and systems whenever possible, incorporating new technologies as they become available. As stated under Specific Plan Policy IF 1.5, projects proposed under the Specific Plan are required to coordinate with the appropriate agency to provide electric and gas service to the proposed site.</p> <p>In addition, the Specific Plan encourages projects to design high-performance buildings consistent with either of the following criteria:</p> <ul style="list-style-type: none"> • LEED Certified to at least the Gold level for non-residential, mixed-use, or residential buildings; or • GreenPoint Rated with at least 75 points for residential buildings.
EU 1.3: Public Outreach	Work with partners to educate and inform the community about ways to improve energy efficiency, including behavioral changes, appliance purchases and rebates, maintenance practices, and more.	-131	Complies with implementation of Mitigation Measure GHG-2	The Specific Plan does not currently provide sufficient detail to demonstrate whether the Specific Plan would include policies related to public outreach. To the extent deemed feasible by the City Planning Division, the Specific Plan would be reviewed to determine whether public outreach policies would be included in the Specific Plan prior to approval.

Table 4.4.C: Consistency with Climate Action Plan Measures

Measure	Description	Metric Tons CO ₂ e	Compliance	Discussion
EU 2.1: Renewable Energy Strategy	Develop a renewable energy strategy that facilitates installation of residential solar energy systems through streamlined permit procedures, adoption of local incentives, fee waivers, and potential for a municipal finance district program that provides a low-risk option for property owners to invest in on-site renewable energy installations.	-10,572	Complies	<p>Projects allowed under the Specific Plan would be required to comply with the latest CALGreen standard building measures and Title 24 standards. Policies 5.11, 5.12, and 5.13 relate to green building. Policy 5.11 encourages the use of sustainable design features such as rooftop photovoltaic generation and passive solar water heating. Policy 5.12 encourages the use of solar reflective roofing and green roofs to reduce overall building energy and manage stormwater runoff. Policy 5.13 recommends utilizing high-quality, durable finishing materials such as concrete, steel, stone, hardwood, and glass and discourages the use of low quality materials such as T1-11 siding and spray stucco are discouraged.</p> <p>The City has MCE as the default electricity provider, which would contribute to a reduction in greenhouse gas emissions as MCE continues to reduce its CO₂ intensity factor and increase its renewable energy sources. The use of MCE provided power would reduce greenhouse gas emissions for individual projects developed under the Specific Plan. In addition, individual projects that utilize MCE's Deep Green 100 percent renewable option would eliminate greenhouse gas emissions.</p> <p>Specific Plan Policy IF 1.6 supports the application of renewable energy technologies and sustainable energy sources to promote energy conservation, as well as recommends that when installing new public energy infrastructure, energy efficient models and systems should be used whenever possible, and should incorporate new technologies as they become available. As stated under Specific Plan Policy IF 1.5, projects proposed under the Specific Plan are required to coordinate with the appropriate agency to provide electric and gas service to the proposed site.</p> <p>In addition, the California Energy Commission (CEC) 2019 Energy Code would require zero net energy (ZNE) buildings for single family and low-rise residential new construction in 2020 and is expected to require it for new commercial construction by 2030. The code is expected to allow for all electric buildings.</p>

Table 4.4.C: Consistency with Climate Action Plan Measures

Measure	Description	Metric Tons CO ₂ e	Compliance	Discussion
EU 3.1: Green Building Ordinance	Adopt CALGreen Tier 1 by 2014 to exceed Title 24 energy efficiency standards by 15 percent, and adopt CALGreen Tier 2 by 2017 to exceed Title 24 energy efficiency standards by 30 percent.	-973	Complies	<p>Projects allowed under the Specific Plan would be required to comply with the latest CALGreen standard building measures and Title 24 standards. Policies 5.11, 5.12, and 5.13 relate to green building. Policy 5.11 encourages the use of sustainable design features such as rooftop photovoltaic generation and passive solar water heating. Policy 5.12 encourages the use of solar reflective roofing and green roofs to reduce overall building energy and manage stormwater runoff. Policy 5.13 recommends utilizing high-quality, durable finishing materials such as concrete, steel, stone, hardwood, and glass and discourages the use of low quality materials such as T1-11 siding and spray stucco are discouraged.</p> <p>In addition, the Specific Plan encourages projects to design high-performance buildings consistent with either of the following criteria:</p> <ul style="list-style-type: none"> • LEED Certified to at least the Gold level for non-residential, mixed-use, or residential buildings; or • GreenPoint Rated with at least 75 points for residential buildings.
EU 3.2: Urban Forestry	Increase tree cover throughout the City, with special emphasis on shading east and west walls of structures and parking lots.	-28	Complies	Implementation of Specific Plan would include street trees and landscaping throughout the Plan Area.
EU 4.1: Water Conservation	Work with EBMUD and CCWD to ensure that the Walnut Creek community achieves regional and statewide water reduction targets, including a 20 percent reduction as established by the State's 20X2020 plan.	-2,179	Complies	Individual projects associated with the Specific Plan would be required to achieve regional and statewide water reduction targets and would be required to be consistent with the State's 20X2020 plan and the Water Efficient Landscape Ordinance. In addition, the Specific Plan would utilize recycled water for landscaping.
Transportation and Land Use				
TLU 1.1: Low-Emission Vehicle Facilities	Facilitate the use of low-emission vehicles by coordinating with regional and state agencies for region-wide low-emission vehicle infrastructure improvements and networks.	-3,234	Complies	The Specific Plan requires developers to provide on-site electric vehicle charging stations in larger developments.

Table 4.4.C: Consistency with Climate Action Plan Measures

Measure	Description	Metric Tons CO ₂ e	Compliance	Discussion
TLU 1.2: Transportation Demand Management (TDM)	Promote ridesharing and TDM programs with the CMA and 511.org to reduce use of traditional motor vehicles. Create a citywide car-sharing program to achieve further reductions in vehicle miles traveled.	-1,759	Complies	<p>Implementation of the Specific Plan would include transportation demand management (TDM) programs, including information boards/kiosks, commuter benefits, employee ecopass, carpool/vanpool, guaranteed ride home program, compressed work weeks, flex time, and telecommuting, and annual employee surveys.</p> <p>In addition, Specific Plan Policy 4.6 encourages parking areas and structures to provide safe pedestrian passage by creating a continuous designated walking path that connects the public sidewalk, primary building entries, and parking areas. Design safe pedestrian routes through parking areas by using landscaping, raised walkways, special pavers, bollards, arches, trellises, and other design elements to alert drivers to potential conflicts with pedestrians. Flexible drop-off/pickup areas for taxis and ride hailing services are encouraged near transit stops and areas of high pedestrian activity, and should be designed with special striping, paving, bollards, and/or signage to distinguish them from the street or sidewalk. Specific Plan Policy 4.7 states when possible, provide designated parking spaces for car-share services.</p>
TLU 1.3: Traffic Calming	Install street design features such as landscaped medians and roundabouts in order to reduce vehicle speeds, volumes, and idling.	-6,609	Complies	Implementation of the Specific Plan would include roadway re-design concepts for complete streets for certain roadways within the North Downtown area. These concepts seek to improve the service to pedestrians, bicyclists and transit vehicles, while preserving vehicle capacity.
TLU 1.4: Anti-Idling Efficient Traffic Signal Timing	Reduce vehicle emissions through an effective traffic signal synchronization program.	-2,953	Complies with implementation of Mitigation Measure TRA-1	As discussed in Section 4.2, Transportation and Circulation, implementation of the Specific Plan is projected to significantly impact the Penniman Way/Lawrence Way/I-680 Northbound On-Ramp intersection. Mitigation Measure TRA-1 would require the City to coordinate with Caltrans to review and adjust the timing of the signal at this intersection to respond to traffic volume changes over time, to balance the demands of freeway traffic flows and City street traffic flows. No other intersections would be significantly impacted with implementation of the Specific Plan.

Table 4.4.C: Consistency with Climate Action Plan Measures

Measure	Description	Metric Tons CO ₂ e	Compliance	Discussion
TLU 2.1: Smart Growth	Achieve higher-density, mixed-use, infill development and through updated regulations and new incentives.	-1,789	Complies	The vision for the Specific Plan is that the Plan Area becomes better connected and integrated with Walnut Creek’s traditional downtown, the BART station, Civic Park, Iron Horse Trail, surrounding neighborhoods, and the region. It would ensure that the Plan Area would continue as an important jobs center and location for automobile sales and service, while also continuing to evolve into a mixed-use district that integrates housing, retail, restaurant, civic, hospitality, arts and entertainment uses into cohesive neighborhoods.
TLU 2.2: Jobs/Housing Balance	Attract new job-generating uses that will provide a variety of employment opportunities and improve the jobs/housing balance within Walnut Creek.	-36,305	Complies	As identified above, one of the Specific Plan’s primary goals is to continue as an important jobs center and location and to be better connected and integrated with Walnut Creek’s traditional downtown, the BART station, Civic Park, Iron Horse Trail, surrounding neighborhoods, and the region. Implementation of the Specific Plan would support the development of medium- and high-density office, residential, and local serving retail near and around the Walnut Creek BART station and Core Area.
TLU 2.3: Affordable Housing	Support and expand affordable housing development through implementation of the City’s Housing Element and new programs.	-182	Complies	Specific Plan Policies LU 3.2 and 3.3 allows and supports the flexible range of market-rate housing types that are affordable “by design,” including smaller apartment and condominium units, compact housing types, intergenerational housing, co-housing, live-work units, accessory dwelling units, or other innovative housing types that serve moderate income households. In addition, Specific Plan Policy LU 3.4 would develop new and existing incentives for affordable housing and Policy LU 3.5 would consider innovative funding sources, tax credit programs, and public-private partnerships as a way to make affordable housing more viable in the Plan Area..
TLU 3.1: Bicycle Planning	Implement the City’s Bicycle Master Plan and incorporate bicycle lanes and routes into street systems, new subdivisions, and large developments.	-5,835	Complies	Implementation of the Specific Plan would support and expand existing bicycle transportation. In addition, the Specific Plan would identify bicycle opportunities in the area and would be consistent with the Actions identified in the City’s Bicycle Plan.

Table 4.4.C: Consistency with Climate Action Plan Measures

Measure	Description	Metric Tons CO ₂ e	Compliance	Discussion
TLU 3.2: Multi-Modal Wayfinding	Develop and implement a comprehensive wayfinding system for the city’s bicycle and pedestrian transportation networks.	-330	Complies	Implementation of the Specific Plan would support and expand existing transit, bicycle and pedestrian transportation to manage traffic congestion, serve a diverse population, improve overall health, and build a resilient local transportation system. Individual projects associated with the Specific Plan would also be required to provide connections onto their sites to integrate with a range of transportation modes, including pedestrians, bicyclists, transit riders, and drivers. In addition, as identified by Policy MB 1.6, the Specific Plan would establish a clear and comprehensive wayfinding system to help all users find their way both within and through the Plan Area.
TLU 3.3: Bicycle Parking	Increase the number and locations of bicycle parking by requiring new development or redevelopment to provide adequate short- and long-term bicycle parking facilities.	-224	Complies	As discussed above, implementation of the Specific Plan would support and expand existing bicycle transportation. In addition, the Specific Plan would identify bicycle opportunities in the area and would be consistent with the Actions identified in the City’s Bicycle Plan. The Specific Plan would also require direct pathways from bikeways to bicycle parking areas and building entrances. Bicycle racks would be conveniently located in close proximity to building entrances and in highly visible locations.
TLU 3.4: Transit Incentives	Provide public transit incentives such as free or low-cost monthly transit passes to achieve higher use of transportation alternatives, including provision of parking “cash-out” options.	-1,674	Complies	As discussed above, implementation of the Specific Plan would support and expand existing transit, bicycle and pedestrian transportation to manage traffic congestion, serve a diverse population, improve overall health, and build a resilient local transportation system. In addition, the Specific Plan would include TDM programs, including information boards/kiosks, commuter benefits, employee ecompass, carpool/vanpool, guaranteed ride home program, compressed work weeks, flex time, and telecommuting, and annual employee surveys. Policy MB 1.5 also supports the expansion and increased frequency of bus service through the North Downtown, including the free trolley.

Table 4.4.C: Consistency with Climate Action Plan Measures

Measure	Description	Metric Tons CO ₂ e	Compliance	Discussion
TLU 3.5: BART Shuttles	Increase the frequency and range of BART shuttles.	-632	Complies	The Specific Plan envisions and accommodates the extension of transit service and routes into the Plan Area, including the potential extension of the free shuttle (Routes 4 and 5) and all other routes, such as Route 2 and/or Route 15. The City does not control the selection of routes or bus frequency and stops, but the Specific Plans states that the City will work with Contra Costa County Transit Authority (CCTA) to promote changes and improvements to service over time as new development occurs. In addition, the Specific Plan includes various policies that would increase ridership on the BART shuttles or support the ability to walk/bicycle to BART, including Policies MB 1.1 through MB 1.9. Policy MB 1.5 also supports the expansion and increased frequency of bus service through the North Downtown, including the free trolley.
TLU 3.6: Safe Rides to School	Work with local schools to expand Safe Routes to Schools (SR2S) programs.	-2	Complies	The Specific Plan includes policies that would encourage better connections to nearby schools, such as Policy MB 1.9, which would formalize connections to Walnut Creek Intermediate School. The Specific plan would also support and expand existing transit, bicycle and pedestrian transportation to manage traffic congestion, serve a diverse population, improve overall health, and build a resilient local transportation system. Individual projects associated with the Specific Plan would also be required to provide connections onto their sites to integrate with a range of transportation modes, including pedestrians, bicyclists, transit riders, and drivers. In addition, the Specific Plan would amend and implement the citywide clear and comprehensive wayfinding system to help all users find their way both within and through the Plan Area.
TLU 3.7: Parking Management	Implement and maintain a comprehensive Parking Management Plan to divert vehicle trips to alternative modes.	-4,845	Complies	The Specific Plan includes measures to manage long-term and short-term parking supply through shared parking and “right-sizing” off-street parking requirements, in coordination with BART and the downtown. In addition, the Specific Plan would include measures and designs to reduce parking demand and would implement shared parking.

Table 4.4.C: Consistency with Climate Action Plan Measures

Measure	Description	Metric Tons CO ₂ e	Compliance	Discussion
Waste Reduction				
WR 1.1: Zero Waste	Reduce landfilled waste and increase promotion of recycling and composting through an expanded public education campaign, community-wide incentives, and continued partnership with the Bay Area's Green Business Program.	-6,152	Complies with implementation of Mitigation Measures GHG-1b and GHG-2	Construction plans for individual projects associated with the Specific Plan would be reviewed for the incorporation of a waste plan prior to the issuance of building permits. The waste plan should show that it complies with State and local law and appropriate agencies should review the waste plan prior to approval. For example, AB 1826 requires mandatory organics recycling for businesses and CCCSWA/RecycleSmart requires recycling at certain sized multifamily buildings.
Environmentally Preferable Purchasing				
EPP 1.1: Green Business	Investigate local partnerships or creation of a forum to promote and equip local green businesses (for example, through the Chamber of Commerce).	0	Complies with implementation of Mitigation Measure GHG-2	The Specific Plan does not currently provide sufficient detail to demonstrate whether the Specific Plan would include policies to implement local green business partnerships. To the extent deemed feasible by the City Planning Division, the Specific Plan would be reviewed to determine whether the Specific Plan would include policies to implement local green business partnerships prior to approval.

Table 4.4.C: Consistency with Climate Action Plan Measures

Measure	Description	Metric Tons CO ₂ e	Compliance	Discussion
EPP 2.1: Going Green	Continue and expand the efforts of the City's Going Green Initiatives.	0	Complies	<p>As described above, the Specific Plan supports the application of renewable energy technologies and sustainable energy sources to promote energy conservation. In addition, the Specific Plan includes various policies that relate to green building and all individual projects allowed under the Specific Plan would be required to comply with the latest CALGreen standard building measures and Title 24 standards.</p> <p>In addition, individual projects associated with the Specific Plan would be required to achieve regional and statewide water reduction targets and would be required to be consistent with the State's 20X2020 plan and the Water Efficient Landscape Ordinance. In addition, the Specific Plan would utilize recycled water for landscaping.</p> <p>The Specific Plan also includes various transportation demand management (TDM) programs, including information boards/kiosks, commuter benefits, employee ecopass, carpool/vanpool, guaranteed ride home program, compressed work weeks, flex time, and telecommuting, and annual employee surveys. In addition, the Specific Plan includes various policies that would support the ability to use alternative modes of transportation and would promote initiatives to reduce vehicle trips and vehicle miles traveled. Therefore, implementation of the Specific Plan would continue and expand the efforts of the City's Going Green Initiatives.</p>
EPP 2.2: Urban Agriculture	Increase and encourage urban agriculture through incentives and streamlined application procedures.	0	Not Applicable	The proposed Specific Plan would not include urban agriculture; however, the Specific Plan would incorporate landscaping, plantings, and other naturalized areas throughout the Plan Area.

Source: LSA (March 2018).

As demonstrated in Table 4.4.C, the Specific Plan's consistency with many of the CAP measures would be determined by construction design decisions that are currently not evident from the conceptual plans evaluated for the environmental analysis in this Draft EIR. In addition, new projects associated with the proposed Specific Plan would be required to show consistency with the CAP. Implementation of Mitigation Measure GHG-2 would ensure the proposed Specific Plan incorporates design features consistent with the applicable CAP strategies.

Mitigation Measure GHG-2: Prior to approval, the Specific Plan shall include policies to require implementation and compliance with the following applicable CAP measures. Individual projects proposed under the Specific Plan would also be required to show consistency with the CAP. Inclusion of the following CAP measures as Specific Plan policies is considered to be applicable, feasible, and effective in reducing greenhouse gas emissions generated by the project:

- Work with partners to educate and inform the community about ways to improve energy efficiency, including behavioral changes, appliance purchases and rebates, maintenance practices, and more.
- Reduce landfilled waste and increase promotion of recycling and composting through an expanded public education campaign, community-wide incentives, and continued partnership with the Bay Area's Green Business Program.
- Investigate local partnerships or creation of a forum to promote and equip local green businesses (for example, through the Chamber of Commerce). (LTS)

Implementation of Mitigation Measure GHG-2 would ensure the implementation of measures from the CAP applicable to reduce greenhouse gas emissions from implementation of the proposed Specific Plan. With implementation of these measures, the Specific Plan would be in compliance with the CAP. The mitigated Specific Plan would include greenhouse gas reduction policies in compliance with the CAP and would not be a significant source of greenhouse gas emissions. Therefore, the Specific Plan's impacts would be less than significant.

Consistency with Plans. As discussed above, California's major initiative for reducing greenhouse gas emissions is Assembly Bill (AB) 32, passed by the State legislature on August 31, 2006. This effort aims at reducing greenhouse gas emissions to 1990 levels by 2020. In response to AB 32, California began to address climate change by employing a comprehensive, long-term approach to cut the State's greenhouse gas emissions to 1990 levels by 2020 and to maintain and continue reductions post 2020.

AB 32 requires the CARB to prepare a Scoping Plan that outlines the main State strategies for meeting the emission reduction targets and to reduce greenhouse gases that contribute to global climate change. Pursuant to AB 32, the Scoping Plan must "*identify and make recommendations on*

direct emission reduction measures, alternative compliance mechanisms, market-based compliance mechanisms, and potential monetary and nonmonetary incentives” in order to achieve the 2020 goal, and achieve “the maximum technologically feasible and cost-effective greenhouse gas emission reductions” by 2020 and maintain and continue reductions beyond 2020.

The Initial Scoping Plan in 2008 presented the first economy-wide approach to reducing emissions and highlighted the value of combining both carbon pricing with other complementary programs to meet California’s 2020 greenhouse gas emissions cap while ensuring progress in all sectors. The coordinated set of policies in the Initial Scoping Plan employed strategies tailored to specific needs, including market-based compliance mechanisms, performance standards, technology requirements, and voluntary reductions. The Initial Scoping Plan also described a conceptual design for a cap-and-trade program that included eventual linkage to other cap-and-trade programs to form a larger regional trading program.

AB 32 requires CARB to update the scoping plan at least every five years. The First Update to the Scoping Plan (First Update), approved in 2014, presented an update on the program and its progress toward meeting the 2020 limit. It also developed the first vision for the long-term progress that the State endeavors to achieve. In doing so, the First Update laid the groundwork to transition to the post-2020 goals set forth in Executive Orders S-3-059 and B-16-2012. It also recommended the need for a 2030 mid-term target to establish a continuum of actions to maintain and continue reductions, rather than only focusing on targets for 2020 or 2050.

In summer 2016 the Legislature passed, and the Governor signed, SB 32, and AB 197. SB 32 affirms the importance of addressing climate change by codifying into statute the greenhouse gas emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in Governor Brown’s April 2015 Executive Order B-30-15. 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, consistent with an IPCC analysis of the emissions trajectory that would stabilize atmospheric greenhouse gas concentrations at 450 parts per million CO₂e and reduce the likelihood of catastrophic impacts from climate change.

The companion bill to SB 32, AB 197, provides additional direction to CARB on the following areas related to the adoption of strategies to reduce greenhouse gas emissions. Additional direction in AB 197 meant to provide easier public access to air emissions data that are collected by CARB was posted in December 2016. The measures applicable to the Specific Plan include energy efficiency measures, water conservation and efficiency measures, and transportation and motor vehicle measures, as discussed below.

Energy efficient measures are intended to maximize energy efficiency building and appliance standards, pursue additional efficiency efforts including new technologies and new policy and 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. As discussed above, the Specific Plan would comply with the applicable energy measures identified in the CAP with implementation of Mitigation Measure GHG-2.

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 greenhouse gas emissions. As discussed above, the proposed Specific Plan would comply with the applicable energy and water measures identified in the CAP with implementation of Mitigation Measure GHG-2. Therefore, the Specific Plan would not conflict with any of the water conservation and efficiency measures.

The goal of transportation and motor vehicle measures is to develop regional greenhouse gas emissions reduction targets for passenger vehicles. Specific regional emission targets for transportation emissions would not directly apply to the Specific Plan. However, implementation of the Specific Plan would support the development of medium- and high-density office, residential, and local serving retail near and around the Walnut Creek and Pleasant Hill BART stations and Core Area, reducing the demand for travel by single occupancy vehicles. In addition, the Specific Plan would support and expand existing transit, bicycle, and pedestrian transportation, which would support the ability to use alternative modes of transportation. Therefore, the Specific Plan and would comply with the applicable transportation and land use measures identified in the CAP and would not conflict with the identified transportation and motor vehicle measures.

Therefore, the Specific Plan would not conflict with applicable Statewide action measures. In addition, the Specific Plan would be in compliance with the City's CAP. The purpose of the CAP is to be consistent with State mandates, including AB 32 to reduce greenhouse gas emissions. The goals, measures, and actions in the CAP outline how the City would reduce greenhouse gas emissions 15 percent by 2020, which aligns with State greenhouse gas reduction goals and allows the CAP to meet the requirements for a Qualified Greenhouse Gas Reduction Strategy as defined by the BAAQMD.

Under the business-as-usual scenario, the City's greenhouse gas emissions would reach 779,117 metric tons of CO₂e by 2020 and 829,535 metric tons of CO₂e by 2030. The City has set an emissions reduction target of 15 percent below 2005 levels by 2020, which is consistent with the State's direction to local governments in the AB 32 Scoping Plan. Table 4.4.D provides a comparison of the business-as-usual forecasts for 2020 and 2030 to the 2005 baseline year and the 15 percent reduction target. Emissions will continue to increase along the business-as-usual scenario while reduction efforts are initiated. Achieving the target is therefore more than a 15 percent decrease; rather, it is a 29.7 percent reduction from 2020 emissions levels, or business as usual, in Walnut Creek. In 2030, the gap between future growth and target reduction levels increases to 54.8 percent.

The goals, measures, and actions in the CAP would ensure that the City would reduce greenhouse gas emissions 15 percent by 2020, consistent with State greenhouse gas reduction goals and BAAQMD requirements. With implementation of Mitigation Measure GHG-2, the proposed Specific Plan would be compliant with the strategies developed in the CAP to reduce greenhouse gas emissions and would therefore be consistent with State mandates and the BAAQMD. Implementation of the Specific Plan would not conflict with applicable plans, policies, or regulations adopted for the purpose of reducing greenhouse gas emissions. Therefore this impact would be considered less than significant.

Table 4.4.D: Business-as-Usual Emission Forecast by Sector – 2020 and 2030

GHG BAU Forecast	Metric Tons CO ₂ e		
	2005	2020	2030
Residential	117,868	130,626	142,037
Commercial/Industrial	117,312	131,722	141,474
Transportation – Highway	174,369	234,722	249,978
Transportation – Local Road	202,936	229,468	244,418
Waste	9,892	10,759	11,610
Water	6,736	7,780	8,396
Off-Road	12,293	31,626	29,016
BART	2,191	2,420	2,606
Total Reductions	643,596	779,117	829,535

Source: City of Walnut Creek (2012).

Note: Calculated totals may differ from shown totals due to rounding.

4.4.2.3 Cumulative Impacts

As discussed above, an analysis of impacts related to greenhouse gas is inherently cumulative. Given its consistency with the CAP, the Specific Plan would not result in a cumulatively considerable contribution to greenhouse gas emissions with the implementation of measures that are proposed as part of the Specific Plan, required by State or local regulations, or included as mitigation measures described above.

4.5 NOISE AND GROUNDBORNE VIBRATION

This section describes existing noise and vibration conditions, sets forth criteria for determining the significance of noise and vibration impacts and estimates the likely noise and vibration impacts that would result from construction and operation of the Specific Plan. Mitigation measures are identified, as necessary, to address significant environmental impacts.

4.5.1 Setting

This section describes the fundamentals of noise and vibration, summarizes the regulatory framework, and describes the existing noise environment of the Plan Area and its vicinity.

4.5.1.1 Characteristics of Sound

Noise is generally 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 the number of complete vibrations or cycles per second of a wave that results in the range of tone from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment, and 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 refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. 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 effects on adjacent sensitive land uses.

Measurement of Sound. Sound intensity is measured through the A-weighted 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. Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. Table 4.5.A contains a list of typical acoustical terms and definitions. Figure 4.5-1 shows representative outdoor and indoor noise levels in units of dBA.

A decibel (dB) is a unit of measurement which indicates the relative intensity of a sound. The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3 dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense, 30 dB is 1,000 times more intense. Each 10-dB increase in sound level is perceived as approximately a doubling of loudness.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the

sound level to attenuate or be reduced, resulting in a 6 dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise sensitive receptor of concern.

Table 4.5.A: Definitions of Acoustical Terms

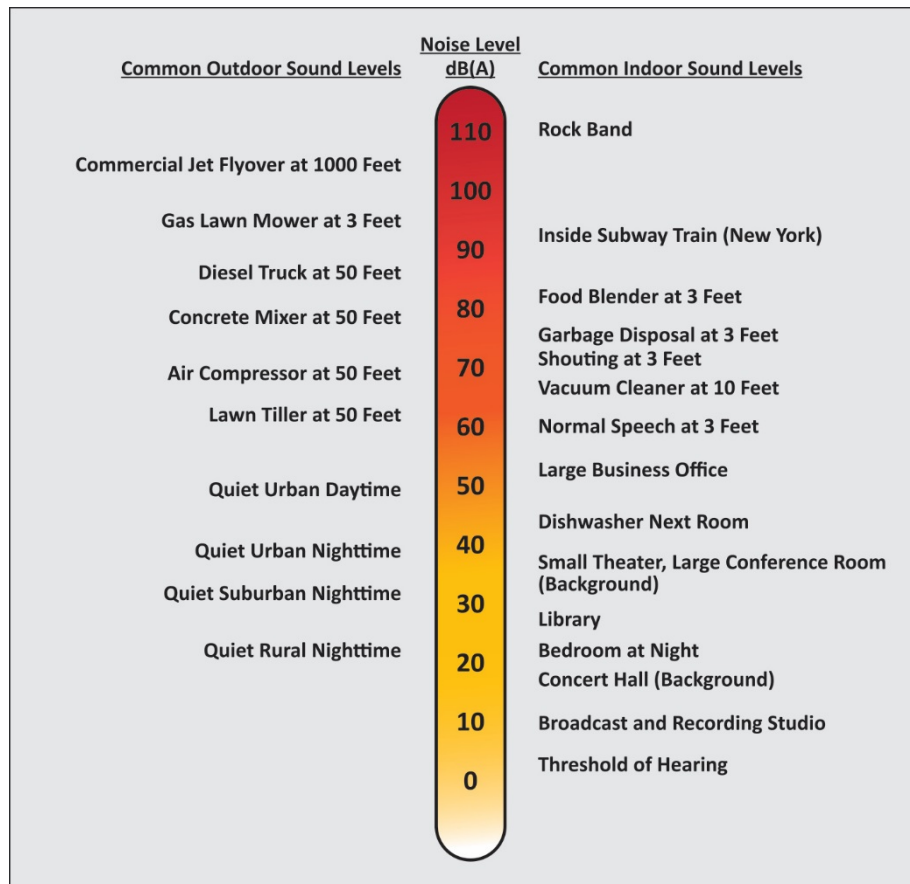
Term	Definitions
Decibel, dB	A unit of level that denotes the ratio between two quantities proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., 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 equaled or exceeded by a fluctuating sound level for 1 percent, 10 percent, 50 percent, and 90 percent of a stated time period.
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 five decibels to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 decibels 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 decibels 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 at 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, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Harris, Cyril. 1998. *Handbook of Acoustical Measurements and Noise Control*.

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. 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} , the community noise equivalent level (CNEL), and the day-night average level (L_{dn}) based on A-weighted decibels (dBA). CNEL is the time varying 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 10 dBA weighting factor applied to noise 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 the evening relaxation hours. CNEL and L_{dn} are within one dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours. Typical A-weighted sound levels from various sources are described in Figure 4.5-1.

Figure 4.5-1: Typical A-Weighted Sound Levels



Source: Compiled by LSA (2016).

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level (L_{max}), which is the highest exponential time averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of maximum levels denoted by L_{max} for short-term noise impacts. L_{max} reflects peak operating conditions, and addresses the annoying aspects of intermittent noise.

Noise standards in terms of percentile exceedance levels, L_n , are often used together with the L_{max} for noise enforcement purposes. When specified, the percentile exceedance levels are not to be exceeded by an offending sound over a stated time period. For example, the L_{10} noise level represents the level exceeded ten 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 lowest noise level experienced during a monitoring period. It is normally

referred to as the background noise level. For a relatively steady noise, the measured L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first is audible impacts that refer to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3.0 dBA or greater, since, as described earlier, this level of noise change has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1.0 and 3.0 dBA. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise level of less than 1.0 dBA that are inaudible to the human ear. A change in noise level of at least 5 dBA would be required before any noticeable change in human response would be expected and a 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Physiological Effects of Noise. The effects of noise on people can also be described in three categories: annoyance, interference with activities such as speech or sleep, and physiological effects such as hearing loss. Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects our entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, and thereby affecting blood pressure, functions of the ear, and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling.

Unwanted community effects of noise occur at levels much lower than those that cause hearing loss and other health effects. Noise annoyance occurs when it interferes with sleeping, conversation, and noise-sensitive work, including learning or listening to the radio, television, or music. According to World Health Organization (WHO) noise studies, few people are seriously annoyed by daytime activities with noise levels below 55 dBA, or are only moderately annoyed with noise levels below 50 dBA.¹

4.5.1.2 Characteristics of Groundborne Vibration

Vibrating objects in contact with the ground radiate vibration waves through various soil and rock strata to the foundations of nearby buildings. As the vibration propagates from the foundation throughout the remainder of the building, the vibration of floors and walls may cause perceptible vibration from the rattling of windows or a rumbling noise. The rumbling sound caused by the vibration of room surfaces is called groundborne noise. When assessing annoyance from groundborne noise, vibration is typically expressed as root mean square (rms) velocity in units of decibels of 1 micro-inch per second. To distinguish vibration levels from noise levels, the unit is written as "VdB." Human perception to vibration starts at levels as low as 67 VdB and sometimes lower. Annoyance due to vibration in residential settings starts at approximately 70 VdB. Groundborne vibration is almost never annoying to people who are outdoors. Although the motion of the ground

¹ World Health Organization, 1999. *Guidelines for Community Noise*.

may be perceived, without the effects associated with the shaking of the building, the motion does not provoke the same adverse human reaction.

In extreme cases, excessive groundborne vibration has the potential to cause structural damage to buildings. Vibration impacts on building structures are generally assessed in terms of peak particle velocity (PPV). Common sources of groundborne vibration include trains and construction activities such as blasting, pile driving and operating heavy earthmoving equipment. Typical vibration source levels from construction equipment are shown in Table 4.5.B.

Table 4.5.B: Typical Vibration Source Levels for Construction Equipment

Equipment		PPV at 25 feet (in/sec)	Approximate VdB at 25 feet
Pile Driver (impact)	Upper range	1.518	112
	Typical	0.644	104
Pile Driver (sonic)	Upper range	0.734	105
	Typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Hydromill (slurry wall)	In soil	0.008	66
	In rock	0.017	75
Vibratory roller		0.210	94
Hoe ram		0.089	87
Large bulldozer		0.089	87
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Federal Transit Administration, 2006. *Transit Noise and Vibration Impact Assessment*. May.

4.5.1.3 Noise Regulatory Framework

The following section provides brief discussions of the federal, State, and local regulatory framework related to noise.

Federal Regulations. In 1972 Congress enacted the Noise Control Act. This act authorized the U.S. Environmental Protection Agency (USEPA) to publish descriptive data on the effects of noise and establish levels of sound “requisite to protect the public welfare with an adequate margin of safety.” These levels are separated into health (hearing loss levels) and welfare (annoyance levels), as shown in Table 4.5.C. The USEPA cautions that these identified levels are not standards because they do not take into account the cost or feasibility of the levels.

For protection against hearing loss, 96 percent of the population would be protected if sound levels are less than or equal to an $L_{eq}(24)$ of 70 dBA. The “(24)” signifies an L_{eq} duration of 24 hours. The USEPA activity and interference guidelines are designed to ensure reliable speech communication at about 5 feet in the outdoor environment. For outdoor and indoor environments, interference with activity and annoyance should not occur if levels are below 55 dBA and 45 dBA, respectively.

Table 4.5.C: Summary of USEPA Noise Levels

Effect	Level	Area
Hearing loss	$L_{eq}(24) \leq 70$ dB	All areas.
Outdoor activity interference and annoyance	$L_{dn} \leq 55$ dB	Outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use.
	$L_{eq}(24) \leq 55$ dB	Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc.
Indoor activity interference and annoyance	$L_{eq} \leq 45$ dB	Indoor residential areas.
	$L_{eq}(24) \leq 45$ dB	Other indoor areas with human activities such as schools, etc.

Source: U.S. Environmental Protection Agency (1974). *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. March.

The noise effects associated with an outdoor L_{dn} of 55 dBA are summarized in Table 4.5.D. At 55 dBA L_{dn} , 95 percent sentence clarity (intelligibility) may be expected at 11 feet, and no substantial community reaction. However, 1 percent of the population may complain about noise at this level and 17 percent may indicate annoyance.

Table 4.5.D: Summary of Human Effects in Areas Exposed to 55 dBA L_{dn}

Type of Effect	Magnitude of Effect
Speech – Indoors	100 percent sentence intelligibility (average) with a 5 dB margin of safety.
Speech – Outdoors	100 percent sentence intelligibility (average) at 0.35 meter.
	99 percent sentence intelligibility (average) at 1.0 meter.
	95 percent sentence intelligibility (average) at 3.5 meters.
Average Community Reaction	None evident; 7 dB below level of significant complaints and threats of legal action and at least 16 dB below “vigorous action.”
Complaints	1 percent dependent on attitude and other non-level related factors.
Annoyance	17 percent dependent on attitude and other non-level related factors.
Attitude Towards Area	Noise essentially the least important of various factors.

Source: U.S. Environmental Protection Agency (1974). *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. March.

State of California. The State of California has established regulations that help prevent adverse impacts to occupants of buildings located near noise sources. The “State Noise Insulation Standard” requires noise-sensitive land uses to meet performance standards through design and/or building materials that would offset any noise source in the vicinity of the building. State regulations include requirements for the construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings that are intended to limit the extent of noise transmitted into habitable spaces. These requirements are found in the California Code of Regulations, Title 24 (known as the Building Standards Administrative Code), Part 2 (known as the California Building Code), Appendix Chapters 12 and 12A. For limiting noise transmitted between adjacent dwelling units, the noise insulation standards specify the extent to which walls, doors, and floor ceiling assemblies must block or absorb sound. For limiting noise from exterior noise sources, the noise insulation standards set an interior standard of 45 dBA CNEL in any habitable room with all doors

and windows closed. In addition, the standards require preparation of an acoustical analysis demonstrating the manner in which dwelling units have been designed to meet this interior standard, where such units are proposed in an area with exterior noise levels greater than 60 dBA CNEL.

The State has also established land use compatibility guidelines for determining acceptable noise levels for specified land uses.

City of Walnut Creek General Plan. The City of Walnut Creek General Plan² addresses noise in the Safety and Noise Element. The Safety and Noise Element sets land use and noise compatibility standards as shown in Table 4.5.E. Chapter 6, Safety and Noise, also aims to provide compatible noise environments for new development and control excessive noise sources in existing development. The following policies and actions from Chapter 6, Safety and Noise, would be applicable to the Specific Plan.

Chapter 6: Safety and Noise

- **Goal 8: Provide compatible noise environments for new development, redevelopment, and condominium conversions.**
 - Policy 8.1: Apply the noise and land use compatibility table and standards to all residential, commercial, and mixed-use proposals, including condominium conversions.
 - Policy 8.2: Address the issue of residences affected by intermittent urban noise from sources such as heating, ventilating, and air conditioning equipment and by outdoor maintenance activities, such as parking lot sweeping and early morning garbage collection.
 - Action 8.2.1: For new single-family residential projects, use a standard of 60 L_{dn} for exterior noise in private use areas.
 - Action 8.2.2: For new multi-family residential projects and for the residential component of mixed-use development, use a standard of 65 L_{dn} in outdoor areas, excluding balconies.
 - Action 8.2.3: Strive for a maximum interior noise levels at 45 L_{dn} in all new residential units.
 - Action 8.2.4: For new downtown mixed-use development or for new residential development affected by noise from Bay Area Rapid Transit (BART) or helicopters, ensure that maximum noise levels do not exceed 50 L_{dn} in bedrooms and 55 L_{dn} in other rooms.

² Walnut Creek, City of, 2006. *Walnut Creek General Plan 2025*. April 4.

- **Goal 9: Control excessive noise sources in existing development.**
 - Policy 9.1: Control all residential and commercial noise sources to protect the existing noise environment.
 - Action 9.1.1: Require the evaluation of noise mitigation measures for projects that would cause a substantial increase in noise.
 - Policy 9.2: Strive to reduce traffic noise levels in existing residential areas.
 - Action 9.2.1: Install quiet pavement surfaces for repaving projects, where feasible.
 - Action 9.2.2: Control vehicle-related noise.

Table 4.5.E: Land Use/Noise Compatibility

Land Use Category	Exterior Noise Exposure (L _{dn})					
	55	60	65	70	75	80
Single-family residential						
Multi-family residential, hotels, and motels ¹						
Outdoor sports and recreation, neighborhood parks and playgrounds						
Schools, libraries, museums, hospitals, personal care, meeting halls, churches						
Office buildings, business commercial, and professional						
Auditoriums, concert halls, amphitheaters						

	NORMALLY ACCEPTABLE – Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special insulation requirements.
	CONDITIONALLY ACCEPTABLE – Specified land use may be permitted only after detailed analysis of the noise reduction requirements.
	UNACCEPTABLE – New construction or development should not be undertaken because mitigation to comply with noise element policies is unfeasible.

Source: City of Walnut Creek (2006).

¹ Require noise mitigation to reduce interior noise levels pursuant to Actions 8.2.3. and 8.2.4.

City of Walnut Creek Municipal Code. Construction noise impacts are evaluated for compliance with the City’s Noise Ordinance found in Chapter 6, Article 2 of the Municipal Code. This ordinance limits the permissible hours of noise-producing construction activities to non-holiday weekdays from 7:00 a.m. to 6:00 p.m.; construction activities are not permitted outside of these hours unless an exemption is permitted by the Chief of Code Enforcement or by the City Engineer.

4.5.1.4 Existing Noise Environment

The ambient noise environment in the City of Walnut Creek is affected by a variety of noise sources, including traffic, BART, airport, and intermittent noise such as construction and parking lot activities. In Walnut Creek, vehicular traffic along highways and major traffic corridors is the predominant source of noise. BART and airplanes also contribute to noise, as do intermittent sources such as leaf blowers and construction equipment. Noise levels are typically highest along highways and major traffic corridors. No airports are located in Walnut Creek; therefore noise from aircraft is limited. The following section describes the existing noise environment and identifies the primary noise sources in the vicinity of the Plan Area.

Existing Ambient Monitored Noise Levels. Short-term noise monitoring was conducted to establish the existing ambient noise environment at sensitive land uses in the Plan Area. Eight short-term noise measurements (identified as ST-1 through ST-8) were conducted throughout the Plan Area on March 8, 2018, between 10:00 a.m. and 3:00 p.m. for periods of 15 minutes each. Noise measurement data collected during the short-term noise measurements are summarized in Table 4.5.F. The meteorological data conditions at the time of the noise monitoring are shown in Table 4.5.G. The short-term noise measurements indicate that ambient noise in the Plan Area vicinity ranges from approximately 62.1 dBA to 74.8 dBA L_{eq} . Vehicle traffic was identified as the primary noise source.

Table 4.5.F: Short-Term Ambient Noise Monitoring Results, dBA

Location Number	Location Description	Start Time	L_{eq} ^a	L_{max} ^b	L_{min} ^c	Primary Noise Sources
ST-1	Intersection of Civic Drive and North California Boulevard. Outside Grower’s Square, 1656 North California Boulevard (outside of John Muir Health building).	10:11 a.m.	62.1	71.0	54.7	Vehicle traffic, some pedestrian traffic
ST-2	Ygnacio Valley Road and North Main Street, outside of Three Ignacio Center (outside of 2001 North Main Street) northwest corner of intersection.	10:57 a.m.	66.8	81.5	54.0	Vehicle traffic, some pedestrian traffic
ST-3	Driveway off Broadway at 2020 N Broadway, near North Broadway and Ygnacio Valley Road intersection behind Lil bear Carwash.	11:25 a.m.	74.8	86.5	55.4	Vehicle traffic, carwash dryers
ST-4	Near Ygnacio Valley Road and Civic Drive intersection on west side of Civic across from 140 North Civic Drive on walkway of apartment building	12:03 p.m.	65.3	81.5	52.1	Vehicle traffic
ST-5	North Civic Drive and Pine Street intersection on west side of Civic on lawn outside of 201 North Civic Drive office building	12:42 p.m.	68.7	86.6	53.2	Vehicle traffic
ST-6	Near 100 Pringle Avenue on north side of Pringle Avenue	1:31 p.m.	62.8	71.9	58.7	Vehicle traffic, BART
ST-7	Near Main Street/BART intersection, on west side of Main/California Street at 2175/2185 North California Avenue	2:06 p.m.	72.1	87.4	57.9	Vehicle traffic, BART, carwash
ST-8	Pringle Avenue and North California Boulevard, on east side of North California, outside of Ygnacio Center	2:36 p.m.	70.1	88.8	57.0	BART, vehicle and pedestrian traffic

Source: LSA (March 2018).

^a L_{eq} represents the average of the sound energy occurring over the 15-minute time period.

^b L_{max} is the highest sound level measured during the 15-minute time period.

^c L_{min} is the lowest sound level measured during the 15-minute time period.

Table 4.5.G: Meteorological Conditions During Ambient Noise Monitoring

Location Number	Maximum Wind Speed (mph)	Average Wind Speed (mph)	Temperature (°F)	Relative Humidity (%)	Sky Conditions
ST-1	2.5	0.7	65.5	76	Partly cloudy
ST-2	5.3	2.6	63.5	75	Partly cloudy
ST-3	3.9	1.3	66.0	66	Partly cloudy
ST-4	3.9	0.9	68.0	65	Partly cloudy
ST-5	4.2	0.7	63.6	75	Partly cloudy
ST-6	4.0	0.7	70.7	54	Partly cloudy
ST-7	4.0	0.6	66.1	66	Partly cloudy
ST-8	4.0	0.6	67.3	61	Partly cloudy

Source: LSA (March 2018).

Existing Traffic Noise. Motor vehicles with their distinctive noise characteristics are a major source of noise in Walnut Creek. The amount of noise varies according to many factors, such as volume of traffic, vehicle mix (percentage of cars and trucks), average traffic speed, and distance from the observer. Major contributing roadway noise sources include Interstate 680 (I-680), Broadway, California Boulevard, and Main Street, as well as other arterial and collector roadways throughout the City.

Existing highway and roadway traffic noise levels in the Plan Area were assessed using the Federal Highway Administration (FHWA) highway traffic noise prediction model (FHWA RD-77-108). This model uses a typical vehicle mix for urban/suburban areas in California and requires parameters, including traffic volumes, vehicle speed, and roadway geometry, to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the day-night average level (L_{dn}) values. Existing traffic noise contours along modeled roadway segments are shown in Table 4.5.H.

Existing Aircraft Noise. The closest airport to the Plan Area is Buchanan Field Airport, located approximately 4.8 miles north of the Plan Area. In addition, Oakland International Airport is located approximately 13.9 miles southwest of the Plan Area, Livermore Municipal Airport is located approximately 19 miles southeast of the Plan Area, and Travis Air Force Base is located approximately 23 miles north of the Plan Area. Due to the distance of the Plan Area from these airports, the Plan Area lies well beyond the 55 dBA CNEL noise contours of each of these airports. Thus, aircraft activities are not a significant noise source in the Plan Area.

Existing Sensitive Land Uses. Sensitive receptors include residences, schools, hospitals, churches, and similar uses that are sensitive to noise. Construction and operation of future development projects associated with the Specific Plan could affect nearby noise-sensitive land uses. The Plan Area is approximately 191 acres in size, with a majority of its land utilized for retail, automobile sales and services, and office uses, as well as a smaller amount of housing and public uses. The closest off-site sensitive receptors include the multi-family residences located approximately 80 feet north of the Plan Area across Parkside Drive. In addition, other sensitive receptors near the Plan Area include the multi-family residences located approximately 85 feet east of the Plan Area across North Civic

Drive and the multi-family residences located approximately 90 feet west of the Plan Area across North California Boulevard.

Table 4.5.H: Existing Traffic Noise Levels

Roadway Segment	Average Daily Trips	Centerline to 70 dBA L _{dn} (feet)	Centerline to 65 dBA L _{dn} (feet)	Centerline to 60 dBA L _{dn} (feet)	L _{dn} (dBA) 50 Feet From Outermost Lane
Main Street - south of Parkside Drive	24,520	< 50	74	152	65.0
Parkside Drive - east of Main Street	15,160	< 50	< 50	85	61.0
Broadway - south of Parkside Drive	7,610	< 50	< 50	52	59.5
Parkside Drive - east of Broadway	10,400	< 50	< 50	68	59.4
Main Street - north of California Boulevard/ Lawrence Way	25,320	< 50	75	155	65.1
Main Street - south of California Boulevard/ Lawrence Way	24,770	< 50	74	153	65.0
California Boulevard/Lawrence Way - east of Main Street	13,170	< 50	< 50	102	62.3
California Boulevard/Lawrence Way - west of Main Street	13,800	< 50	< 50	105	62.5
Pine Street - west of Broadway	2,660	< 50	< 50	< 50	55.0
Pine Street - east of Broadway	3,740	< 50	< 50	< 50	56.5
California Boulevard - north of Trinity Avenue/Civic Drive	18,350	< 50	62	126	63.7
Trinity Avenue/Civic Drive - east of California Boulevard	10,070	< 50	< 50	108	63.1
Cole Avenue - west of California Boulevard	1,220	< 50	< 50	< 50	51.6
Main Street - north of Civic Drive	8,680	< 50	< 50	79	60.5
Civic Drive - east of Broadway	21,140	< 50	83	175	66.4
Arroyo Way - east of Main Street	2,450	< 50	< 50	< 50	54.6
Civic Drive - north of Arroyo Way	24,660	< 50	91	194	67.0
Olympic Boulevard - east of Paulson Lane/ SB 1-680 Ramps	16,600	< 50	65	121	62.6
Olympic Boulevard - east of NB I-860 Ramps	25,520	< 50	80	158	64.4
I-680	186,000	453	971	2,089	80.8

Source: Compiled by LSA (March 2018).

Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

ADT = average daily traffic

L_{dn} = Day/Night Noise Level

dBA = A-weighted decibels

4.5.2 Impacts and Mitigation Measures

This section discusses potential noise and vibration impacts that could result from implementation of the Specific Plan. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with implementation of the Specific Plan and identifies mitigation measures, as appropriate.

4.5.2.1 Criteria of Significance

The project would have a significant impact on noise if it would result in:

- Exposure of people to or generate noise levels in excess of standards established in the General Plan or the Municipal Code, and/or the applicable standards of other agencies;
- Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- The location of a project within an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, so that the project would result in exposure of people residing or working in the project area to excessive noise levels;
- The location of a project within the vicinity of a private airstrip, so that the project would expose people residing or working in the project area to excessive noise levels; or
- Contribute to cumulative noise impacts in the area.

4.5.2.2 Project Impacts

The following section discusses the potential noise and vibration impacts associated with implementation of the Specific Plan.

Applicable Noise Level Standards. The Plan Area encompasses approximately 191 acres developed with retail, automobile sales and services, office uses, housing, and public uses. Land uses surrounding the Plan Area predominantly include residential neighborhoods further to the east and to the west across I-680, the BART tracks, and heavier commercial activity further north. In addition, Civic Park, City Hall, and the Iron Horse Multi-Use Trail are directly southeast and east of the Plan Area. The Specific Plan would include automobile sales and services, housing, office, retail, restaurant, civic hospitality, and arts and entertainment uses.

As shown in Table 4.5.F, the dominant source of noise in the Plan Area is associated with vehicle traffic noise. The short-term noise measurements indicate that ambient noise in the Plan Area vicinity ranges from approximately 62.1 dBA to 74.8 dBA L_{eq} .

The City sets forth normally acceptable noise level standards for land use compatibility and interior noise exposure of new development (as shown in Table 4.5.E above). The normally acceptable exterior noise level for multi-family residential land uses is up to 65 dBA L_{dn} . Noise levels of 65 to 75 dBA L_{dn} are considered conditionally acceptable for multi-family residential land uses when a detailed analysis of noise reduction requirements and noise insulation features are included in the design to meet the interior noise standard. Noise levels above 75 dBA L_{dn} are considered

unacceptable for multi-family residential land uses. For office buildings, business commercial, and professional land uses, noise levels up to 70 dBA L_{dn} are considered normally acceptable, noise levels between 70 and 75 dBA L_{dn} are considered conditionally acceptable, and noise levels above 75 dBA L_{dn} are considered unacceptable.

The City sets interior noise standards for residential land uses. The normally acceptable interior noise level in all new residential units is 45 dBA L_{dn} . However, for new downtown mixed-use development or for new residential development affect by noise from BART, such as the Plan Area, interior noise levels must not exceed 50 dBA L_{dn} in bedrooms and 55 dBA L_{dn} in other rooms.

Interior Noise Analysis. Based on USEPA Protective Noise Levels,³ with a combination of walls, doors, and windows, standard construction for Northern California buildings (STC-24 to STC-28) would provide more than 25 dBA in exterior-to-interior noise reduction with windows closed and 15 dBA or more with windows open. Where exterior noise levels range from 60 to 65 dBA L_{dn} , the interior noise level can typically be maintained below City standards (45 dBA L_{dn}), assuming standard construction methods, and the incorporation of forced air mechanical ventilation systems in residential units. These systems allow the occupant the option of controlling noise by closing the windows. In noise environments where exterior levels exceed 65 dBA L_{dn} , a detailed analysis of noise reduction requirements and noise insulation features must be included in the design to meet the interior noise standard.

Impact NOI-1: The Specific Plan allows the development of residential land uses in an area that is considered a conditionally acceptable noise environment based on the City's Noise and Land Use Compatibility Guidelines for residential land uses. (S)

Future individual projects proposed under the Specific Plan would be required to demonstrate compliance with the City's noise and land use compatibility standards and ensure that such development meets the City's exterior and interior noise standards and would not expose persons to excessive noise levels, as required by Mitigation Measure NOI-1.

Mitigation Measure NOI-1: In order to comply with the City's noise and land use compatibility standards, prior to project approval, new development proposed under the Specific Plan shall require an acoustical analysis for all noise-sensitive projects located in an area with noise levels greater than 65 dBA L_{dn} . All new residential land uses shall be designed to maintain an interior standard of 50 dBA L_{dn} in bedrooms and 55 dBA L_{dn} in other rooms. Noise reduction measures to achieve this noise level could include forced air ventilation so that windows can remain closed and/or upgraded wall and window assemblies. (LTS).

Exterior Noise Analysis. Development allowed under the Specific Plan may include the development of new residential land uses in the vicinity of existing noise sources; however specific projects are unknown at this time. As identified above, noise levels in the Plan Area

³ U.S. Environmental Protection Agency, 1978. *Protective Noise Levels, Condensed Version of EPA Levels Document*. November.

range from approximately 62.1 dBA to 74.8 dBA L_{eq} . Based on the City's noise and land use compatibility standards, this noise level is within the City's normally acceptable and conditionally acceptable noise standards for multi-family residential land uses. According to the City, new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. The existing on-site noise levels would meet the City's exterior noise level standards if noise reduction requirements and noise insulation features are included in the design to meet the interior noise standard. As discussed above, implementation of Mitigation Measure NOI-1 would ensure that interior noise levels associated with individual projects would need the City's interior noise standards. Therefore, if interior noise levels meet City standards, the Specific Plan would meet the City's exterior land use compatibility standards, resulting in a less-than-significant exterior noise impact with implementation of Mitigation Measure NOI-1.

Groundborne Vibration and Groundborne Noise. Vibration refers to groundborne noise and perceptible motion. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors. 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 the occupants as the motion of building surfaces, rattling of items on shelves or hanging on walls, or as a low-frequency rumbling noise. The rumbling noise is caused by the vibrating walls, floors, and ceilings radiating 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 groundborne vibration include trains, construction activities (e.g., pavement breaking and operating heavy-duty earthmoving equipment), and occasional traffic on rough roads. In general, groundborne vibration from standard construction practices is only a potential issue when it occurs within 25 feet of sensitive uses. Groundborne vibration levels from construction activities very rarely reach levels that can damage structures; however, these levels are perceptible near the active construction site. With the exception of old buildings built prior to the 1950s or buildings of historic significance, potential structural damage from heavy construction activities rarely occurs. When roadways are smooth, vibration from traffic (even heavy trucks) is rarely perceptible.

The streets in the Plan Area are paved, smooth, and unlikely to cause significant groundborne vibration. In addition, the rubber tires and suspension systems of buses and other on-road vehicles make it unusual for on-road vehicles to cause groundborne noise or vibration problems. It is therefore assumed that no such vehicular vibration impacts would occur and, therefore, no vibration impact analysis of on-road vehicles is necessary. Additionally, once constructed, development associated with the Specific Plan would not contain uses that would generate groundborne vibration.

In addition, potential groundborne vibration and noise impacts may also occur if proposed development associated with the Specific Plan would locate future residents near the BART line. BART would be considered a groundborne vibration source where it is operating at-grade. However, the BART tracks throughout the Plan Area are on elevated structure; therefore vibration is not

anticipated to adversely affect new proposed development associated with implementation of the Specific Plan. Therefore, this impact would be less than significant.

Construction Vibration. Construction of future projects associated with implementation of the Specific Plan could result in the generation of groundborne vibration. This construction vibration impact analysis discusses the level of human annoyance using vibration levels in VdB and will assess the potential for building damages using vibration levels in PPV (in/sec) because vibration levels calculated in RMS are best for characterizing human response to building vibration, while vibration level in PPV is best used to characterize potential for damage. The Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment⁴ guidelines indicate that a vibration level up to 102 VdB (an equivalent 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 a non-engineered timber and masonry building, the construction vibration damage criterion is 94 VdB (0.2 in/sec in PPV).

Table 4.5.I shows the PPV and VdB values at 25 feet from a construction vibration source. As shown in Table 4.5.I, bulldozers and other heavy-tracked construction equipment (except for pile drivers and vibratory rollers) generate approximately 87 VdB of groundborne vibration when measured at 25 feet, based on the Transit Noise and Vibration Impact Assessment. At this level, groundborne vibration would result in potential annoyance to residents and workers, but would not cause any damage to the buildings. Construction vibration, similar to vibration from other sources, would not have any significant effects on outdoor activities (e.g., those outside of residences and commercial/office buildings in the project vicinity). Outdoor site preparation for Specific Plan facilities is expected to include the use of bulldozers and loaded trucks. The greatest levels of vibration are anticipated to occur during the site preparation phase. All other phases are expected to result in lower vibration levels. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project boundary (assuming the construction equipment would be used at or near the project boundary) because vibration impacts occur normally within the buildings. The formula for vibration transmission is provided below.

$$\begin{aligned}L_v\text{dB (D)} &= L_v\text{dB (25 ft)} - 30 \text{ Log (D/25)} \\ \text{PPV}_{\text{equip}} &= \text{PPV}_{\text{ref}} \times (25/\text{D})^{1.5}\end{aligned}$$

For typical construction activity, the equipment with the highest vibration generation potential is the large bulldozer, which would generate 87 VdB at 25 feet. These vibration levels would not be expected to cause damage to residential buildings of normal northern California construction. However, such vibration levels can cause annoyance for occupants of nearby buildings.

Development projects associated with the Specific Plan are not proposed at this time; therefore, it is unknown if pile driving would occur with implementation of the Plan. An impact pile driver used for pile driving activities would approach 104 VdB (0.644 in/sec PPV) at 25 feet. This vibration level from construction equipment would exceed the FTA 94 VdB (0.2 in/sec PPV)

⁴ Federal Transit Administration, 2006. Office of Planning and Environment. *Transit Noise and Vibration Impact Assessment*. FTA-VA-90-1003-06. May.

threshold for damage potential and would exceed the 72 VdB threshold for residences due to frequent events, thus resulting in potential annoyance or damage to surrounding uses. Specifically, residences or other structures within 100 feet of pile driving activities would exceed the FTA threshold for damage potential and residences within 300 feet of pile driving activities would potentially be subject to vibration levels that could cause annoyance. Therefore, in order to reduce exposing persons to excessive groundborne vibration and noise levels, the following mitigation measure, enforcing best management practices, shall be implemented.

Table 4.5.I: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L _v at 25 feet	
	PPV (in/sec)	L _v (VdB) ^a
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 Bulldozer	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Sources: *Transit Noise and Vibration Impact Assessment* (FTA 2006).

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

μin/sec = micro-inches per second

FTA = Federal Transit Administration

in/sec = inches per second

L_v = velocity in decibels

PPV = peak particle velocity

RMS = root-mean-square

VdB = vibration velocity decibels

Impact NOI-2: Construction activities associated with implementation of the Specific Plan could create significant short-term vibration impacts on nearby sensitive land uses. (S)

The following mitigation measure would reduce construction-related vibration impacts resulting from development associated with implementation of the Specific Plan.

Mitigation Measure NOI-2: Any projects associated with the Specific Plan that would require pile driving located within 100 feet of any structure, shall develop a vibration control plan by the project applicant and approved by the City prior to initiating any pile driving activities. The plan shall be implemented before, during, and after pile driving activity. The plan shall consider all potential vibration-inducing activities that would occur and require implementation of sufficient measures to prevent exposure of nearby sensitive receptors to vibration levels in excess of the FTA threshold of 94 VdB (0.2 in/sec PPV). The plan shall identify minimum setback requirements for pile driving activities for the purpose of preventing damage to nearby structures and preventing negative human response. The setback requirements shall be established based on the proposed construction activities and locations and the maximum allowable vibration levels identified

for the site. Factors to be considered include the specific nature of the vibration producing activity, local soil conditions, and the fragility/resiliency of the nearby structures.

When the final schedule of pile driving activities has been determined, all sensitive receptors within 300 feet of pile driving activities shall be notified of dates in which these activities would take place. (LTS)

Implementation of Mitigation Measure NOI-2 would ensure that the exposure of sensitive receptors to excessive groundborne vibration levels from demolition and construction activities is sufficiently mitigated to be less than significant.

Permanent Increase in Ambient Noise. Potential noise impacts could occur with implementation of the Specific Plan including excessive noise associated with traffic noise sources throughout the Plan Area, as described below.

To assess traffic noise impacts, the traffic noise levels along major roadway segments within the Plan Area were projected using FHWA modeling to predict traffic noise level conditions. FHWA modeling was based on existing traffic conditions as documented in Chapter 4.2, Traffic and Circulation. FHWA modeling results are summarized in Table 4.5.J. The table includes projected traffic noise levels measured at 50 feet from the centerline of the outermost traveled lane along the modeled roadway segments. The model does not account for existing sound walls or terrain features that could reduce traffic noise levels at adjacent land uses, but rather assumes a worst-case direct line-of-sight over hard surface to the modeled traffic noise sources. Appendix B provides the specific assumptions used in developing these noise levels and model printouts.

The largest increase in traffic-related noise as a result of implementation of the Specific Plan would be on Pine Street, west of Broadway, with up to a 1.6 dBA increase under Near Term Plus Project conditions and up to a 1.3 dBA increase under Cumulative Plus Project conditions. The resulting noise levels would be 56.6 dBA L_{dn} under Near Term Plus Project conditions and 57.2 dBA L_{dn} under Cumulative Plus Project conditions, which would both remain below the City's normally acceptable exterior noise level for residential and commercial land uses. In addition, the noise level increase would be well below the significance criteria for noise-level increases of 3 dBA or more. Therefore, this impact would be less than significant and no mitigation is required to address an increase in traffic-related noise.

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Table 4.5.J: Existing and Cumulative Traffic Noise Levels Without and Plus Specific Plan

Roadway Segment	Existing		Near Term					Cumulative				
	No Project		No Project		Plus Project			No Project		Plus Project		
	ADT	L _{dn} (dBA) 50 feet from Centerline of Outermost Lane	ADT	L _{dn} (dBA) 50 feet from Centerline of Outermost Lane	ADT	L _{dn} (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions	ADT	L _{dn} (dBA) 50 feet from Centerline of Outermost Lane	ADT	L _{dn} (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions
Main Street - south of Parkside Drive	24,520	65.0	24,650	65.0	25,690	65.2	0.2	28,360	65.6	29,090	65.7	0.1
Parkside Drive - east of Main Street	15,160	61.0	15,310	61.1	16,500	61.4	0.3	18,220	61.8	18,570	61.9	0.1
Broadway - south of Parkside Drive	7,610	59.5	7,650	59.6	9,860	60.7	1.1	10,650	61.0	11,110	61.2	0.2
Parkside Drive - east of Broadway	10,400	59.4	10,480	59.4	10,930	59.6	0.2	12,180	60.1	12,430	60.2	0.1
Main Street - north of California Boulevard/ Lawrence Way	25,320	65.1	25,450	65.1	26,430	65.3	0.2	28,970	65.7	29,690	65.8	0.1
Main Street - south of California Boulevard/ Lawrence Way	24,770	65.0	24,940	65.0	26,160	65.3	0.3	28,530	65.6	29,440	65.8	0.2
California Boulevard/ Lawrence Way - east of Main Street	13,170	62.3	13,240	62.3	13,560	62.4	0.1	15,070	62.9	15,320	62.9	0.0
California Boulevard/ Lawrence Way - west of Main Street	13,800	62.5	13,830	62.5	13,930	62.5	0.0	15,750	63.1	15,790	63.1	0.0
Pine Street - west of Broadway	2,660	55.0	2,660	55.0	3,840	56.6	1.6	3,330	55.9	4,480	57.2	1.3
Pine Street - east of Broadway	3,740	56.5	3,740	56.5	4,300	57.1	0.6	4,850	57.6	5,160	57.9	0.3
California Boulevard - north of Trinity Avenue/Civic Drive	18,350	63.7	18,460	63.7	18,870	63.8	0.1	20,940	64.3	21,330	64.4	0.1
Trinity Avenue/Civic Drive - east of California Boulevard	10,070	63.1	10,070	63.1	10,400	63.3	0.2	11,670	63.8	11,840	63.9	0.1

Table 4.5.J: Existing and Cumulative Traffic Noise Levels Without and Plus Specific Plan

Roadway Segment	Existing		Near Term					Cumulative				
	No Project		No Project		Plus Project			No Project		Plus Project		
	ADT	L _{dn} (dBA) 50 feet from Centerline of Outermost Lane	ADT	L _{dn} (dBA) 50 feet from Centerline of Outermost Lane	ADT	L _{dn} (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions	ADT	L _{dn} (dBA) 50 feet from Centerline of Outermost Lane	ADT	L _{dn} (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions
Cole Avenue - west of California Boulevard	1,220	51.6	1,220	51.6	1,250	51.7	0.1	1,800	53.3	1,830	53.3	0.0
Main Street - north of Civic Drive	8,680	60.5	8,810	60.5	9,490	60.9	0.4	10,240	61.2	10,840	61.4	0.2
Civic Drive - east of Broadway	21,140	66.4	21,140	66.4	21,140	66.4	0.0	24,210	67.0	24,300	67.0	0.0
Arroyo Way - east of Main Street	2,450	54.6	2,460	54.6	3,160	55.7	1.1	3,600	56.3	3,870	56.6	0.3
Civic Drive - north of Arroyo Way	24,660	67.0	24,790	67.1	26,020	67.3	0.2	28,790	67.7	29,520	67.8	0.1
Arroyo Way - east of Main Street	16,600	62.6	16,610	62.6	16,700	62.6	0.0	18,870	63.1	18,940	63.1	0.0
Civic Drive - north of Arroyo Way	25,520	64.4	25,540	64.4	25,730	64.5	0.1	28,790	65.0	28,970	65.0	0.0
Olympic Boulevard - east of Paulson Lane/SB 1-680 Ramps	186,000	80.8	24,650	65.0	25,690	65.2	0.2	28,360	65.6	29,090	65.7	0.1
Olympic Boulevard - east of NB I-860 Ramps	24,520	65.0	15,310	61.1	16,500	61.4	0.3	18,220	61.8	18,570	61.9	0.1

Source: LSA (March 2018).

Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

ADT = average daily traffic

L_{dn} = Day/Night Noise Level

dBA = A-weighted decibels

Temporary Increase in Ambient Noise Levels. Construction associated with implementation of the Specific Plan would occur over a period of approximately 20 years. Construction activities associated with development allowed under the Specific Plan could result in substantial temporary or periodic increases in ambient noise levels at development sites throughout the Plan Area.

Construction of specific projects associated with implementation of the Specific Plan would require the use of earthmovers such as bulldozers and scrapers, loaders and graders, water trucks, and pickup trucks. Pile driving could also be used as a construction technique for some projects based on geologic constraints. The typical maximum noise level generated by backhoes within the Plan Area is assumed to be 78 dBA L_{max} at 50 feet from the operating equipment. The maximum noise level generated by bulldozers is approximately 82 dBA L_{max} at 50 feet. Noise level generated by pile driving can range up to 101 dBA L_{max} at 50 feet from the operating equipment. Each doubling of the sound sources with equal strength would increase the noise level by 3 dBA. Assuming each piece of construction equipment operates at some distance apart from the other equipment, the worst-case combined noise level during the loudest phase of construction would be 86 dBA L_{max} at a distance of 50 feet.

As discussed above, construction noise would result in a temporary or periodic increase in ambient noise levels in the Plan Area above levels existing without implementation of the Specific Plan.

Impact NOI-3: Noise from construction activities associated with new development within the Plan Area would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. (S)

Implementation of the following mitigation measure would reduce potential construction period noise impacts to less-than-significant levels.

Mitigation Measure NOI-3: The following standard measures to minimize construction noise impacts shall be implemented by all development projects proposed under the Specific Plan:

- Equip all internal combustion engine driven equipment with intake and exhaust mufflers which 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 project area.
- Utilize "quiet" air compressors and other stationery noise sources where technology exists.
- When necessary, temporary noise control blanket barriers should shroud pile drivers or be erected in a manner to shield the adjacent land uses. Such noise control blanket barriers can be rented and quickly erected.

- Foundation pile holes should be pre-drilled to minimize the number of impacts required to seat the pile. The pre-drilling of foundation pile holes is a standard construction noise control technique. Pre-drilling reduces the number of blows required to seat the pile.
- Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.
- Ensure that all general construction related activities are restricted to 7:00 a.m. and 6:00 p.m. Monday through Friday. No construction activities shall be permitted on Saturday, Sunday, or holidays. (LTS)

Implementation of the above mitigation measure would limit construction activities to the less noise-sensitive periods of the day and would reduce construction impacts to a less-than-significant level.

Aircraft Noise. As noted in the existing conditions discussion above, aircraft noise in the City of Walnut Creek is primarily related to the Buchanan Field Airport, located approximately 4.8 miles north of the Plan Area. In addition, Oakland International Airport is located approximately 13.9 miles southwest of the Plan Area, Livermore Municipal Airport is located approximately 19 miles southeast of the Plan Area, and Travis Air Force Base is located approximately 23 miles north of the Plan Area. Aircraft overflights associated with these airports are audible from the Plan Area, however no portion of the Plan Area is within 55 dBA CNEL noise contours of these airports nor does any portion of the Plan Area lie within 2 miles of any private airfield or heliport. Therefore, the Specific Plan would not result in the exposure of sensitive receptors to excessive noise levels from aircraft noise sources.

4.5.2.3 Cumulative Impacts

CEQA defines cumulative impacts as "two or more individual effects, which, when considered together, are considerable, or which can compound or increase other environmental impacts." Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts that are individually limited but cumulatively significant. These impacts can result from the proposed project alone, or together with other projects. The CEQA Guidelines state: "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects." Cumulative impacts can result from individually minor but collectively significant projects taking place over time.

The Specific Plan would not create a cumulatively considerable contribution to regional noise conditions. The largest increase in traffic-related noise as a result of implementation of the Specific Plan would be on Pine Street, west of Broadway, with up to a 1.3 dBA increase under Cumulative Plus Project conditions. The resulting noise level would be 57.2 dBA L_{dn} , which would remain below the City's normally acceptable exterior noise level for residential and commercial land uses. In addition, the noise level increase would be well below the significance criteria for noise-level increases of 3 dBA or more.

In addition, implementation of Mitigation Measure NOI-3 would ensure that construction of projects associated with the Specific Plan would not result in adverse noise impacts from construction activities. In addition, construction-related noise impacts would be temporary and would no longer occur once construction of projects associated with the Specific Plan are completed. Therefore, construction activities would not be considered a cumulatively considerable contribution to the total noise environment in the Plan Area and this impact would be less than significant.

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4.6 GEOLOGY, SOILS, AND SEISMICITY

This section evaluates, at a programmatic level, the geotechnical conditions potentially affecting implementation of the proposed Walnut Creek North Downtown Specific Plan (Specific Plan). The setting section describes the geologic environment of the Plan Area based on published and unpublished geologic reports and maps and technical reports from U.S. Geological Survey (USGS), the California Geological Survey (CGS), the U.S. Department of Agriculture (USDA), and other sources. This section also assesses potential impacts related to geologic and seismic hazards, including impacts from strong ground shaking, liquefaction, slope failure, lateral slope deformation, differentiated settlement, and unstable or expansive soils, and describes mitigation measures as necessary.

4.6.1 Setting

This section describes the existing geologic and seismic conditions in the Plan Area, and associated geohazards. The section also presents an overview of the pertinent federal, State, and local agency laws, regulations, and programs related to geology and seismicity.

4.6.1.1 Geologic Conditions

The 191-acre Plan Area is underlain by Miocene aged (5 to 20 million years old) sedimentary rocks and younger fine-grained unconsolidated sediments.¹

Topography. The Plan Area is located in the southern portion of a north-south trending valley,² and is characterized by relatively modest topographic relief (i.e., the Plan Area is relatively level). Minimum elevations within the Plan Area are approximately 135 feet above mean sea level.

Soils. Soil is generally defined as the unconsolidated mixture of mineral grains and organic material which mantles the land surfaces of the earth. Soils can develop on unconsolidated sediments, such as alluvium, and weathered bedrock. The characteristics of soil reflect the five major influences on their development: topography, climate, biological activity, parent material, and time. Regional soil mapping indicates that the Plan Area consists of four basic soil types, which exhibit a range properties related to shrink-swell potential. The soil units in the Plan Area are summarized in Table 4.6.A.

Table 4.6.A: Soils in the Plan Area

Soil Association/Name	Approximate Acreage within Plan Area	Linear Extensibility (shrink-swell)
Tierra loam, 9 to 15 percent slopes, MLRA 14	110	Low to High
Lodo clay loam, 30 to 50 percent slopes, very rocky, MLRA 15	44	Moderate
Clear Lake clay, 0 to 15 percent slopes, MLRA 15	14	High to Very High
Botella clay loam, 0 to 2 percent slopes, MLRA 14	13	Moderate

Source: U.S. Geological Survey (2018)

¹ U.S. Geological Survey, 2018. Geology Google Earth File. Available at: earthquake.usgs.gov/learn/topics/geologicmaps/geology.php (accessed on February 8, 2018).

² U.S. Geological Survey, 2015. Topo 7.5-minute map for Walnut Creek, California. Available at: store.usgs.gov/product/481328 (accessed on February 9, 2018).

4.6.1.2 Seismic Conditions

The Plan Area is located in the seismically active San Francisco Bay area within the San Andreas Fault Zone, a complex of active faults (active faults show evidence of fault rupturing within the past 11,000 years). Numerous historic earthquakes have been generated in northern California by the San Andreas Fault Zone. This level of active seismicity results in relatively high seismic risk in the Bay Area.

The closest active faults to the Plan Area include the Concord, Franklin, Clayton, and Pleasanton faults. Regional active faults in the Plan Area and vicinity are shown on Figure 4.6-1. The Working Group on California Earthquake Probabilities and the USGS have predicted a total probability of 72 percent that an earthquake of M_w 6.7³ or greater will occur on one of the regional Bay Area faults between 2014 and 2044.⁴

4.6.1.3 Seismic and Geologic Hazards

Seismic and geologic hazards include surface rupture, ground shaking, liquefaction and lateral spreading, expansive soils, slope instability, and settlement and differential settlement. Each of these potential hazards is discussed below.

Surface Rupture. Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. Surface rupture generally can be assumed to occur along an active or potentially active major fault trace. The Plan Area is not located within an area mapped as subject to surface rupture under the Alquist-Priolo Earthquake Fault Zoning Act, and no known active or potentially active faults cross the site.⁵ The nearest Alquist-Priolo Earthquake Fault Zone is the Concord Fault, located about 3.6 miles to the northeast of the Plan Area.⁶

³ M_w , as opposed to Richter Magnitude, is now commonly used to characterize seismic events. M_w is determined from the physical size (area) of the rupture of the fault plane, the amount of horizontal and/or vertical displacement along the fault plane, and the resistance to rupture of the rock type along the fault.

⁴ Field, E.H. and 2014 Working Group on California Earthquake Probabilities, 2015. *UCERF3: A New Earthquake Forecast for California's Complex Fault System*, USGS Fact Sheet 2015-3009. March.

⁵ California Department of Conservation, 1993. State of California Special Studies Zones, Walnut Creek Quadrangle, Revised Official Map (In compliance with Alquist-Priolo Special Studies Zones Act). Effective January 1. Available at: www.quake.ca.gov/gmaps/WH/regulatorymaps.htm (accessed February 8, 2018).

⁶ California Geological Survey, 2010. 2010 Fault Activity Map of California, Geologic Data Map No. 6. Available at: www.quake.ca.gov/gmaps/FAM/faultactivitymap.html (accessed February 8, 2018).

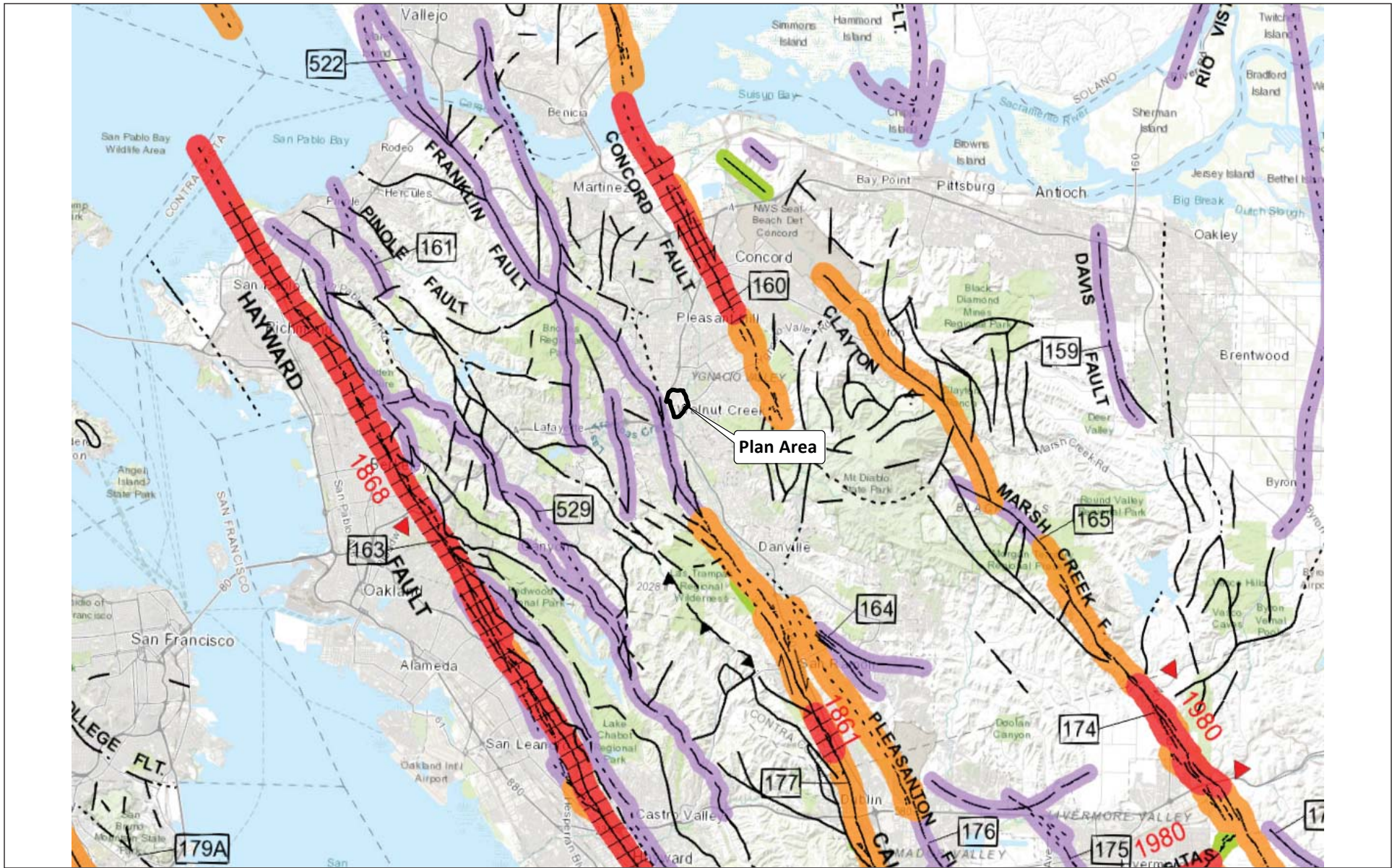


FIGURE 4.6-1

LSA

NOT TO SCALE



SOURCE: ARCGIS, 2018.

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North Downtown Specific Plan EIR
Faults Map

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Ground Shaking. Ground shaking is a general term referring to all aspects of motion of the earth’s surface resulting from an earthquake, and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. The Modified Mercalli Intensity Scale (MMI) is the most commonly used scale for measurement of the subjective effects of earthquake intensity, and is shown in Table 4.6.B, below. As described above, the closest active fault to the Plan Area is the Concord Fault, approximately 3.6 miles to the northeast. The Concord Fault (the Concord-Southern Green Valley segment) is considered capable of generating an M_w 6.8 earthquake. An earthquake of this magnitude on the Concord Fault would generate moderate ground shaking at the Plan Area.

Table 4.6.B: Modified Mercalli Intensity Scale

Intensity	Description/Damage
I	Not felt except by a very few under especially favorable circumstances.
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing of truck. Duration estimated.
IV	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
VII	Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted.

Source: Modified from California Geological Survey, 2002b. *How Earthquakes and Their Effects are Measured*, Note 32.

The plan area also has the potential to be subject to moderate (MM VI) to strong (MM VII) ground shaking generated by an earthquake on Calaveras Fault, Greenville Fault, Hayward Fault, Mt Diablo Fault, or San Andreas Fault.⁷

Liquefaction and Lateral Spreading. Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. Because saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths. Lateral spreading is a form of horizontal displacement of soil toward an open channel or other “free” face, such as an excavation boundary. In a lateral spread failure, a layer of ground at the surface is carried on an underlying layer of liquefied material over a nearly flat surface toward a river channel or other bank. The lateral spreading hazard tends to mirror the liquefaction hazard for a site.

USGS regional studies for the Bay Area provide information on Quaternary deposits and liquefaction susceptibility in the area.⁸ Based on these regional studies, mapping by the Association of Bay Area Governments (ABAG) rates the Plan Area as a low to moderate liquefaction hazard area.⁹ However, it should be noted that this designation is based on regional mapping and may not be accurate at a parcel level for individual projects in the Plan Area. Regional studies can provide guidance for general planning and hazard potential assessment; however, site-specific studies are necessary to assess the design and engineering requirements for any particular site.

Expansive Soils. Expansion and contraction of soil volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. As a consequence of such volume changes, structural damage to buildings and infrastructure can occur if potentially expansive soils are not considered in project design and during construction. The soils in the Plan Area, shown in Table 4.6.A, range from low to very high shrink-swell potential (i.e., low to very high linear extensibility). Moderate to very high shrink-swell potential soils are classified as expansive soils, which can pose geotechnical hazards to subsurface utilities and building foundations.¹⁰

Landslides. Slope failure can occur as either rapid movement of large masses of soil (landslide) or slow, continuous movement (creep) on slopes of varying steepness. The Plan Area and vicinity are relatively flat, and therefore have a relatively low susceptibility to landslides and creep. The only

⁷ Association of Bay Area Governments, 2013. Shaking Scenarios. Website: resilience.abag.ca.gov/earthquakes/ContraCosta (accessed February 8, 2018).

⁸ U.S. Geological Survey, 2006. Maps of Quaternary Deposits and Liquefaction Susceptibility in the Central San Francisco Bay Region. Website: pubs.usgs.gov/of/2006/1037 (accessed February 8, 2018).

⁹ Association of Bay Area Governments, 2013. Liquefaction Susceptibility. Website: resilience.abag.ca.gov/earthquakes/contracosta (accessed February 8, 2018).

¹⁰ U.S. Department of Agriculture, 2015. Natural Resources Conservation Service, Web Soil Service. Website: websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (accessed June 19, 2018).

area mapped as having very “few landslides” is along the southwestern boundary of the Plan Area.¹¹ In addition, the Plan Area is not included in an area deemed by the USGS to be susceptible to earthquake-induced landslides.¹²

Settlement, Differential Settlement, and Subsidence. Settlement is the lowering of the land surface elevation as a result of loading (i.e., placing heavy loads, typically fill or structures), which often occurs with the development of a site. Settlement or differential (i.e., unequal) settlement could occur if buildings or other improvements are built on low-strength foundation materials (including imported non-engineered fill) or if improvements straddle the boundary between different types of subsurface materials (e.g., a boundary between native material and/or new engineered fill). Although settlement generally occurs slowly enough that its effects are not dangerous to inhabitants, it can cause significant building damage over time. Portions of the Plan Area that contains loose or uncontrolled (non-engineered) fill or recent alluvial sediments may be susceptible to differential settlement.

Subsidence is the lowering of the land-surface elevation. The mechanism for subsidence is generally related to groundwater pumping and subsequent consolidation of loose aquifer sediments. The primary hazards associated with subsidence are increased flooding hazards and damage to underground utilities as well as above-ground structures. Other effects of subsidence include changes in the gradients of stormwater and sanitary sewer drainage systems in which the flow is gravity-driven. The Plan Area is built out and water is provided via the water supply utility, East Bay Municipal Utility District. There are no significant agricultural or industrial activities that result in the substantial pumping withdrawal of water from the underlying aquifer that would contribute to subsidence in the Plan Area.

4.6.1.4 Regulatory Framework

Federal, State, and local regulations and programs related to geology, seismicity, soils and building safety that are applicable to the Plan Area are described below.

Federal National Earthquake Hazards Reduction Program. The National Earthquake Hazards Reduction Program (NEHRP) was established by the US Congress when it passed the Earthquake Hazards Reduction Act of 1977, Public Law (PL) 95–124. In establishing NEHRP, Congress recognized that earthquake-related losses could be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early-warning systems, coordinated emergency preparedness plans, and public education and involvement programs. The four basic NEHRP goals are:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation.
- Improve techniques for reducing earthquake vulnerabilities of facilities and systems.

¹¹ Association of Bay Area Governments, 2013. Existing Landslide Distribution. Website: resilience.abag.ca.gov/earthquakes/ContraCosta (accessed February 8, 2018).

¹² Association of Bay Area Governments, 2013. Earthquake Induced Landslide Study Zones. Website: resilience.abag.ca.gov/earthquakes/ContraCosta (accessed February 8, 2018).

- Improve earthquake hazards identification and risk assessment methods, and their use.
- Improve the understanding of earthquakes and their effects.

Several key federal agencies contribute to earthquake mitigation efforts. These are the four primary NEHRP agencies:

1. National Institute of Standards and Technology of the Department of Commerce
2. National Science Foundation
3. USGS of the Department of the Interior
4. Federal Emergency Management Agency of the Department of Homeland Security

Implementation of NEHRP priorities is accomplished primarily through original research, publications, and recommendations to assist and guide State, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

California Alquist-Priolo Earthquake Fault Zoning Act. The California Alquist-Priolo Earthquake Fault Zoning Act (AP Act) was passed in 1972. The main purpose of this legislation is to prevent the construction of buildings used for human occupancy on active faults. As mentioned above, the Plan Area is not located within an area mapped as subject to surface rupture under the Alquist-Priolo Earthquake Fault Zoning Act, and no known active or potentially active faults cross the Plan Area.

California Seismic Hazards Mapping Act (SHMA). In 1990, following the Loma Prieta earthquake, the California Legislature enacted the SHMA to protect the public from the effects of strong ground shaking, liquefaction, landslides, and other seismic hazards. The SHMA established a statewide mapping program to identify areas subject to violent shaking and ground failure; the program is intended to assist cities and counties in protecting public health and safety. The SHMA requires the State Geologist to delineate various seismic hazard zones, and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. As a result, the CGS is mapping SHMA Zones and has completed seismic hazard mapping for the portions of California most susceptible to liquefaction, ground shaking, and landslides (primarily the Bay Area and the Los Angeles basin). Before a development permit is granted for a site within a seismic hazard zone, a geotechnical investigation must be conducted and appropriate mitigation measures incorporated into the project design. No landslide or liquefaction zones have been identified within the Plan Area under the SHMA.

California Building Standards Code. The 2016 California Building Code (CBC), which refers to Part 2 of the California Building Standards Code in Title 24 of the California Code of Regulations, is based on the 2015 International Building Code, and is the most current State building code. The 2016 CBC covers grading and other geotechnical issues, building specifications, and non-building structures. The City of Walnut Creek Municipal Code amends the most current State building codes, as indicated in Municipal Code Title 9 Chapter 9-1. The City's Building Division is responsible for reviewing plans, issuing permits, and conducting field inspections.

The CBC requires that a site-specific geotechnical investigation report be prepared by a licensed professional for proposed developments of one or more buildings greater than 4,000 square feet to evaluate geologic and seismic hazards. Buildings less than or equal to 4,000 square feet also are required to prepare a geologic engineering report, except for one-story, wood-frame and light-steel-frame buildings that are located outside of the Alquist-Priolo Earthquake Faults Zones.

The purpose of a site-specific geotechnical investigation is to identify seismic and geologic conditions that may need to be addressed to ensure safety and adequate performance of improvements, such as surface fault ruptures, ground shaking, liquefaction, differential settlement, lateral spreading, expansive soils, and slope stability. Requirements for the geotechnical investigation are presented in Chapter 16 “Structural Design” and Chapter 18 “Soils and Foundation” of the 2016 CBC. Geotechnical investigation reports for individual projects within the Plan Area would be reviewed by the Building Division prior to issuance of building permits.

City of Walnut Creek General Plan. The following actions from the 2025 Walnut Creek General Plan address geology and seismicity:¹³

Chapter 4: Built Environment

- **Goal 32: Meet or exceed State and federal water-quality standards**
 - Policy 32.1: Support regional, State, and federal clean water efforts
 - Action 32.1.4: Prohibit development in areas particularly susceptible to erosion and sediment loss.

Chapter 6: Safety and Noise

- **Goal 1: Protect life and property from geologic hazards**
 - Policy 1.1: Reduce the potential effects of seismic and other geologic hazards, including slope instability
 - Action 1.1.1: Identify areas prone to seismic and other geologic hazards, including slope instability.
 - Action 1.1.2: Establish minimum road widths and clearances around structures at risk from known geologic hazards.
 - Action 1.1.3: Review and update the existing maps of geologic hazards.
 - Action 1.1.4: Require appropriate mitigations for new development or redevelopment in areas prone to seismic and other geologic hazards.

¹³ Walnut Creek, City of, 2006. *General Plan 2025*. April 4.

- Action 1.2.1: Identify high risk areas after taking into account soil stability, history of soil slippage, proximity to earthquake faults, slope grade, accessibility, and drainage conditions, and continue to assign low intensity uses, not exceeding a density of one dwelling unit per 20 acres to such areas.
- Action 1.2.2: As updated seismic-hazard zone maps become available, incorporate them into the general plan.
- Action 1.2.3: Identify areas where surface ruptures are most likely to occur and cause damage to human-made structures, such as dams.
- Action 1.2.4: For development proposals submitted in areas near earthquake fault zones listed under the Alquist-Priolo Act, require a geotechnical evaluation to identify hazard mitigation measures needed to reduce risk to life and property from earthquake-induced hazards.
- Action 1.2.5: For development proposals submitted in areas near high or very high liquefaction-susceptibility areas, require a geotechnical evaluation including mitigation measures needed to reduce the risk to life and property from earthquake-induced hazards.

City of Walnut Creek Municipal Code. The City of Walnut Creek establishes and enforces requirements for grading, excavation, filling, site improvement activities through the Municipal Code Title 9 Chapter 9. The Municipal Code requires the preparation of a soils and engineering geology report as a part of the grading permit application, through Ordinance 9-9.04. A grading permit is not required for an excavation below finished grade authorized by a building permit, cemetery graves, utilities, and other cases specified under Ordinance 9-9.02. A soils and engineering geology report may be waived if a project's design is conservative and would more than compensate for the lack of in-place soils data. The Municipal Code also specifies the implementation of best management practices (BMPs) through grading plans, erosion control plans, and other documents. These BMPs for construction include but are not limited to: hydroseeding, biodegradable erosion control blankets, silt fences at downstream storm drain inlets, and post-construction clearing of accumulated debris and sediment in drainage structures.

City of Walnut Creek Annex to Local Hazard Mitigation Plan. As a part of the Contra Costa County multi-jurisdictional Hazard Mitigation Plan, the City of Walnut Creek prepared an addition to the plan, referred to as a plan "annex".¹⁴ The annex rates earthquake and landslide risks in the City of Walnut Creek as high. The mitigation strategies in the plan annex that apply to geologic and seismic safety are listed below.

- WC-1: Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.

¹⁴ Contra Costa County, 2018. *Hazard Mitigation Plan Draft Final, Volume 2 – Planning Partner Annexes*. January.

- WC-2: Integrate the hazard mitigation plan into other plans, ordinances, and programs that dictate land use decisions in the community, including the General Plan, Climate Action Plan, and the Capital Improvement Plan.
- WC-3: Actively participate in the plan maintenance protocols outlined in the Contra Costa County Hazard Mitigation Plan.
- WC-6: Create a soft-story building inventory for the City of Walnut Creek.
- WC-17: Provide Grants and low cost permits to property owners to strengthen soft-story buildings.

4.6.2 Impacts and Mitigation Measures

This section discusses potential impacts related to geology, soils, and seismicity that could result from implementation of the Specific Plan. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with implementation of the Specific Plan and identifies mitigation measures, as appropriate.

4.6.2.1 Criteria of Significance

Implementation of the Specific Plan would result in a significant impact related to geology, soils, and seismicity if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - 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 the other substantial evidence of a known fault;
 - Strong seismic ground shaking;
 - Seismic-related ground failure, including liquefaction; or
 - Landslides;
- Result in substantial soil erosion or loss of topsoil;
- 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;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;

- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

4.6.2.2 Project Impacts

The growth and changes to land use (commercial, industrial, and residential) in the Plan Area resulting from implementation of the Specific Plan could result in increased development and population within the Plan Area. Implementation of the Specific Plan could therefore result in additional people and structures being exposed to geohazards, including seismic risks, liquefaction, slope instability, soil settlement or compaction, and adverse soil conditions (e.g., expansive soils) within the Plan Area. The following section discusses potential geology, soils, and seismicity impacts associated with implementation of the Specific Plan.

Seismic Hazards. The State Geologist has not mapped any Alquist Priolo Earthquake Fault Zones within the Plan Area; therefore future developments under the Specific Plan would not likely expose people to adverse effects associated with surface fault rupture. However, the major regional faults located near the Plan Area are capable of producing moderate to strong ground shaking in the City; these faults include Concord Fault, Calaveras Fault, Greenville Fault, Hayward Fault, Mt Diablo Fault, and San Andreas Fault (Figure 4.6-1). Based on the Modified Mercalli Intensity Scale, strong seismic shaking could cause considerable damage in specially designed structures and great damage in ordinary buildings that have not been built to comply with the current CBC, and could cause extensive non-structural damage to buildings within the Plan Area. Seismic hazard zones are areas where ground shaking from a seismic event could trigger liquefaction and/or landslides. CGS has not mapped seismic hazard zones in the Plan Area.

Existing federal and State regulations, programs, and standards, including the NEHRP, AP Act, SHMA, and CBC, as discussed above, are designed to provide current information detailing seismic hazards, impose regulatory requirements regarding geotechnical and soils investigations, provide limitations on the locations of structures for human habitation, impose requirements for hazard notices to potential users, and establish structural standards and/or requirements for building and grading projects. These regulations, programs, and standards would reduce the impacts of seismic hazards on new redevelopments and redevelopments in the Plan Area. In addition, the implementation of the following actions of the Walnut Creek General Plan would guide new development projects:

Chapter 6: Safety and Noise

- **Goal 1: Protect life and property from geologic hazards**
 - Policy 1.1: Reduce the potential effects of seismic and other geologic hazards, including slope instability
 - Action 1.1.4: Require appropriate mitigations for new development or redevelopment in areas prone to seismic and other geologic hazards.
 - Action 1.2.1: Identify high risk areas after taking into account soil stability, history of soil slippage, proximity to earthquake faults, slope grade, accessibility, and drainage

conditions, and continue to assign low intensity uses, not exceeding a density of one dwelling unit per 20 acres to such areas.

- Action 1.2.4: For development proposals submitted in areas near earthquake fault zones listed under the AP Act, require a geotechnical evaluation to identify hazard mitigation measures needed to reduce risk to life and property from earthquake-induced hazards.
- Action 1.2.5: For development proposals submitted in areas near high or very high liquefaction-susceptibility areas, require a geotechnical evaluation including mitigation measures needed to reduce the risk to life and property from earthquake-induced hazards.

In addition, the following mitigation strategies from the Contra Costa County Hazard Mitigation Plan, Walnut Creek Plan Annex (Annex), are applicable to existing structures within the Plan Area:

- WC-6: Create soft-story building inventory for the City of Walnut Creek.
- WC-17: Provide Grants and low cost permits to property owners to strengthen soft-story buildings.

Soft-story buildings, as described in Strategy WC-6, are typically two- to three-story multi-family buildings with ground floor carports and other ground floor openings which require additional stability to withstand a major earthquake. Such structures have been identified as a vulnerable component of the building stock and would benefit from the installation of shear walls and other improvements to reduce the risk of collapse. The Annex determined that there are buildings with soft-story construction, which are vulnerable to the earthquake hazard, located within the City, and that preparation of an inventory of these soft story structures was needed. However, the City did not have the funding or staff to complete this task. The City will continue to enforce and require compliance with current building codes for all major renovation and redevelopment proposals, which will decrease over time the number of vulnerable soft story structures within the Plan Area.

Any projects that trigger the grading permit requirements under the City of Walnut Creek's Municipal Code, Title 9, Chapter 9, will need to include a soils and engineering geology report, which contains a qualitative and quantitative description of the geology of a project site, recommendations regarding the proposed development, and conclusions and recommendations regarding grading procedures and design criteria. Most projects that include any grading or excavation within the Plan Area would be required to obtain a grading permit and prepare a site-specific soils and engineering geology report as a part of the application. With implementation of the actions from the Walnut Creek General Plan (listed above), the requirement for soft story retrofits of existing buildings during redevelopment projects, and the requirement for a site-specific geotechnical report under the Municipal Code, the potential for new development within the Plan Area to expose people or structures to seismic-related adverse effects is less than significant.

Soil Erosion Hazards. Development or redevelopment under the Specific Plan would include construction activities that could potentially result in substantial erosion because construction activities could include grading and exposure of soils to rainfall and runoff.

Soil erosion could result in degradation of stormwater quality and affect the quality of receiving waters. As discussed in Chapter 4.7, Hydrology and Water Quality, all projects that result in disturbance or grading of 1 acre or more would be required to comply with the State Water Resources Control Board's National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended in 2011 (Construction General Permit). To obtain coverage under the Construction General Permit, a project applicant must submit various documents, including a Notice of Intent and a site-specific stormwater pollution prevention plan (SWPPP). Activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as grubbing or excavation. The purpose of the SWPPP is to identify the sources of sediment and other pollutants that could affect the quality of stormwater discharges and to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges resulting from construction activity. The relevant BMPs applicable to projects of all sizes are included in the General Grading Regulations in the City of Walnut Creek Municipal Code, Title 9, Chapter 9, Section 9-9.07. These practices include hydroseeding, biodegradable erosion control blankets, silt fences at downstream storm drain inlets, and post-construction clearing of accumulated debris and sediment in drainage structures.

Further, the implementation of the following action of the Walnut Creek General Plan would guide new development and reduce soil erosion hazards:

Chapter 4: Built Environment

- Action 32.1.4: Prohibit development in areas particularly susceptible to erosion and sediment loss.

Compliance with the requirements of the Construction General Permit, the Walnut Creek Municipal Code, and Action 32.1.4 would ensure that potential impacts related to erosion and loss of topsoil are less than significant.

Unstable Soils including Landslides and Subsidence. This section discusses potential impacts of the Specific Plan related to landslides, subsidence, liquefaction and lateral spreading, and expansive soils.

Landslides. Regional USGS mapping indicates that earthquake-induced slope failure is generally not a likely geologic hazard. Even though landslide hazards in the Plan Area are negligible, the following actions from the Walnut Creek General Plan would still be applicable and ensure that landslide hazards are considered in review of proposed new development plans:

Chapter 6: Safety and Noise

- Action 1.1.1: Identify areas prone to seismic and other geologic hazards, including slope instability.
- Action 1.1.4: Require appropriate mitigations for new development or redevelopment in areas prone to seismic and other geologic hazards.
- Action 1.2.1: Identify high risk areas after taking into account soil stability, history of soil slippage, proximity to earthquake faults, slope grade, accessibility, and drainage conditions, and continue to assign low intensity uses, not exceeding a density of one dwelling unit per 20 acres to such areas.

Landslide hazards within the Plan Area are considered negligible. Compliance with the above General Plan actions would further reduce the potential for landslide hazards to result in adverse impacts within the Plan Area. Therefore, impacts related to landslides are less than significant.

Subsidence. Groundwater pumping is not proposed as a component of the North Downtown Specific Plan. Therefore, the Specific Plan would have no impact related to subsidence.

Liquefaction and Lateral Spreading. The Plan Area is mapped as having low to moderate liquefaction hazard. Lateral spreading toward unsupported slopes can be caused by ground shaking and resulting liquefaction. Since the Plan Area is relatively flat and is not mapped as an area with high liquefaction hazard, lateral spreading is unlikely to occur. In addition, most projects that would involve any grading would be required to submit a soils and engineering geology report, as discussed above. The City of Walnut Creek's Municipal Code, Title 9, Chapter 9, will ensure that design and grading recommendations relevant to liquefaction and lateral spreading are implemented through a project's grading permit application. Therefore, with the requirements in the City of Walnut Creek's Municipal Code, potential impacts related to liquefaction and lateral spreading are less than significant.

In conclusion, the impacts of the Specific Plan related to unstable soils are less than significant.

Expansive Soils Soils within the Plan Area have been identified as having low to very high shrink/swell potential. Structural damage of buildings or rupture of utilities may occur if the potentially expansive soils are not considered in the design and construction of future redevelopment projects.

As discussed above, the City of Walnut Creek requires new development to submit a grading plan that contains a site-specific soils and engineering geology report, under the Municipal Code Title 9, Chapter 9. The site-specific analysis is required to consider the qualities of the soil, including the shrink-swell potential. If steep slopes are proposed by new development, slope stability analysis is also required. In addition, the implementation of the following actions from the Walnut Creek General Plan would guide new development and address geologic hazards such as expansive soils:

Chapter 6: Safety and Noise

- Action 1.1.1: Identify areas prone to seismic and other geologic hazards, including slope instability
- Action 1.1.4: Require appropriate mitigations for new development or redevelopment in areas prone to seismic and other geologic hazards.
- Action 1.2.1: Identify high risk areas after taking into account soil stability, history of soil slippage, proximity to earthquake faults, slope grade, accessibility, and drainage conditions, and continue to assign low intensity uses, not exceeding a density of one dwelling unit per 20 acres to such areas.

Compliance with the Walnut Creek Municipal Code and General Plan Actions identified above would ensure that impacts related to expansive soils are less than significant.

Soils Supporting Alternative Wastewater Disposal Systems. The Plan Area would be served by a municipal sewer system and would not use septic tanks or alternative wastewater disposal system. Therefore, the Specific Plan has no impact related to this criterion.

Cumulative Impacts. Implementation of the Specific Plan would not affect the seismic or geologic environment of the Plan Area and its vicinity. However, the seismic and geologic conditions in the Plan Area and its vicinity could affect future development; such effects are related to site-specific hazards and would be mitigated on a project-by-project basis. The site-specific impacts from geologic and seismic hazards on developments are not transferable to other sites. Therefore, the Specific Plan would not contribute to a cumulative impact that would be considerable, since other developments in the City of Walnut Creek outside of the Plan Area would similarly be affected by site-specific geologic and seismic conditions.

4.7 HYDROLOGY AND WATER QUALITY

This section describes the hydrologic environment of the Plan Area, including runoff, drainage, and water quality characteristics, based on the information obtained from a review of federal, State, and local documents and reports. The latter part of this section presents the potential hydrology and water quality impacts associated with implementation of the North Downtown Specific Plan and provides mitigation measures as necessary.

4.7.1 Setting

This section provides a brief description of the existing hydrological setting at and near the Plan Area; the regulations affecting water resources at the federal, State, and local level; and local policies and programs related to hydrology and water quality.

4.7.1.1 Climate

The climate of the Plan Area vicinity is characterized as Mediterranean, with cool wet winters and warm dry summers. The average annual high temperature is approximately 72 degrees Fahrenheit (F), and the average annual low temperature is approximately 45 degrees F.¹ The mean annual rainfall in the Plan Area for the period between 1893 and 1974 was approximately 20 inches, and primarily occurred from October through April.² During the period of record, annual rainfall has varied from approximately 11 inches (1932) to approximately 35 inches (1940), with a highest one-day precipitation total of approximately 4.2 inches on October 13, 1962.³

4.7.1.2 Runoff and Drainage

The Plan Area is located in a relatively flat and highly urbanized area. The existing ground surface elevation of the Plan Area is generally above 140 feet above the North American Vertical Datum of 1988 (NAVD88).⁴

The Plan Area is almost entirely developed with impervious surfaces. Stormwater drains into the City's storm sewer system through multiple inlets located throughout the Plan Area. The City's storm sewer system drains into Walnut Creek, located along the southeastern edge of the Plan Area, and eventually discharges into Suisun Bay, 10 miles to the north of the Plan Area.

4.7.1.3 Flooding

Walnut Creek is located along the southeastern edge of the Plan Area. The southeastern portion of the Plan Area is designated as "Special Flood Hazard Areas" Zone AE on Flood Insurance Rate Maps (FIRMs) published by Federal Emergency Management Agency (FEMA). The "Special Flood Hazard Areas" Zone AE designation indicates that the southeastern portion of the Plan Area has 1 percent

¹ Western Regional Climate Center, 2018a. General Climate Summary Tables-Temperature, Walnut Creek 2 ESE, California. Website: wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca9423 (accessed February 12, 2018).

² Western Regional Climate Center, 2018b. General Climate Summary Tables-Precipitation, Walnut Creek 2 ESE, California. Website: wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca9423 (accessed February 12, 2018).

³ Ibid.

⁴ U.S. Geological Survey, 2015. Walnut Creek Quadrangle, California-Contra Costa County, 7.5-Minute Series.

annual chance of flooding. Portions of the Plan Area are designated as “Other Flood Areas” Zone X, which includes: portions along Giammona Drive, portions along Locust Street between Lacassie Avenue and Trinity Avenue, and portions along Ygnacio Valley Road between N. Broadway and Civic Drive. The “Other Flood Areas” Zone X designation indicates that portions of the Plan Area have 0.2 percent annual chance of flooding.^{5,6}

The Plan Area is relatively far from any open water shoreline. Suisun Bay is located 10 miles to the north of the Plan Area. Other major water bodies in the vicinity of the Plan Area include Mallard Reservoir, located approximately 7 miles to the north, Briones Reservoir, approximately 7 miles to the west and Lafayette Reservoir, approximately 4 miles to the southwest of the Plan Area.

The southeastern portion of the Plan Area is within the mapped inundation area for Lafayette Reservoir.⁷

4.7.1.4 Coastal Hazards

A detailed description of coastal hazards, including sea level rise, seiche, tsunami, and extreme high tides is provided below.

Sea Level Rise. According to the San Francisco Bay Conservation and Development Commission (BCDC), sea level (including in the San Francisco Bay) is rising and is expected to continue to rise even with existing efforts to mitigate global warming through reduction of greenhouse gas emissions.⁸ Rates of sea level rise may vary at specific locations, as local subsidence or uplift affects the relative change in sea level between land masses and the ocean. In the San Francisco Bay area, the background rate of sea level rise has been estimated to be approximately 0.076 inches per year from 1900 to 2008.⁹ Since the Plan Area is not located close to the shoreline areas and at a relatively higher elevation (i.e., more than 140 feet above sea level), the Plan Area is not considered vulnerable to sea level rise.

Seiche. A seiche is the oscillation of a body of water. Seiches occur most frequently in enclosed or semi-enclosed basins such as lakes, bays or harbors. They can be triggered in an otherwise still body of water by strong winds, changes in atmospheric pressure, earthquakes, tsunami, or tides. Triggering forces that set off a seiche are most effective if they operate at specific frequencies relative to the size of an enclosed basin. Coastal measurements of sea level often show seiches with amplitudes of a few centimeters and periods of a few minutes due to oscillations of the local harbor, estuary, or bay, superimposed on the normal tidal changes. To produce significant seiching in a body of water, the forcing periods must be close to the natural period of the bay or one of the

⁵ Federal Emergency Management Agency, 2009. Flood Insurance Rate Map, Contra Costa County, California and Incorporated Areas, Map Number 06013C0287F, 06013C0291F. Effected June 16.

⁶ Federal Emergency Management Agency, 2017. Flood Insurance Rate Map, Contra Costa County, California and Incorporated Areas, Map Number 06013C0289G, 06013C0293G.

⁷ California Governor's Office of Emergency Services, 2000. Included as Figure 4.10-3 in West Downtown Specific Plan EIR.

⁸ San Francisco Bay Conservation and Development Commission, 2011. *Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline*, approved October 6.

⁹ National Research Council of the National Academies, 2012. *Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*, Chapter 4.

overtones.¹⁰ Seiches are not considered a hazard in the San Francisco Bay (Bay) based on the natural oscillations of the Bay.¹¹ Since the Plan Area is not located close to the shoreline areas and at a relatively higher elevation (i.e., more than 140 feet above sea level), the Plan Area is not considered vulnerable to seiches.

Tsunami. Tsunamis are long period water waves caused by underwater seismic events, volcanic eruptions, or undersea landslides. Tsunamis affecting the San Francisco Bay region would originate west of the Bay, in the Pacific Ocean. Areas that are highly susceptible to tsunami inundation tend to be low-lying coastal areas, such as tidal flats, marshlands, and former bay margins that have been artificially filled. Inundation or damage caused by a tsunami may disrupt highway traffic in those low-lying areas. Tsunamis entering San Francisco Bay through the relatively narrow Golden Gate would tend to dissipate as the energy of the wave spreads out as the Bay becomes wider and shallower.¹² Association of Bay Area Governments Resilience Program maps tsunami inundation area for emergency planning. The Plan Area is not designated as a tsunami inundation area according to the applicable mapping.¹³

Extreme High Tides. Extreme high tides in San Francisco Bay result from the combined effects of astronomical high tides (related to the lunar cycle) and other factors, including winds, barometric pressure, ocean temperatures, and freshwater runoff. In California, the highest astronomical tides occur in the summer and winter, and therefore extreme high tides are most likely to occur during these times. Since the Plan Area is not located close to the shoreline areas and at a relatively higher elevation, the Plan Area is not considered vulnerable to extreme high tides.

4.7.1.5 Water Quality

The quality of surface water and groundwater in the vicinity of the Plan Area is affected by past and current land uses at the Plan Area and within the watershed and the composition of geologic materials in the vicinity. The State Water Resources Control Board (State Water Board) and nine Regional Water Quality Control Boards regulate water quality of surface water and groundwater bodies throughout California. In the Bay Area, including the Plan Area vicinity, the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) is responsible for implementing the Water Quality Control Plan (Basin Plan).¹⁴ The Basin Plan establishes beneficial water uses for waterways and water bodies within the region and is a master policy document for managing water quality in the region.

Suisun Bay is located approximately 10 miles north of the Plan Area, and is listed as providing the existing beneficial uses of industrial service supply, industrial process supply, commercial and sport

¹⁰ Borrero, J., L. Dengler, B. Uslu, and C. Synolakis, 2006. *Numerical Modeling of Tsunami Effects at Marine Oil Terminals in San Francisco Bay*, June 8. Report prepared for: Marine Facilities Division of the California State Lands Commission.

¹¹ Ibid.

¹² Ibid.

¹³ Association of Bay Area Governments, 2018. Resilience Program. Website: gis.abag.ca.gov/website/Hazards/?hlyr=tsunami (accessed February 14, 2018).

¹⁴ San Francisco Bay Regional Water Quality Control Board, 2015a. *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)*. Incorporating all amendments as of March 20.

fishing, estuarine habitat, fish migration, preservation of rare and endangered species, fish spawning, wildlife habitat, water contact recreation, noncontact water recreation, and navigation.¹⁵ Walnut Creek is located along the southeastern edge of the Plan Area. Under the Basin Plan, Walnut Creek is listed as providing cold freshwater habitat, fish migration, preservation of rare and endangered species, fish spawning, warm freshwater habitat, wildlife habitat, water contact recreation, and noncontact water recreation.¹⁶

The northern portion of the Plan Area is located in the Ygnacio Valley Groundwater Basin, which is listed in the Basin Plan as providing the potential beneficial uses of municipal and domestic water supply, industrial process water supply, industrial service water supply, and agricultural water supply.¹⁷ There is no published groundwater quality data for the basin.¹⁸

4.7.1.6 Regulatory Framework

Federal, State, and local regulations related to hydrology and water quality are described below.

Federal Regulations. Federal regulations related to water quality are described below.

Federal Clean Water Act of 1972. The Federal Clean Water Act of 1972 (CWA) is the primary federal law that protects the quality of the nation’s surface waters, including lakes, rivers, and coastal wetlands. It is administered by the U.S. Environmental Protection Agency (USEPA). The CWA operates on the principle that all discharges into the nation’s waters are unlawful unless specifically authorized by a permit. The USEPA has delegated its authority to implement and enforce most of the applicable water quality provisions of these sections to the individual states. In California, the provisions are enforced by nine Regional Water Boards under the auspices of the State Water Board.

National Pollutant Discharge Elimination System Permit Program. Under Section 402 of the CWA, the discharge of pollutants through a point source into waters of the United States is prohibited unless the discharge is in compliance with an NPDES permit. The NPDES program regulates the discharge of pollutants from municipal and industrial wastewater treatment plants and sewer collection systems, as well as stormwater discharges from industrial facilities, municipalities, and construction sites. In California, implementation and enforcement of the NPDES program is conducted through the State Water Board and the nine Regional Water Boards. The Regional Water Boards set standard conditions for each permittee in their region, which includes effluent limitations and monitoring programs.

Federal Flood Insurance Program. In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. The NFIP makes federally-backed flood insurance available for communities that agree to adopt and enforce floodplain management

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ California Department of Water Resources, 2004. *California’s Groundwater: Ygnacio Valley Groundwater Basin, Bulletin 118*. February 27.

ordinances to reduce future flood damage. FEMA manages the NFIP and creates FIRMs that designate 100-year floodplain zones and delineate other flood hazard areas. A 100-year floodplain zone is the area that has a 1-in-100 (1 percent) chance of being flooded in any one year based on historical data.

State Regulations. State regulations related to water quality are described below.

Porter-Cologne Act and State Implementation of Clean Water Act Requirements. The Porter-Cologne Water Quality Control Act (California Water Code, Division 7, Water Quality) was promulgated in 1969. It established the State Water Board and divided the State into nine hydrologic regions, each overseen by a Regional Water Board. The State Water Board is the primary State agency responsible for protecting the quality of the State's surface and groundwater supplies, but much of its daily implementation authority is delegated to the nine Regional Water Boards. The Porter-Cologne Act also provides for the development and tri-annual review of Water Quality Control Plans that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. The City of Walnut Creek lies within the jurisdiction of the San Francisco Bay Regional Water Board which enforces compliance with water quality objectives for beneficial uses of surface waters.

NPDES Construction General Permit. Construction Projects disturbing more than 1 acre of land during construction are required to comply with the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002 (Construction General Permit).¹⁹

To obtain coverage under the Construction General Permit, the project applicant must provide via electronic submittal, a Notice of Intent, a Storm Water Pollution Prevention Plan (SWPPP), and other documents required by Attachment B of the Construction General Permit. Activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as grubbing or excavation. The permit also covers linear underground and overhead projects such as pipeline installations. Construction General Permit activities are regulated at a local level by the Regional Water Board.

The Construction General Permit uses a risk-based permitting approach and mandates certain requirements based on the project risk level (i.e., Level 1, Level 2, or Level 3). The project risk level is based on the risk of sediment discharge and the receiving water risk. The sediment discharge risk depends on the project location and timing (i.e., wet season versus dry season activities). The receiving water risk depends on whether the project would discharge to a sediment-sensitive receiving water. The determination of the project risk level would be made by the project applicant when the Notice of Intent is filed (and more details of the timing of the construction activity are known).

¹⁹ State Water Resources Control Board, 2009. Division of Water Quality. *Construction General Permit Fact Sheet*. 2009-0009-DWQ amended by 2010-0014-DWQ & 2012-0006-DWQ.

The performance standard in the Construction General Permit is that dischargers shall minimize or prevent pollutants in stormwater discharges and authorized non-stormwater discharges through the use of controls, structures, and best management practices (BMPs) that achieve Best Available Technology (BAT) for treatment of toxic and non-conventional pollutants and Best Conventional Technology (BCT) for treatment of conventional pollutants. A SWPPP must be prepared by a Qualified SWPPP Developer that meets the certification requirements in the Construction General Permit. The purpose of the SWPPP is (1) to help identify the sources of sediment and other pollutants that could affect the quality of stormwater discharges; and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges resulting from construction activity. Operation of BMPs must be overseen by a Qualified SWPPP Practitioner that meets the requirements outlined in the permit.

The SWPPP must also include a construction site monitoring program. Depending on the project risk level, the monitoring program may include visual observations of site discharges, water quality monitoring of site discharges (pH, turbidity, and non-visible pollutants, if applicable), and receiving water monitoring (pH, turbidity, suspended sediment concentration, and bioassessment).

NPDES Municipal Regional Permit. Pursuant to Section 402 of the CWA and the Porter-Cologne Water Quality Control Act, municipal stormwater discharges in the City of Walnut Creek are regulated under the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit, Order No. R2-2015-0049, NPDES Permit No. CAS612008, adopted October 14, 2009 (MRP). The MRP is overseen by the Regional Water Board.²⁰ The City is part of the Contra Costa Clean Water Program, which provides guidance and assistance to municipalities in Contra Costa County to help them comply with requirements of the MRP.

MRP Provision C.3 addresses post-construction stormwater management requirements for new development and redevelopment projects that create or replace 10,000 square feet²¹ or more of impervious surface. Provision C.3 requires these projects to implement Low Impact Development (LID) source control, site design, and stormwater treatment. LID employs principles such as preserving and recreating natural landscape features and minimizing impervious surfaces to create functional and appealing site drainage that treats stormwater as a resource, rather than a waste product. Practices used to adhere to these LID principles include measures such as rain barrels and cisterns, green roofs, permeable pavement, preserving undeveloped open space, and biotreatment through rain gardens, bioretention units, bioswales, and planter/tree boxes.

²⁰ San Francisco Bay Regional Water Quality Control Board, 2015b. San Francisco Bay Region Municipal Regional Stormwater NPDES Permit, Order No. R2-2015-0049, NPDES Permit No. CAS612008. November 19.

²¹ Special Land Use Categories (auto service facilities, retail gasoline outlets, restaurants, or stand-alone uncovered parking lots) that create or replace 5,000 square feet or more of impervious surface are also regulated under MRP Provision C.3.

MRP Provision C.3.g pertains to hydromodification management.²² This MRP provision requires that stormwater discharges associated with new development or redevelopment projects that create and/or replace one acre or more of impervious surface do not cause an increase in the erosion potential of the receiving stream over the existing condition. Increases in runoff flow and volume shall be managed so that the post-project runoff shall not exceed estimated pre-project rates and durations, where such increased flow and/or volume is likely to cause increased potential for erosion of creek beds and banks, silt pollutant generation, or other adverse impacts on beneficial uses due to increased erosive force.

Local Regulations. Local regulations and plans related to water quality are described below.

Walnut Creek General Plan 2025. Chapter 4, Built Environment, of the City of Walnut Creek General Plan 2025 contains the following goals, policies, and actions related to hydrology and water quality:

Chapter 4: Built Environment

- **Goal 11: Create a balanced, safe, and efficient regional and subregional transportation system**
 - Policy 11.1: Require that commercial projects comply with the City’s performance standards for fire, police, parks, water, flood control, and sanitary sewer facilities.
- **Goal 32: Meet or exceed State and federal water-quality standards.**
 - Policy 32.1: Support regional, State, and federal clean water efforts.
 - Action 32.1.1: Implement the Stormwater Management Plan.
 - Action 32.1.2: Enforce the National Pollution Discharge Elimination System (NPDES) permit regulations.
 - Action 32.1.3: Seek Regional Water Quality Control Board NPDES exemptions for low- and moderate income housing and transit village projects.
 - Action 32.1.4: Prohibit development in areas particularly susceptible to erosion and sediment loss.
 - Action 32.1.5: Prepare information-and-action handouts on water-quality best management practices and provide this information with project application packets.

²² Hydromodification is defined as the modification of a stream’s hydrograph, caused in general by increases in flows and durations that result when land is developed (e.g., made more impervious). The effects of hydromodification include, but are not limited to, increased bed and bank erosion, loss of habitat, increased sediment transport and deposition, and increased flooding.

- Policy 32.2: In redevelopment projects in the Core Area²³, evaluate the desirability of specific, off-site, source-control measures.
- Policy 32.3: Maximize infiltration of rainwater into the soil, where appropriate.
 - Action 32.3.1: Reduce the amount of impervious surfaces in new development and redevelopment.
 - Action 32.3.2: Require that impervious surfaces not drain directly into storm drains.
- Policy 32.4: Reduce the transport of urban runoff and surface pollutants offsite.
 - Action 32.4.1: Verify the effectiveness of stormwater treatment facilities.
 - Action 32.4.2: Verify, through the commercial, industrial, and illicit discharge inspection programs, that interior floor drains are connected to the sanitary sewer system.
- Policy 32.5: Encourage preservation of natural water bodies and drainage systems.
 - Action 32.5.1: Retain natural water bodies and leave drainage systems undisturbed while allowing construction of adjacent creek walks.
 - Action 32.5.2: Prioritize onsite impacts and their mitigations.
 - Action 32.5.3: Require participation in offsite or regional programs—including stream restoration—that provide water-quality benefits within the same watershed, wherever development and/or redevelopment projects disturb natural water bodies or drainage systems.
- Policy 32.6: Reduce pollutant loading in the wastewater system.
 - Action 32.6.1: Apply best-management practices to discharges to the sanitary sewer.
 - Action 32.6.2: Establish a pesticide-reducing protocol for city parks.

Walnut Creek Municipal Code

- **Site Development.** Tile 9, Chapter 9 of the Walnut Creek Municipal Code establishes requirements for grading, excavation, filling, and site improvement. The City requires a permit for grading activities for projects that exceed certain criteria, such as depth of the excavation and degree of site slope. To obtain a grading permit, the applicant is required to

²³ Walnut Creek's Core Area is a 1.2-square-mile central district with higher densities than other parts of the city. (See Chapter 1, Introduction, of the City of Walnut Creek General Plan 2025, Figure 2, Planning Area Boundaries, page 1-6)

prepare a soils and engineering geology report that specifies detailed slope control measures, which would minimize the adverse effects of grading and soil erosion. Grading permits require that erosion control measures be employed during the rainy season to minimize erosion and sedimentation from rain and runoff during and after project construction.

- **Flood Damage Prevention.** Title 9, Chapter 12 of the Walnut Creek Municipal Code establishes flood-damage prevention measures to promote the public health, safety, and general welfare, and to minimize losses due to flooding. This ordinance restricts or prohibits uses that are dangerous due to water or erosion hazards or result in damaging increases in erosion, flood heights, or velocities. Uses that are vulnerable to floods are required to be protected against flood damage at the time of initial construction. The ordinance also includes provisions for controlling alteration of natural floodplains, stream channels, and natural protective barriers, and development activities, such as filling, grading, and dredging. The construction of flood barriers, which unnaturally divert flood waters or increase flood hazards in other areas, is also restricted or prohibited.

Specifically, construction or development of properties in the Special Flood Hazard Area are required to prepare an elevation survey of the property based upon elevation reference marks shown on the Special Flood Hazard Area map before building permits are issued. Title 9, Chapter 12 of the Walnut Creek Municipal Code also establishes permit review procedures, designates and identifies the duties of the floodplain administrator (the City Engineer), provides provisions for flood hazard reduction such as standards of construction, and identifies variance procedures.

- **Stormwater Management and Discharge Control.** Title 9, Chapter 16 of the Walnut Creek Municipal Code establishes stormwater management and discharge control measures to protect and enhance the water quality in the City of Walnut Creek's watercourses pursuant to the Porter-Cologne Water Quality Control Act. The ordinance is intended to minimize non-stormwater discharges and pollution caused by stormwater runoff from development. Discharges to the City's stormwater system from spills, dumping, or disposal of materials are also regulated. Section 9.16-105 requires the proponent for each development project that is subject to the MRP requirements to submit a stormwater control plan and implement conditions of approval that reduce stormwater pollutant discharges through the construction, operation and maintenance of treatment measures and other appropriate source control and site design measures. Increases in runoff volume, flows, and durations shall be managed in accordance with the development runoff requirements. The stormwater control plan shall contain performance standards to address both the construction and post-construction phase impacts on stormwater quality.

4.7.2 Impacts and Mitigation Measures

This section discusses potential impacts to hydrology and water quality that could result from implementation of the Specific Plan. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project.

4.7.2.1 Criteria of Significance

The proposed project would have a significant impact on the environment related to hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in substantial flooding on- or off-site;
- Create or contribute substantial runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a substantial risk of loss, injury or death involving flooding, including flooding as the result of the failure of a levee or dam; or
- Expose people or structures to a substantial risk of loss, injury or death as a result of inundation by seiche, tsunami, extreme high tides, and/or sea level rise.

The California Second District Court of Appeals has held that, although an EIR must analyze the environmental effects that may result from a project, an EIR is not required to examine the effects of the environment, such as sea level rise, on a project (see *Ballona Wetlands Land Trust v. City of Los Angeles*, 201 Cal. App. 4th 455).

The California Supreme Court concluded in the *California Building Industry Association vs. Bay Area Air Quality Management District (CBIA v. BAAQMD)* decision, that “CEQA generally does not require an analysis of how existing environmental conditions will impact a project’s future users or residents.” The *CBIA v. BAAQMD* ruling provided for several exceptions to the general rule where an analysis of the project on the environment is warranted: 1) if the project would exacerbate existing environmental hazards (such as exposing hazardous waste that is currently buried); 2) if the project qualifies for certain specific specified exemptions (certain housing projects and transportation

priority projects per PRC 21159.21 (f),(h); 21159.22 (a),(b)(3); 21159.23(a)(2)(A); 21159.24 (a)(1),(3); or 21155.1 (a)(4),(6)); 3) if the project is exposed to potential noise and safety impacts on the project occupants due to proximity to an airport (per PRC 21096); and 4) school projects requiring specific assessment of certain environmental hazards (per PRC 21151.8).

Based on these rulings and the information provided in the setting section, an analysis of the effects of inundation associated with sea level rise, seiches, tsunamis, or extreme high tides within the Plan Area, or flooding associated with placing new development within the 100-year flood hazard zone mapped by FEMA or failure of a levee or dam is not required under CEQA. As such, this EIR does not make CEQA significance determination related to inundation of projects proposed under the Specific Plan. A discussion of potential flooding effects on the project from the environment is presented for informational purposes only.

4.7.2.2 Project Impacts

The following section discusses potential hydrology and water quality impacts associated with implementation of the proposed project.

Water Quality Standards. New development under the proposed project would involve the use of hazardous materials, such as fuels, oils, paints, solvents, and adhesives. If stormwater contacts disturbed soil and/or improperly stored hazardous materials, sediments and contaminants could be entrained in stormwater runoff that could reach waterways and cause a violation of water quality standards or degrade water quality. The proposed project would be subject to existing water quality regulations and programs, as described in the Regulatory Framework section above. Specifically, construction activities for future development projects allowed by the Plan that disturb more than 1 acre of land would be required to comply with the requirements of the Construction General Permit. Construction activities subject to the Construction General Permit include clearing, grading, excavation, and stockpiling. In accordance with the Construction General Permit requirements, a SWPPP would be developed and implemented to identify all potential pollutants and their sources, including a list of BMPs to reduce discharges of construction-related stormwater pollutants. The SWPPP would include a detailed description of controls to reduce pollutants and outline maintenance and inspection procedures. The SWPPP would be required to be kept onsite and be made available to Regional Water Board inspectors. Typical sediment and erosion BMPs include protecting storm drain inlets, establishing and maintaining construction exits, and perimeter controls. The SWPPP would also define proper building material staging areas, paint and concrete washout areas, proper equipment/vehicle fueling and maintenance practices, controls for equipment/vehicle washing, and allowable non-stormwater discharges, and would include a spill prevention and response plan.

During operation, the proposed project would create potential sources of polluted runoff associated with motor vehicle traffic and the use of fertilizers for landscaped areas. Pollutants that may be transported in runoff from parking areas and roadways include sediment, metals, organic compounds including diesel, gasoline, and oil, and trash and debris. Future development projects

allowed by the Plan that create or replace 10,000 square feet²⁴ or more of impervious surface would be required to comply with the MRP requirements for LID source control, site design, stormwater treatment, and hydromodification management, as stormwater runoff from the proposed project drains to the City's stormwater collection system.

All future development projects allowed by the Plan, including those disturbing less than 1 acre of land and creating or replacing less than 10,000 square feet²⁵ of impervious surface, would be required to comply with policies and actions in Chapter 4, Built Environment, of the City's General Plan to protect water quality.

Chapter 4: Built Environment

- **Goal 32: Meet or exceed State and federal water-quality standards.**
 - Policy 32.1: Support regional, State, and federal clean water efforts.
 - Action 32.1.1: Implement the Stormwater Management Plan.
 - Action 32.1.2: Enforce the National Pollution Discharge Elimination System (NPDES) permit regulations.
 - Action 32.1.4: Prohibit development in areas particularly susceptible to erosion and sediment loss.
 - Action 32.1.5: Prepare information-and-action handouts on water-quality best management practices and provide this information with project application packets.
 - Policy 32.2: In redevelopment projects in the Core Area, evaluate the desirability of specific, off-site, source-control measures.
 - Action 32.3.1: Reduce the amount of impervious surfaces in new development and redevelopment.
 - Action 32.3.2: Require that impervious surfaces not drain directly into storm drains.
 - Policy 32.4: Reduce the transport of urban runoff and surface pollutants off-site.

²⁴ Special Land Use Categories (auto service facilities, retail gasoline outlets, restaurants, or stand-alone uncovered parking lots) that create or replace 5,000 square feet or more of impervious surface are also regulated under MRP Provision C.3.

²⁵ Ibid.

Tile 9, Chapter 9 of the Walnut Creek Municipal Code requires projects exceeding certain criteria to obtain a grading permit and prepare a soils and engineering geology report that contains slope control measures to minimize the adverse effects of grading and soil erosion. Section 9.16-105 of the City of Walnut Creek's Municipal Code requires a stormwater control plan for each new development project that is subject to the MRP requirements to be submitted to address both the construction and post-construction phase impacts on stormwater quality.

Implementation of these policies and actions in the General Plan and requirements in the City's Municipal Code, in conjunction with compliance with existing regulatory programs would ensure that water quality impacts related to development under the proposed project would be less than significant and no additional mitigation measures are required.

Depletion of Groundwater Resources. The Plan Area is almost entirely developed with impervious surfaces. The proposed project would not significantly alter the amount of impervious area, and therefore would not interfere substantially with groundwater recharge. In addition, the Plan Area is served by the East Bay Municipal Utilities District (EBMUD). Therefore, operation of the proposed project would not involve the use of groundwater as potable water.

The following policy and action in Chapter 4, Built Environment, of the City's General Plan promote infiltration of rainwater, which supports groundwater recharge:

Chapter 4: Built Environment

- Policy 32.3: Maximize infiltration of rainwater into the soil, where appropriate.
 - Action 32.3.1: Reduce the amount of impervious surfaces in new development and redevelopment.

Based on the existing conditions (largely covered with impervious surfaces) and required implementation of General Plan policies and actions that would tend to encourage infiltration of rainwater, impacts on groundwater resources under the proposed project would be less than significant.

Erosion and Siltation. Development and/or redevelopment under the proposed project could result in more intense use of the land, which could increase stormwater runoff volumes, potentially resulting in hydromodification impacts (degradation of water quality in creeks related to higher erosive flows). Existing stormwater regulations regarding construction and post-construction stormwater requirements under the Construction General Permit and MRP, respectively, include requirements for new development. Requirements for implementation of a SWPPP address potential construction-phase stormwater impacts for future development projects allowed by the Plan that disturb more than 1 acre of land. Potential impacts related to stormwater quality and increased runoff volumes during operation of new developments are addressed by provisions of the MRP for future development projects allowed by the Plan that create or replace 10,000 square feet²⁶ or more of impervious surface.

²⁶ Ibid.

Chapter 4, Built Environment, of the City's General Plan contains the following policies and actions to control stormwater runoff and minimize the potential for associated erosion and siltation effects for all future development projects allowed by the Plan, including those disturbing less than 1 acre of land and creating or replacing less than 10,000 square feet²⁷ of impervious surface:

Chapter 4: Built Environment

- Policy 32.1: Support regional, State, and federal clean water efforts.
 - Action 32.1.1: Implement the Stormwater Management Plan.
 - Action 32.1.2: Enforce the National Pollution Discharge Elimination System (NPDES) permit regulations.
 - Action 32.1.4: Prohibit development in areas particularly susceptible to erosion and sediment loss.
 - Action 32.1.5: Prepare information-and-action handouts on water-quality best management practices and provide this information with project application packets.
- Policy 32.2: In redevelopment projects in the Core Area, evaluate the desirability of specific, off-site, source-control measures.
 - Action 32.3.1: Reduce the amount of impervious surfaces in new development and redevelopment.
 - Action 32.3.2: Require that impervious surfaces not drain directly into storm drains.
- Policy 32.4: Reduce the transport of urban runoff and surface pollutants off-site.

Title 9, Chapter 9 of the Walnut Creek Municipal Code requires projects exceeding certain criteria to obtain a grading permit and prepare a soils and engineering geology report that contains slope control measures to minimize the adverse effects of grading and soil erosion. Section 9.16-105 of the City of Walnut Creek's Municipal Code requires a stormwater control plan for each new development project that is subject to the MRP requirements to be submitted to address both the construction and post-construction phase impacts on stormwater quality.

Implementation of these policies and actions in the General Plan and requirements in the City's Municipal Code, in conjunction with compliance with existing regulatory programs, would ensure that potential impacts related to erosion and siltation from stormwater under the proposed project would be less than significant and no additional mitigation measures are required.

²⁷ Ibid.

Flooding Associated with Changing Drainage Patterns. Since the Plan Area is relatively flat and already largely covered with impervious surfaces, substantial changes to drainage patterns and potential increases in flooding are not anticipated. Existing stormwater regulations regarding post-construction stormwater requirements under the MRP include requirements for new development creating or replacing more than 10,000 square feet²⁸ of impervious surface.

Furthermore, section 9.16-105 of the City of Walnut Creek's Municipal Code also requires preparation of a stormwater control plan for each new development project to address post-construction phase hydromodification impacts that could increase the rate and/or volume of runoff from development sites. This requirement would ensure that post-development storm water flow rates would not substantially exceed pre-development rates.

Compliance with existing regulatory programs and requirements in the City's Municipal Code would ensure that potential impacts related to flooding associated with changing drainage patterns under the proposed project would be less than significant and no additional mitigation measures are required.

Contribute Runoff Water or Polluted Runoff. Development and/or redevelopment under the proposed project could result in more intense use of the land, potentially resulting in increased pollutant loading of stormwater runoff and/or hydromodification impacts (degradation of water quality in creeks related to higher erosive flows). Construction activities, operation of new development, landscaping practices and associated changes in runoff patterns also have the potential to introduce contaminants to stormwater.

In areas of active construction, soil erosion may result in discharges of sediment-laden stormwater runoff into the City stormwater system, if not properly controlled, which could contribute to degradation of downstream water quality and impairment of beneficial uses. Sediment can also be a carrier for other pollutants, such as heavy metals, nutrients, pathogens, oil and grease, fuels and other petroleum products. In addition to sediment, other pollutants associated with the various phase of construction, such as trash, paint, solvents, sanitary waste from portable restrooms, and concrete curing compounds, can discharge into and impair receiving waters if released during construction.

Development under the proposed project may result in new sources of various stormwater pollutants that may be deposited on impervious surfaces, such as sediment, metals, organic compounds such as pesticides, polynuclear aromatic hydrocarbons and oil and grease, pathogens, nutrients, and trash and debris. Such pollutants may also be present in non-stormwater discharges, such as runoff from irrigation and residential car washing. If not properly controlled, the discharges of these pollutants into receiving waters could adversely affect water quality and beneficial uses.

The Construction General Permit and MRP include requirements for new development (described in detail above). In addition, Chapter 4, Built Environment, of the City's General Plan contains the following policies and actions to control stormwater runoff and minimize the potential for associated pollution effects.

²⁸ Ibid.

Chapter 4: Built Environment

- Policy 32.1: Support regional, State, and federal clean water efforts.
 - Action 32.1.1: Implement the Stormwater Management Plan.
 - Action 32.1.2: Enforce the National Pollution Discharge Elimination System (NPDES) permit regulations.
 - Action 32.1.4: Prohibit development in areas particularly susceptible to erosion and sediment loss.
 - Action 32.1.5: Prepare information-and-action handouts on water-quality best management practices and provide this information with project application packets.
- Policy 32.2: In redevelopment projects in the Core Area, evaluate the desirability of specific, off-site, source-control measures.
 - Action 32.3.1: Reduce the amount of impervious surfaces in new development and redevelopment.
 - Action 32.3.2: Require that impervious surfaces not drain directly into storm drains.
- Policy 32.4: Reduce the transport of urban runoff and surface pollutants off-site.

Tile 9, Chapter 9 of the Walnut Creek Municipal Code requires projects exceeding certain criteria to obtain a grading permit and prepare a soils and engineering geology report that contains slope control measures to minimize the adverse effects of grading and soil erosion and a remediation plan if known pollutants are present. Section 9.16-105 of the City of Walnut Creek’s Municipal Code requires a stormwater control plan for each new development project that is subject to the MRP requirements to be submitted to address both the construction and post-construction phase impacts on stormwater quality.

Implementation of these policies and actions in the General Plan and requirements in the City’s Municipal Code, in conjunction with compliance with existing regulatory programs, would ensure that potential impacts related to potential stormwater runoff contributions and pollution under the proposed project would be less than significant.

Other Water Quality Degradation Impacts. Development under the proposed project could result in water quality degradation, as described in “Contribute Runoff Water or Polluted Runoff”, above. Compliance with NPDES permit requirements, the General Plan policies and actions, and the City’s Municipal Code requirements identified above would ensure that this impact is less than significant.

Flooding Impacts, Including Dam or Levee Failure. Development under the proposed project could place new development within the 100-year flood hazard zone mapped by FEMA. In addition, the southeastern portion of the Plan Area is within the mapped inundation area for Lafayette Reservoir.²⁹ However, as determined by the EIR for the Walnut Creek General Plan, inundation related to dam failure is not considered a significant impact.³⁰

The City's Municipal Code requires construction or development of properties in the Special Flood Hazard Area to prepare an elevation survey of the property based upon elevation reference marks shown on the Special Flood Hazard Area map before building permits are issued. The City's Municipal Code also establishes permit review procedures, designates and identifies the duties of the floodplain administrator (the City Engineer), provides provisions for flood hazard reduction such as standards of construction, and identifies variance procedures.

Compliance with the requirements in the City's Municipal Code would reduce potential flooding impacts, including dam failure. The discussion of potential flooding effects on the project from the environment is presented for informational purposes only because it is not required under CEQA.

Inundation by Seiche, Tsunami, Extreme High Tide or Sea Level Rise. Walnut Creek is generally at low risk to seiche and tsunami according to Walnut Creek General Plan EIR.³¹ In addition, since the Plan Area is not located close to the shoreline areas and at a relatively higher elevation, the Plan Area is not considered vulnerable to extreme high tides or sea level rise

4.7.2.3 Cumulative Impacts

The geographic area of concern for cumulative hydrology and water quality impacts is the City of Walnut Creek and the receiving water bodies, primarily Walnut Creek and Suisun Bay. As both these water bodies are currently designated as "impaired" by the State Water Board, a cumulative water quality impact is currently occurring.

To adequately address cumulative water quality impacts, stormwater regulations have become progressively more stringent since the passage of the federal CWA, and current NPDES permits now require new development and redevelopment projects to manage and treat all significant sources of stormwater pollutants and reduce runoff. NPDES permit requirements apply to the cumulative projects as well as the proposed project. As such, a reduction in runoff and overall pollutant loads in stormwater in the vicinity of the Plan Area is anticipated over time, thereby reducing cumulative impacts. As all specific development projects within the Plan Area would be required to comply with NPDES programs and applicable General Plan requirements, the contribution of these future projects would not be cumulatively considerable.

²⁹ California Governor's Office of Emergency Services, 2000, op. cit.

³⁰ Design, Community & Environment, 2005. *General Plan 2025 City of Walnut Creek, Draft Environmental Impact Report*. August 5.

³¹ Ibid.

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4.8 HAZARDS AND HAZARDOUS MATERIALS

This section provides an overview of potential hazards and hazardous materials on and near the Plan Area and assesses potential impacts to public health and safety and the environment that could result from implementation of the Specific Plan. Mitigation measures to reduce significant impacts are identified, where appropriate.

4.8.1 Setting

This section describes the existing conditions related to hazards and hazardous materials at and near the Plan Area, as well as applicable regulatory agency framework and local policies.

4.8.1.1 Potential Sources of Hazardous Materials on and Near the Plan Area

Hazardous Materials. Hazardous materials are primarily transported through the major corridor running through the City including along Interstate 680 (I-680), State Route 24 (SR 24), and Ygnacio Valley Road. Because the transportation of hazardous materials on roads in the City is currently unrestricted, the risk to public health and environment is present in the case of an accident involving hazardous materials.¹

The status and location of hazardous materials release sites under regulatory oversight for assessment and/or remediation actions are reported on the State Water Resources Control Board (State Water Board) GeoTracker database and the Department of Toxic Substances Control (DTSC) EnviroStor database. According to these databases, all of the known hazardous materials release sites in the Plan Area are related to leaking underground storage tanks (LUSTs).

As of February 2018, the State Water Board database² records identify 18 hazardous materials release sites in the Plan Area; 4 of those sites are under active regulatory agency oversight for site assessment and/or remediation and the remaining 14 sites have been closed, indicating that appropriate response actions have been completed to adequately remediate the release. The potential contaminant of concern at the active hazardous materials release sites is gasoline. No additional known hazardous materials release sites within the Plan Area are identified on the DTSC EnviroStor database.³ The hazardous materials release sites from the GeoTracker database are summarized in Table 4.8.A and shown on Figure 4.8-1. Redevelopment and construction on or near active hazardous materials release sites could pose a potential health risk to future construction workers, residents, and/or the public.

¹ Design, Community & Environment, 2005. *General Plan 2025 City of Walnut Creek, Draft Environmental Impact Report*. August 5.

² State Water Resources Control Board, 2018. GeoTracker Database. Available at: geotracker.waterboards.ca.gov (accessed February 20, 2018).

³ Department of Toxic Substances Control, 2018. EnviroStor Database. Available at: www.envirostor.dtsc.ca.gov/public (accessed February 20, 2018).

Table 4.8.A: Summary of Hazardous Materials Release Sites

Figure 4.8-1 Site ID	Facility Name	Address	Status
1	Chevron	2329 Main Street North	Open-Site Assessment
2	Li'L Bear Car Wash	2051 Main Street North	Open-Remediation
3	Li'L Bear Car Wash #1	604 Ygnacio Valley Road	Open-Remediation
4	Unocal	1823 Main Street North	Open-Assessment & Interim Remedial Action
5	Texaco	2330 Main Street North	Completed-Case Closed
6	Something Special Auto Wash	2170 Main Street North	Completed-Case Closed
7	Anderson Oldsmobile GMC	2100 Main Street North	Completed-Case Closed
8	US Postal Service Center	2070 Broadway North	Completed-Case Closed
9	Former Longs Drugs Headquarters	141 N. Civic Drive	Completed-Case Closed
10	BP #11147 (Former)	690 Ygnacio Valley Road	Completed-Case Closed
11	Pacific Bell	1755 Locust Street	Completed-Case Closed
12	Parker Robb Chevrolet	1707 Main Street North	Completed-Case Closed
13	Xtra Oil Company	1980 Main Street North	Completed-Case Closed
14	Braner Sloane Motors Inc	1840 Main Street North	Completed-Case Closed
15	SRS Development	1756 Broadway North	Completed-Case Closed
16	Former Exxon 7-2302	605 Ygnacio Valley Road	Completed-Case Closed
17	Anderson Oldsmobile GMC	635 Ygnacio Valley Road	Completed-Case Closed
18	Chevron	699 Ygnacio Valley Road	Completed-Case Closed

Source: State Water Resources Control Board, GeoTracker Database. Accessed by BASELINE (February 2018).

Note: Facility names derived directly from State Water Board regulatory database.

Hazardous Building Materials. Hazardous materials are commonly found in building materials that may be affected during demolition and renovation activities. Building materials such as thermal system insulation, surfacing materials, and asphalt and vinyl flooring materials installed in buildings prior to 1981 may contain asbestos.⁴ Lead compounds may be present in interior and exterior paints used for commercial buildings, regardless of construction date.⁵ Lead and asbestos are State-recognized carcinogens. Demolition or renovation activities in the Plan Area could release asbestos fibers and lead particles into the air, which then may be inhaled by construction workers and the general public. In addition, other common items present in buildings, such as electrical transformers, fluorescent lighting, electrical switches, heating/cooling equipment, and thermostats could contain hazardous materials, which may pose a health risk if not handled and disposed of properly.

⁴ California Code of Regulations, Title 8 Industrial Relations, Section 5208 Asbestos.

⁵ Department for Toxic Substances Control, 2006. *Interim Guidance Evaluation of School Sites with Potential Soil Contamination as a Result of Lead from Lead-Based Paint, Organochlorine Pesticides from Termiticides, and Polychlorinated Biphenyls from Electrical Transformers*. June 9 (Revised).

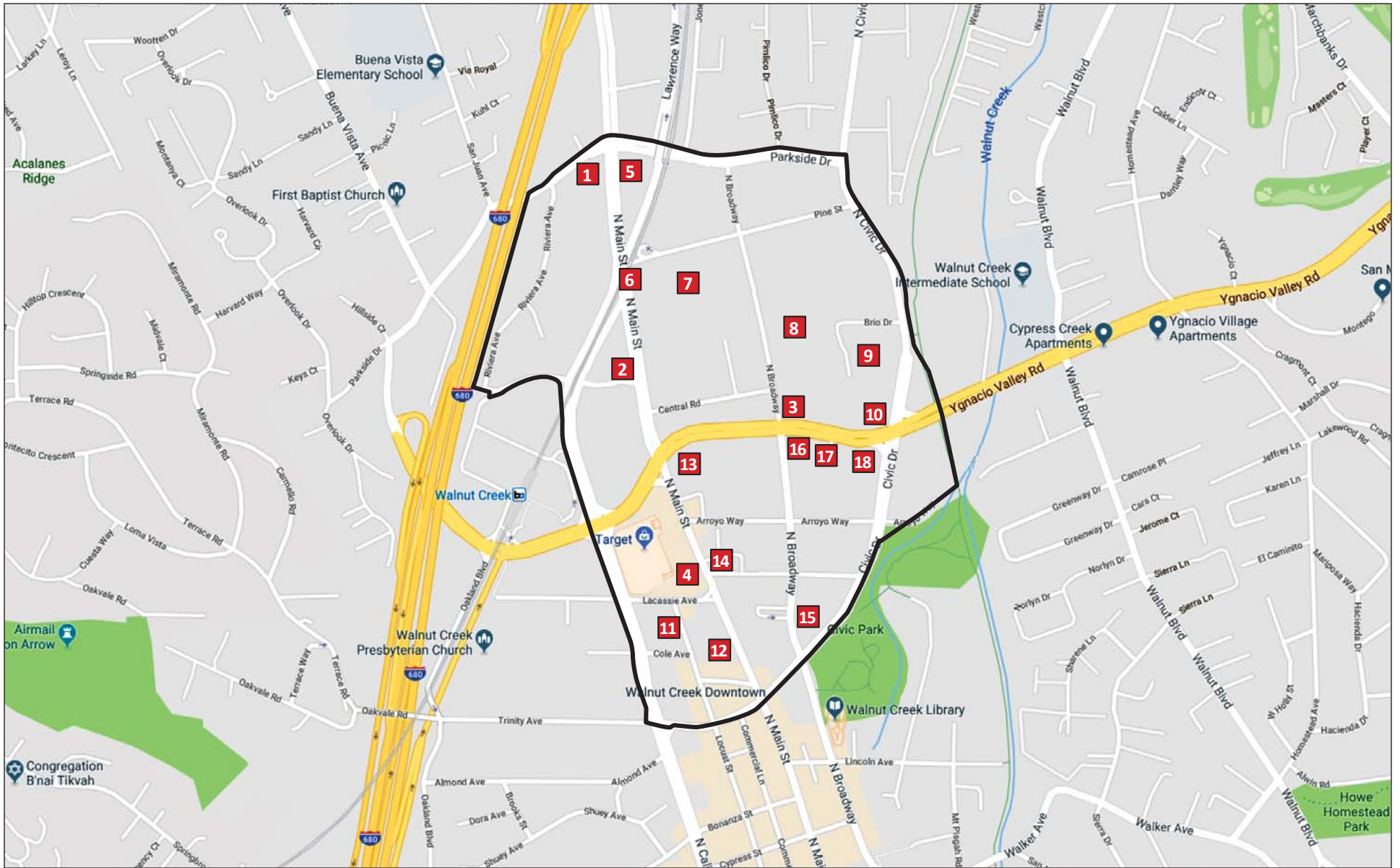
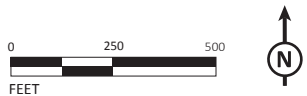


FIGURE 4.8-1

LSA



- Plan Area
- 14 Site ID #

SOURCE: GOOGLE MAPS, 2018.

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North Downtown Specific Plan EIR
Hazardous Materials Release Sites

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School Receptors. Children are more susceptible to adverse health effects from hazardous materials than the general population. No schools are located within the Plan Area. The following seven schools are located within .25 miles of the Plan Area:⁶ Buena Vista Elementary School (2355 San Juan Avenue); First Baptist Pre-School (2336 Buena Vista); Walnut Creek Christian Academy (2336 Buena Vista); S.T.A.R.S. School (2317 Buena Vista); Kids Connection-Alamo Site (350 North Civic Drive); Halstrom Academy – Walnut Creek (101 Ygnacio Valley Road); and Walnut Creek Pre-School (1801 Lacassie Avenue).

Airport Hazards. The Plan Area is located approximately 5 miles south of the nearest public use airport, Buchanan Field Airport.⁷ The Plan Area is not located within the Buchanan Field Airport influence area, and is located outside of the outer safety zone, Safety Zone 4.⁸ The nearest private facility to the Plan Area is the heliport for the John Muir Walnut Creek Medical Center, located approximately 1 mile east of the Plan Area.⁹ There are no private airstrips within 2 miles of the Plan Area.

Wildland Fire Hazards. The Plan Area is located in an area of high threat to people from wildland fires as mapped by the California Department of Forestry and Fire Protection.¹⁰

4.8.1.2 Regulatory Framework

The proper management of hazardous materials is a common concern for all communities. Beginning in the 1970s, governments at the federal, State, and local levels became increasingly concerned about the effects of hazardous materials on human health and the environment. Numerous laws and regulations were developed to investigate and mitigate these effects. As a result, the storage, use, generation, transport, and disposal of hazardous materials are highly regulated by federal, State, and local agencies. These agencies, as well as the laws, regulations, and programs they administer, are summarized below.

Federal. The following section identifies federal laws and regulations that would be applicable to the Specific Plan.

The U.S. Environmental Protection Agency. The U.S. Environmental Protection Agency (USEPA) is the federal agency responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials and hazardous waste. The federal regulations are primarily codified in Title 40 of the Code of Federal Regulations (CFR). The legislation includes the Resource Conservation and Recovery Act of 1976 (RCRA),¹¹ the Superfund Amendments and Reauthorization Acts of 1986 (SARA), and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The USEPA provides oversight for site

⁶ Great Schools, 2018. Website: www.greatschools.org (accessed February 20, 2018).

⁷ Federal Aviation Administration, 2018. Airport Contacts Information. Effective February 1, 2018.

⁸ Contra Costa County, 2000. *Contra Costa County Airport Land Use Compatibility Plan*, Chapter 3 Buchanan Field Airport Policies. December 13.

⁹ Federal Aviation Administration, 2018, op. cit.

¹⁰ Walnut Creek, City of, 2006. *City of Walnut Creek General Plan 2025*, Chapter 6, Safety and Noise. April 4.

¹¹ In 1976, RCRA was enacted to provide a general framework for the USEPA to regulate hazardous waste from the time it is generated until its ultimate disposal.

investigation and remediation projects, and has developed protocols for sampling, testing, and evaluation of solid wastes.¹²

The U.S. Department of Transportation. The U.S. Department of Transportation (DOT) is responsible for enforcement and implementation of federal laws and regulations regarding the transportation of hazardous materials. Parts 100-1085 of 49 CFR cover most hazardous materials transportation regulations. These include regulations for permitting, training, labeling, and placarding.

State Agencies. Three State agencies, described below, regulate hazardous materials and waste that may occur on or around the Plan Area.

Department of Toxic Substance Control. The DTSC is the agency authorized by the USEPA to enforce and implement federal hazardous materials laws and regulations. California regulations pertaining to hazardous materials are equal to or exceed the federal regulation requirements. Most State hazardous materials regulations are contained in Title 22 of the California Code of Regulations (CCR). The DTSC generally acts as the lead agency for soil and groundwater cleanup projects that affect public health, and establishes cleanup levels for subsurface contamination that are equal to, or more restrictive than, federal levels. The DTSC has also developed land disposal restrictions and treatment standards waste disposal in California.

State Water Resources Control Board. The State Water Board enforces, among other regulations, those regulations pertaining to implementation of underground storage tank programs. It also allocates monies to eligible parties who request reimbursement of State funds to clean up soil and groundwater pollution from LUST. The State Water Board also enforces the Porter-Cologne Water Quality Act of 1969 through its nine regional boards, including the San Francisco Bay Regional Water Board, described below.

California Air Resources Board. The California Air Resources Board (CARB) is responsible for coordination and oversight of State and local air pollution control programs in California, including implementation of the California Clean Air Act of 1988. CARB has developed State air quality standards and is responsible for monitoring air quality in conjunction with the local air districts.

Regional and Local Agencies. The regional water board, the air quality district, and the local governments all play a role in regulating or responding to hazards incidents.

San Francisco Bay Regional Water Quality Control Board. The San Francisco Bay Regional Water Quality Control Board (Regional Water Board) can act as a responsible agency to provide oversight of sites where the quality of groundwater or surface waters is threatened. The Regional Water Board has the authority to require investigations and remedial actions.

¹² U. S. Environmental Protection Agency, 2018a. The SW-846 Compendium. Website: www.epa.gov/hw-sw846/sw-846-compendium (accessed February 20, 2018). Updated November 29, 2017.

Bay Area Air Quality Management District. The Bay Area Air Quality Management District (BAAQMD) has primary responsibility for control of air pollution from sources other than motor vehicles and consumer products (which are the responsibility of the USEPA and CARB). The BAAQMD is responsible for preparation of attainment plans for non-attainment criteria pollutants, control of stationary air pollutant sources, management of volatile organic compound (VOC)-containing soils (District Rule 8-40), and the issuance of permits for activities including asbestos removal, demolition and renovation activities (District Rule 11-2).

Contra Costa Health Services Hazardous Materials Programs. The Contra Costa Health Services Hazardous Materials Programs (CCHSHMP) is the primary agency responsible for local enforcement of State and federal laws pertaining to hazardous materials and hazardous waste management. In Walnut Creek, the CCHSHMP is the Certified Unified Program Agency (CUPA), responsible for coordination of the following programs: Aboveground Petroleum Storage, Hazardous Materials Business Plan, California Accidental Release Prevention, Green Business Program, Hazardous Waste Generator, Incident Response, Industrial Safety Ordinance, Storm Water, Unannounced Inspection, and Underground Storage Tanks.¹³

Lead, Asbestos, and Other Hazardous Building Materials. Prior to 1978, lead compounds were commonly used in exterior and interior paints. Lead is a suspected human carcinogen (i.e., may cause cancer), a known teratogen (i.e., causes birth defects), and a reproductive toxin (i.e., can cause sterility). Prior to the 1980s, building materials often contained asbestos fibers, which are a known human carcinogen. Due to its strength and fire resistance, asbestos was frequently incorporated into insulation, roofing, siding, textured paint and patching compounds used on wall and ceiling joints, vinyl floor tiles and adhesives, and water and steam pipes.

Polychlorinated biphenyls (PCBs) were used as coolants and lubricants in transformers, capacitors, heating/cooling equipment, and other electrical equipment, and were also used as plasticizers in paints, plastics, rubber products, and caulking. Although manufacturing of PCBs has been banned in the United States since 1979, they may still be found in older electrical equipment and other building materials such as light ballasts and caulking. PCBs have been demonstrated to cause cancer and a variety of other adverse health effects in animals, including effects on the immune system, reproductive system, nervous system, and endocrine system. Studies in humans support evidence for potential carcinogenic and non-carcinogenic effects of PCBs.¹⁴ PCBs and PCB-contaminated items require proper off-site transport and disposal at a facility that can accept such wastes.

Fluorescent lighting tubes and ballasts, computer displays, and several other common items containing hazardous materials (including mercury, a heavy metal) are regulated as “universal wastes” by the State of California. Universal waste regulations allow common, low-hazard wastes to be managed under less stringent requirements than other hazardous wastes. Management of other hazardous wastes is governed by DTSC hazardous waste rules.

¹³ Contra Costa Health Services, 2018. Hazardous Materials Programs. Website: cchealth.org/hazmat/programs.php (accessed February 20, 2018).

¹⁴ U.S. Environmental Protection Agency, 2018b. Learn about Polychlorinated Biphenyls (PCBs). Available at: www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs (accessed February 20, 2018). Updated August 10, 2017.

Worker Health and Safety. Worker health and safety is regulated at the federal level by the Occupational Safety and Health Administration (OSHA). The Federal Occupational Safety and Health Act of 1970 authorizes the states to establish their own safety and health programs with OSHA approval. In California, worker health and safety protections are regulated by the California Occupational Safety and Health Administration (Cal/OSHA), which also provides consultant assistance to employers. California standards for workers dealing with hazardous materials are contained in 8 CCR and include practices for all industries (General Industrial Safety Orders), with specific practices for construction and other industries. Workers at hazardous waste sites (or workers who may be exposed to hazardous wastes that might be encountered during excavation of contaminated soils) must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response regulations (8 CCR Section 5192). Additional regulations have been developed for construction workers potentially exposed to lead (8 CCR Section 1532.1) and asbestos (8 CCR Section 1529). Cal/OSHA enforcement units conduct on-site evaluations and issue notices of violation to enforce necessary improvements to health and safety practices.

City of Walnut Creek General Plan. Chapter 6, Safety and Noise, of the City of Walnut Creek General Plan 2025 contains the following goals, policies, and actions related to hazardous materials and emergency response:

Chapter 6: Safety and Noise

- **Goal 3: Reduce dangers from hazardous materials**
 - Policy 3.1: Facilitate the proper disposal of hazardous materials.
 - Policy 3.2: Prioritize safety needs of non-industrial land uses.
 - Policy 3.3: Incorporate hazardous materials abatement provisions in zoning and subdivision decisions and entitlement permits.
 - Policy 3.4: Work with federal and State authorities to ensure that any transport of hazardous materials through Walnut Creek is at the highest standard of safety.
 - Action 3.4.1: Designate hazardous material carrier routes that direct hazardous materials away from populated and other sensitive areas.
 - Policy 3.5: Require that soils, groundwater, and buildings affected by hazardous material releases from prior land uses, and lead and asbestos potentially present in building materials, will not have the potential to adversely affect the environment or the health and safety of residents.
 - Action 3.5.1: Require an environmental investigation for hazardous materials when reviewing applications for new development in former commercial or industrial areas.

- Policy 3.6: Require that new development and redevelopment protect public health and safety from hazardous materials.
 - Action 3.6.1: Require environmental investigations stipulated by State and County regulations for potential hazardous material releases from prior uses, as well as for lead and asbestos present in building materials.
- **Goal 4: Strive to prevent and reduce damage related to fire hazards**
 - Policy 4.1: Regulate projects in high-risk areas.
 - Policy 4.2: Work with the Contra Costa County Fire Protection District to ensure adequate fire response times and address other fire-related issues in the Planning Area.
 - Action 4.2.1: Require that all new development or redevelopment plans be submitted to the Fire District for review.
 - Action 4.2.2: Require greenbelt zones and fire-resistant landscaping and building materials in developments in and on the edges of higher risk areas.
 - Action 4.2.3: Establish minimum road widths and clearances around structures in high, very high, and extreme fire risk areas.
 - Action 4.2.4: Working with the Contra Costa County Fire Protection District, use nuisance ordinances to reduce the risks of dry grasses.
- **Goal 6: Provide quick response to disasters.**
 - Policy 6.1: In the event of a disaster, strive to reduce injury, loss of life, and property damage.
 - Action 6.1.1: Prepare and adopt a list and map of evacuation routes.
 - Policy 6.2: Safeguard the city's critical facilities and make any repairs as quickly as possible.
 - Action 6.2.1. Include a map of critical facilities in the Emergency Operations Plan.

City of Walnut Creek Emergency Operation Plan. The City of Walnut Creek has prepared an Emergency Operations Plan¹⁵ (EOP) that identifies and allocates resources in response to emergencies, from preparation through recovery. The EOP identifies the City's emergency planning, organizational, and response policies and procedures and how they will be coordinated with emergency responses from other levels of government.¹⁶

¹⁵ Golden Rain Foundation, 2013, *Emergency Operations Plan*. January.

¹⁶ Walnut Creek, City of, 2006, op. cit.

4.8.2 Impacts and Mitigation Measures

The following describes the potential impacts of the proposed project related to hazards and hazardous materials. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and identifies mitigation measures, as necessary.

4.8.2.1 Criteria of Significance

Implementation of the proposed project would have a significant impact related to hazards and hazardous materials if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- 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;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school;
- 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 create a significant hazard to the public or the environment;
- Result in a safety hazard for people residing or working in the area due to proximity of a public or private airstrip or the project's location within an airport land use plan;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- 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.

4.8.2.2 Project Impacts

The following section provides an evaluation and analysis of the potential impacts of the proposed project for each of the criteria of significance listed above and potential cumulative impacts.

Routine Transport, Use, or Disposal of Hazardous Materials. Construction activities for future development projects allowed by the Plan would involve the routine transport, use, and disposal of hazardous materials, such as motor fuels, paints, oils, and grease that could pose a significant threat to human health or the environment if not properly managed. Workers who handle hazardous materials are required to adhere to health and safety requirements enforced by the federal OSHA

and Cal/OSHA. Hazardous materials must be transported to and from the Plan Area in accordance with RCRA and DOT regulations, and also disposed of in accordance with RCRA regulations at a facility that is permitted to accept the waste. During operation, the routine transport, use, and disposal of hazardous materials are also subject to federal and State regulations. On the local level, the CCHSHMP implements regulatory programs for sites that routinely manage hazardous materials to ensure the safe storage, management, and disposal of hazardous materials in accordance with the Unified Program. Furthermore, Policies 3.1, 3.2, 3.4, and 3.6 and Action 3.4.1 in Chapter 6, Safety and Noise, of the City of Walnut Creek General Plan would minimize risk to public.

Implementation of these policies and actions, in conjunction with compliance with existing regulations would ensure that impacts related to routine transport, use, or disposal of hazardous materials would be less than significant and no additional mitigation measures are required.

Accidental Release of Hazardous Materials. Construction activities for future development projects within the Plan Area could involve the demolition of existing structures that may contain lead, asbestos, and other hazardous building materials. If these hazardous building materials were not appropriately abated and disposed of, demolition activities could result in the release of hazardous building materials into the environment and exposure of construction workers and the public.

As discussed in Section 4.8.1.1 Potential Sources of Hazardous Materials on and Near the Plan Area, four hazardous materials release sites are under active regulatory agency oversight for site assessment and/or remediation with gasoline as the primary contaminant of concern. Excavation of contaminated soils could expose workers and the public to hazardous materials in dust or vapors that could be released from contaminated soil and groundwater. The presence of contaminated soil could expose future residents, the public, and maintenance workers to hazardous materials. Furthermore, the improper disposal of contaminated soil and groundwater could result in the release of hazardous materials into the environment.

The proposed project is required to comply with all applicable laws and regulations regarding demolition and renovation of hazardous building materials. In addition, Goal 3, Policies 3.5 and 3.6, and Actions 3.5.1 and 3.6.1 in Chapter 6, Safety and Noise, of the City of Walnut Creek General Plan would reduce risk of accidental release of hazardous materials to the public.

Impact HAZ-1: Construction activities associated with future development projects could result in accidental releases of hazardous materials. (S)

The General Plan policies listed above provide general direction that redevelopment of contaminated or potentially contaminated sites should occur in a way that is protective of public health and the environment, but they do not provide specific implementation details that would ensure that these goals are achieved. The following mitigation measures provide specific requirements to achieve these General Plan goals within the Plan Area:

Mitigation Measure HAZ-1a: If the site of a future development project within the Plan Area is suspected to contain hazardous building materials, the project applicant shall submit a comprehensive assessment report to the Bureau of Building, signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials (ACMs), lead-based paint, polychlorinated biphenyls (PCBs), and any other building materials or stored materials classified as hazardous materials by State or federal law. If lead-based paint, ACMs, PCBs, or any other building materials or stored materials classified as hazardous materials are present, the project applicant shall submit specifications prepared and signed by a qualified environmental professional, for the stabilization and/or removal of the identified hazardous materials in accordance with all applicable laws and regulations. The project applicant shall implement the approved recommendations and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable regulatory agency.

Mitigation Measure HAZ-1b: If the site of a future development project within the Plan Area is suspected to be contaminated or potentially contaminated based on the results of past environmental investigations of the site or nearby properties, known historic land uses on-site or in the site vicinity (e.g., gas stations/auto service facilities, dry cleaners, industrial or agricultural land uses, or placement of fill material), or listing of the site or nearby properties on the State Water Resources Control Board GeoTracker database or the Department of Toxic Substances Control Envirostor database, the project applicant shall submit a Phase I Environmental Site Assessment report, and Phase II Environmental Site Assessment report if recommended by the Phase I report, for the project site for review and approval by the City. The report(s) shall be prepared by a qualified environmental assessment professional and include recommendations for remedial action, as appropriate, for hazardous materials. Any remedial activity shall be conducted under the oversight of an appropriate regulatory agency. The project applicant shall implement the agency-approved cleanup plan and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable regulatory agency. (LTS)

Mitigation Measure HAZ-1a would ensure that hazardous building materials are abated properly in accordance with applicable guidance. Mitigation Measure HAZ-1b would require that stabilization and/or removal of the identified hazardous materials in accordance with all applicable laws and regulations. Compliance with existing laws and regulations, in conjunction with the implementation of Mitigation Measure HAZ-1a and Mitigation Measure HAZ-1b, would ensure that impacts related to accidental release of hazardous materials would be less than significant.

Hazardous Materials Emissions near Schools. Seven schools are located within .25 miles of the Plan Area.

As discussed in “Routine Transport, Use, or Disposal of Hazardous Materials” (above), hazardous materials used during construction and operation would be managed in accordance with applicable laws and regulations. In addition, as discussed in “Accidental Release of Hazardous Materials,” construction activities for future development projects allowed by the Plan could involve the demolition of existing structures that may contain hazardous building materials or the excavation of contaminated soils. Compliance with existing laws and regulations, in conjunction with the implementation of Mitigation Measure HAZ-1a and Mitigation Measure HAZ-1b, would ensure that impacts related to hazardous materials emissions near schools would be less than significant.

Hazardous Materials Release Sites. The provisions of Government Code Section 65962.5 require the State Water Board, DTSC, California Department of Health Services, and California Department of Resources Recycling and Recovery to submit information to the California Environmental Protection Agency pertaining to sites that were associated with solid waste disposal, hazardous waste disposal, and/or hazardous materials releases. The compilation of hazardous materials release sites that meet criteria specified in Section 65962.5 of the California Government Code is known as the Cortese List. As described in Section 4.8.1.1 Potential Sources of Hazardous Materials on and Near the Plan Area, the Plan Area contains 18 LUST sites, which are on the Cortese List. Implementation of Mitigation Measure HAZ-1b would ensure that impacts related to hazardous materials release sites would be less than significant.

Aviation Hazards. The Plan Area is located approximately 5 miles south of the nearest public use airport, Buchanan Field Airport.¹⁷ The Plan Area is not located within the airport influence area, and is located outside of the outer safety zone, Safety Zone 4.¹⁸ In addition, the nearest private facility to the Plan Area is the heliport for the John Muir Medical Center, located approximately 1 mile east of the Plan Area. Helicopter takeoffs and landings from this site would be sporadic and would not occur in close enough proximity to the Plan Area to result in safety hazard to future residents or people working in the Plan Area. There are no private airstrips within 2 miles of the Plan Area. Therefore, there would be no impact associated with safety hazard for people residing or working in the Plan Area due to proximity of a public or private airstrip or the project’s location within an airport land use plan.

Emergency Response Plan. The City of Walnut Creek has prepared an EOP¹⁹ that identifies and allocates resources in response to emergencies, from preparation through recovery. The EOP identifies the City’s emergency planning, organizational, and response policies and procedures and how they will be coordinated with emergency responses from other levels of government.²⁰

¹⁷ Federal Aviation Administration, 2018, op. cit.

¹⁸ Contra Costa County, 2000, op. cit.

¹⁹ Golden Rain Foundation, 2013, op. cit.

²⁰ Walnut Creek, City of, 2006, op. cit.

In addition, Goal 6, Policies 6.1 and 6.2, and Actions 6.1.1 and 6.2.1 in Chapter 6, Safety and Noise, of the Walnut Creek General Plan address emergency response and evacuation. Compliance with the response policies and procedures in the EOP and applicable policies and actions would ensure that impacts related to impairing implementation or physically interfering with an adopted emergency response plan or emergency evacuation plan would be less than significant no additional mitigation measures are required.

Wildland Fire Hazards. The Plan Area is located in an area of high threat to people from wildland fires as mapped by the California Department of Forestry and Fire Protection.²¹ Goal 4, Policies 4.1 and 4.2, and Actions 4.2.1, 4.2.2, 4.2.3, and 4.2.4 in Chapter 6, Safety and Noise, of the Walnut Creek General Plan address wildland fire hazards. In addition, the Plan Area is located in a highly urbanized area and is not surrounded by woodlands or vegetation that would provide fuel load for wildfires. Therefore, compliance with the applicable policies and actions would ensure that impacts related to wildland fire hazards would be less than significant and no additional mitigation measures are required.

4.8.2.3 Cumulative Impacts

Hazards and hazardous materials impacts are generally site-specific and/or have limited mobility, and therefore cumulatively considerable effects beyond the Plan Area would not be expected. Development of properties near the Plan Area could increase the potential exposure of persons to hazardous materials, including hazardous building materials; however, the use, storage, and disposal of hazardous materials are regulated by federal, State, and local laws and regulations. Implementation of Mitigation Measure HAZ-1a would ensure that hazardous building materials are abated properly on-site in accordance with applicable guidance and would not be allowed to migrate off-site and combine with other hazardous materials handling operations. Implementation of Mitigation Measure HAZ-1b would require that stabilization and/or removal of the identified hazardous materials in accordance with all applicable laws and regulations. As a result, any contribution to hazardous materials impacts would not be cumulatively considerable. For these reasons, the proposed project would not result in or contribute to any significant cumulative hazards or hazardous materials impacts.

²¹ Ibid.

4.9 POPULATION, EMPLOYMENT, AND HOUSING

This section uses available data to establish baseline population, employment, and housing conditions for the region, City of Walnut Creek, and the Plan Area. The Plan Area lies within the limits of the City of Walnut Creek. This information is used to provide a context to evaluate potential impacts of the proposed Specific Plan concerning population, employment, and housing issues, and proposes mitigation measures, as necessary.

4.9.1 Setting

The following setting information provides a basic foundation of existing conditions with respect to the Plan Area's population, employment, and housing conditions, as well as for the region. The information presented in this section is based on data, research, and growth projections drawn mainly from the 2015 U.S. Census Annual Estimate¹ data, the California Department of Finance (DOF),² the Association of Bay Area Governments (ABAG) Projections 2013,³ and the North Downtown Specific Plan Existing Conditions Report (Existing Conditions Report).⁴ Additionally, data, research, and growth projections specific to housing were drawn from the City's Housing Element,⁵ as well as from City staff.

4.9.1.1 Population

The City of Walnut Creek is part of Contra Costa County, one of the nine counties that make up the San Francisco Bay Area. The population of the San Francisco Bay Area was 6.7 million in 2005, an increase of approximately 5 percent over the 2000 population (6.8 million).⁶ ABAG projects that the region's population will grow to 7.7 million in 2020 and exceed 8 million by 2030.⁷ Contra Costa County's total population in 2017 was 1.14 million.⁸ Between 2010 and 2017, Contra Costa County's total population increased by about 8.5 percent from 1.05 million.⁹

Of the 19 cities of Contra Costa County, Walnut Creek had the fifth highest population in 2017, representing about 6.2 percent of the County's total population. Walnut Creek's 2010 total population was 64,173; in 2017, the City's total population increased by about 10.5 percent to 70,974.¹⁰ ABAG predicts that Walnut Creek's total population will increase to 72,900 in 2025, and increase to 76,100 by 2030. As shown in Table 4.9.A, ABAG predicts that the population in Walnut Creek and its Sphere of Influence (SOI) is projected to grow to a total of 102,900 by 2040.

¹ U.S. Census Bureau, 2016. Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2015. May.

² California, State of, 2017. Department of Finance. *E-5 Population and Housing Estimates for Cities, Counties, and the State, January 2011-2017, with 2010 Benchmark*.

³ Association of Bay Area Governments, 2013. *Projections 2013*. December.

⁴ Raimi + Associates, 2016. *North Downtown Specific Plan Existing Conditions*. October 19.

⁵ Walnut Creek, City of, 2014. *City of Walnut Creek 2015-2023 Housing Element*. September 16.

⁶ Bay Area Census. San Francisco Bay Area Decennial Census Data: 2000-2010. Website: www.bayareacensus.ca.gov/bayarea.htm (accessed December 13, 2017).

⁷ Association of Bay Area Governments, 2013, op. cit.

⁸ California, State of, 2017, op. cit.

⁹ Ibid.

¹⁰ Ibid.

As shown in Chapter 3.0, Project Description, the Plan Area has an existing population of approximately 1,595, based on an average household size of 1.69 persons, as identified in the Existing Conditions Report.

Table 4.9.A: ABAG Projections 2013 Population, Households, and Employment Forecasts for Walnut Creek

	2010	2015	2020	2025	2030	2035	2040	Percent Change between 2010 and 2040
Total Population	81,405	84,600	87,800	91,200	94,900	98,900	102,900	26.4
Households	38,115	39,600	41,120	42,580	44,120	45,610	47,150	23.7
Household Size	2.11	2.11	2.10	2.11	2.12	2.13	2.15	1.9
Total Jobs	52,990	57,750	63,030	64,890	66,790	69,390	72,100	36.0
Employed Residents	38,520	41,360	44,970	45,900	46,900	48,410	49,980	29.8
Jobs/Employed Residents Ratio	1.38	1.39	1.40	1.41	1.42	1.43	1.44	4.3

Source: Association of Bay Area Governments, *Projections 2013* (December 2013).

Note: The data in this table includes the Walnut Creek city limit and Sphere of Influence (SOI).

4.9.1.2 Employment

Walnut Creek serves as an important employment center for Contra Costa County and the San Francisco Bay Area. Walnut Creek has a concentration of health care and office jobs. According to the Walnut Creek Community and Economic Development Department, the top employers within the City include: John Muir Medical Center; Kaiser Permanente Medical Center; the City of Walnut Creek; Manor Care Health Services; Safeway; Macy’s; Nordstrom; Verizon; Walnut Creek School and Acalanes High School Districts; and Target.¹¹ As shown above in Table 4.9.A, there were 38,520 employed residents within the City and its SOI in 2010, and ABAG expects this number to grow by 29.8 percent by 2040 to approximately 49,920. As shown in Chapter 3.0, Project Description, there are approximately 13,039 jobs located within the Plan Area.

The City is relatively “jobs rich,” as it has a high number of jobs compared to employed residents. The City had a ratio of approximately 1.38 jobs to employed residents in 2010. This ratio is expected to grow slightly by 2040 to 1.44 jobs per employed resident.

4.9.1.3 Housing

The following section discusses existing housing conditions within the City.

City of Walnut Creek Housing. This discussion of housing conditions within the City focuses on the City’s housing stock, housing values/rental costs, rental affordability, overcrowding, and the City’s Regional Housing Needs share.

¹¹ Walnut Creek, City of, 2014. Community & Economic Development Department.

As shown in Table 4.9.B, Walnut Creek had approximately 32,002 housing units in 2016. Approximately 51 percent of the housing stock consists of housing units within single-family attached and detached structures. In 2016, approximately 60.5 percent of the City’s occupied units were owner-occupied, with a vacancy rate of 1.9 percent. Renter-occupied units made up the other 39.5 percent, with a zero percent vacancy rate.

Table 4.9.B: Walnut Creek Housing Characteristics, 2007 and 2016

Housing Characteristic	2007	2016
Total Housing Units	32,362	32,002
Occupancy Status		
Vacant Units	1,662	1,460
Occupied Units	30,700	30,542
Housing Type		
Single-Family Units (Detached and Attached)	17,478	16,298
Multiple-Family Units	14,884	15,657
Mobile Homes/Other	0	47

Source: United States Census Bureau, Table DP04 (2016).

Housing Value/Rental Costs. U.S. Census data for 2016 shows that the median home value was \$788,000 and median gross rent was \$1,875 per month in Walnut Creek, while median home value was \$610,500 and median gross rent was \$1,544 per month for the whole nine-county Bay Area.

According to the Walnut Creek Housing Element 2015-2023 Update, median gross rents in 2014 ranged from \$1,357 for a studio, \$1,647 for a one-bedroom, and \$1,913 to \$2,856 for two- or three-bedroom apartments, and household incomes have not kept pace with increases in rents, resulting in decreased rental affordability.

Fair market rents for Contra Costa County for 2014, as established by the U.S. Department of Housing and Urban Development (HUD), for various rental units are presented in Table 4.9.C. Compared to Contra Costa County as a whole, the median rental price in Walnut Creek is higher for all types of housing.

Rental Affordability. The cost of housing is generally the greatest expense for households. Generally accepted affordability standards measure housing cost in relation to gross household income. The measure of affordability is based on the 30 percent of income standard used in federal housing policy subsidy programs. For example, those households spending in excess of about 30 percent of their income on housing are generally “cost-burdened.” In 2010, 3,055 renter-occupied units and 3,140 owner-occupied units paid more than 30 percent of the regional median income for the cost of housing.

Table 4.9.C: Fair Market Rents – Contra Costa County, 2014

Number of Bedrooms	Fair Market Monthly Rent
0 Bedrooms	\$892
1 Bedroom	\$1,082
2 Bedrooms	\$1,361
3 Bedrooms	\$1,901

Source: Walnut Creek, City of (2014). 2015-2023 Housing Element.

However, in Walnut Creek, and in the San Francisco Bay Area as a whole, housing prices have increased faster than area median income since 2010, so it is likely that the number of cost burdened renters has increased.

Overcrowding. Information regarding overcrowding conditions can provide another measure of the relative affordability of housing in the City. Typically, a housing unit is considered overcrowded if there is more than 1.0 person per room. Between 2007 and 2011, there were approximately 369 households living in overcrowded conditions, approximately 1 percent of households within the City. Of the 369 overcrowded units, 93 were severely overcrowded, which is defined as greater than 1.5 persons per room.

Regional Housing Needs. In order to respond to the expanding population and household growth in the State, and to ensure the availability of affordable housing for all income groups, the State of California enacted a law (Government Code Section 65584) that requires each Council of Governments (e.g., ABAG in the Bay Area) to periodically distribute the State-identified housing need for its region. The State of California Department of Housing and Community Development (HCD) is responsible for determining and allocating this regional need among communities in the region. ABAG has allocated to the City a total projected housing need of 2,235 units to be constructed between 2014 and 2022. The projected housing needs are also stratified by four income level categories. The City's target for each of the household income groups is 302 extremely-low income units; 302 very-low income units; 355 low income units; 381 moderate income units; and 895 above moderate income units. As of 2013, there were 1,580 units approved or under construction and the City identified sites that can accommodate an additional 1,606 net new units, which would exceed the City's Regional Housing Needs Assessment (RHNA) total by 325 units.

Plan Area Housing. As described in Chapter 3.0, Project Description, the Plan Area currently contains approximately 944 housing units, which includes the following residential projects that have been recently entitled and/or are under construction within the Plan Area:

- Riviera Apartments and Condos, multiple addresses: 138 residential units
- TRG Bayrock Apartments, located at 2211 North Main Street: 52 residential units
- Marriot Hotel, located at 2050 North California Boulevard and 2047 North Main Street: 160 hotel rooms
- F&M Bank, located at 1823 and 1871 North Main Street: 5,505 square feet of retail space
- 1716 Lofts, located at 1716 North Main Street: 48 residential units and 2,640 square feet of retail space

4.9.1.4 Regulatory Setting

The following section discusses local regulations relevant to population, housing, and employment that would apply to the Specific Plan.

Local Regulations. The Specific Plan would be required to comply with local regulations including the General Plan, the 2015-2023 Housing Element (Housing Element), the Inclusionary Housing Ordinance, the Relocation Assistance Ordinance, and the Commercial Development Affordable Housing Fee.

Walnut Creek General Plan 2025. The General Plan contains the following goals, policies, and actions related to population and housing:

Chapter 4: Built Environment

- **Goal 1: Maintain the balance of open space and public and private land uses existing in Walnut Creek in 2005.**
 - Policy 1.1: Strive to maintain the balance of housing, commerce, and open space in the community.
 - Policy 1.2: Work to balance the number and types of jobs and the amount and kind of housing available in Walnut Creek.
- **Goal 3: Encourage housing and commercial mixed-use development in selected locations that enhances pedestrian access and reduces traffic.**
 - Policy 3.1: Create opportunities for mixed-use developments.
 - Action 3.1.2: Require that office development in the Golden Triangle and new development in the Mixed Use – Residential land use categories provide housing components.

Walnut Creek 2015-2023 Housing Element. The City adopted the Housing Element on September 16, 2014. The Housing Element describes how the City plans to meet the projected housing needs of all economic segments of the community and the City's fair-share allocation of regional housing needs. The Housing Element contains policies and programs that pertain to high-density urban infill housing, including what may occur in the Plan Area. The Housing Element also addresses the provision of housing for city residents, including affordable, mixed-use, and infill housing, and includes an analysis of whether The City has provided adequate sites to meet its RHNA obligations. The Housing Element contains the following goals, policies, and programs that would be applicable to the Specific Plan:

- **Goal H-1: To provide adequate housing sites and encourage the availability of housing types for all economic segments of the community consistent with the infrastructure and service capacities of the city.**

- Policy H-1.3: The City shall continue to require office buildings constructed in the Golden Triangle, specifically in the area bounded by Highway 680, Parkside Drive, Main Street, California Boulevard, and Riviera Avenue, to provide a housing component, either on- or off-site, consistent with the Mixed Use Planned Development District.
- Policy H-1.12: The City shall seek new sources of financing for necessary infrastructure improvements for new development in the Priority Development Areas (i.e., around BART stations) to facilitate new housing development.
- **Goal H-2: To facilitate affordable housing opportunities.**
 - Policy H-2.1: The City shall assist in the development of extremely low-, very low-, low-, and moderate-income housing units to the extent financially feasible.
 - Policy H-2.4: The City shall require that relocation assistance be provided to low-income households when private redevelopment of land occurs, consistent with Ordinance No. 1747.
 - Program H-2.M: Density Bonus Ordinance. The City shall continue to allow density bonuses consistent with State law and the City's Density Bonus Ordinance. The City shall update the Density Bonus Ordinance to allow units that are required to be maintained as affordable units pursuant to the City's Inclusionary Housing Ordinance to be considered restricted affordable units for the purposes of determining whether the housing development qualifies for a density bonus. The City shall promote the Density Bonus Ordinance by maintaining materials on the City website and by discussing the density bonus with developers at preliminary application review meetings.

Inclusionary Housing Ordinance. The City of Walnut Creek enacted an Inclusionary Housing Ordinance in 2004 to provide additional means to facilitate affordable housing and revised the ordinance in 2010 and performed a nexus study to determine the impact of residential development on affordable housing.¹² The purpose of the Inclusionary Housing Ordinance is to facilitate the development and availability of housing affordable to a broad range of households with varying income levels in the city. It is intended in part to implement State policy that declares that local governments have a responsibility to exercise their powers to facilitate the development of housing to adequately provide for the housing needs of all economic segments of the community, as stated in Government Code Section 65580. The goal of the Inclusionary Housing Ordinance is to have a minimum percentage of very-low, low-, and/or moderate-income units built within each new residential development or to provide funding for new development of housing affordable to low-income households. In 2018, the Inclusionary Housing Ordinance was amended in response to AB 1505, which confirmed cities' right to require inclusionary rental units without violating the Costa Hawkins act. The housing in lieu fee was also increased in late 2017.

¹² Walnut Creek, City of, 2013. *City Council Agenda Report, Housing Policy Guidelines*, page 2. June 4.

Relocation Assistance Ordinance. The Relocation Assistance Ordinance applies to any development project that would result in the displacement of low-income persons. The purpose of the Relocation Assistance Ordinance is to mitigate the impact of development projects that would displace low-income tenants from their residences by requiring applicants to provide certain limited relocation assistance to such tenants.

Commercial Development Affordable Housing Fee. The Commercial Development Affordable Housing Fee is a jobs/housing linkage fee designed to facilitate affordable housing projects. The fee is applicable to net new commercial development space and partially funds the need for affordable housing created by the workforce of new commercial development; however, mixed-used projects composed of 65 percent residential square footage or more are exempt from this fee.

4.9.2 Impacts and Mitigation Measures

The following describes the proposed project's potential impacts related to population, employment, and housing according to the significance criteria described below. Mitigation measures are provided as appropriate.

4.9.2.1 Significance Criteria

The Specific Plan would have a significant effect on population, employment, and housing if it would:

- 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);
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

4.9.2.2 Project Impacts

The following describes the potential impacts related to population, housing, and employment that would result from implementation of the proposed project, and proposed mitigation measures, as necessary.

Population Growth. As described in Chapter 3.0, Project Description, development associated with the Specific Plan could result in the addition of up to 1,519 new residents, 899 new housing units, and 3,546 new jobs within the Plan Area over the next 20 years. Development associated with the Specific Plan primarily would be infill and transit-oriented development, which would locate residential units near existing public transit facilities within previously developed areas of the City. Infill development is beneficial to the City as it allows development in areas already served by utilities and public services, while transit-oriented development would reduce automobile dependency by allowing dense, walkable, mixed-use development in the vicinity of public

transportation, which in this case would be the Walnut Creek BART Station. The Plan Area is located within the Core Area PDA, which is an area designated for development by ABAG and the City.

As stated in the General Plan Final EIR,¹³ there is no numerical limit or cap on new residential development within the City. At full buildout of the General Plan, the General Plan Final EIR concluded that the City and its SOI would have a total population of 96,628. By 2040, ABAG has projected the population of the City and its SOI to be 102,900. In 2010, the population of the City and its SOI was 81,405. Therefore, full buildout of the Specific Plan would account for approximately 9 percent of the population growth accounted for by the General Plan and 7 percent of the population growth already accounted for by ABAG. Therefore, the Specific Plan would not result in substantial population growth within the City, beyond that which is already planned, nor would it substantially alter the location, distribution, or density of the population of the City. Therefore, the Specific Plan would have a less-than-significant impact related to population growth.

Displacement of Housing. As described in Chapter 3.0, Project Description, the Specific Plan would allow an increase in the total number of housing units in the Plan Area, up to 899 new housing units. Future development allowed by the Specific Plan could potentially displace some existing housing through redevelopment. However, any housing that is displaced through redevelopment would be replaced by additional housing within the Plan Area, so replacement housing elsewhere would not be required.

As described above, sponsors of new projects that displace current residents would be required to comply with the Relocation Assistance Ordinance. The City's Commercial Development Affordable Housing Fee would also provide funding for affordable housing with commercial development, so the potential loss of affordable housing through infill development would be replaced. Additionally, consistent with the Housing Element, any new office development within the Golden Triangle would be required to include a housing component. Additionally, Policy 2.1 in Chapter 4, Development Standards, of the Specific Plan provides opportunities for greater development potential, including increased floor area and/or building height, in exchange for developer-provided community benefits, which includes the provision of affordable housing beyond what is already required by the City's inclusionary housing ordinance.

Therefore, Specific Plan policies and City programs would result in a net increase in housing, promote infill housing, provide relocation assistance to displaced low-income tenants, and require construction or funding of affordable housing with commercial, office, or residential development. Therefore, impacts associated with the displacement of housing would be less than significant.

Displacement of People. As described above, development associated with the Specific Plan could result in the development of up to 899 new residential units over the next 20 years, and the addition of approximately 1,519 residents. Because some existing housing could be removed as a part of redevelopment of sites within the Plan Area, existing residents could potentially be displaced. However, as discussed above, replacement housing would not be required outside of the Plan Area. Additionally, the Specific Plan and existing City policies promote infill development, provide relocation assistance to displaced low-income residents, and require the construction or funding of

¹³ Walnut Creek, City of, 2005. *Walnut Creek General Plan 2025 EIR*. August 5.

affordable housing as a part of residential, office, or commercial development. Therefore, the Specific Plan would result in less-than-significant impacts related to the displacement of people.

4.9.2.3 Cumulative Impacts

Development associated with the Specific Plan would not result in substantial population growth beyond that which is already planned for by the City or region, the displacement of a substantial number of people, housing units, or jobs, nor would it create an imbalance between employed residents and jobs.

As previously discussed, the Specific Plan would encourage infill development, as well as transit-oriented development. Cumulative projects within the vicinity of the Plan Area would also be required to comply with City policies and regulations discussed above. Therefore, implementation of the Specific Plan would have a less-than-significant cumulative impact related to population, employment, and housing.

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4.10 PUBLIC SERVICES AND RECREATION

This section describes the public services (police, fire and emergency, schools, libraries, and parks and recreation) that serve the City of Walnut Creek, analyzes the potential impacts that could result from implementation of the proposed Specific Plan, and recommends mitigation measures, as necessary. The information presented was gathered from a variety of sources, including direct communication with the agencies and organizations that administer or provide the various public services.

4.10.1 Setting

The setting section discusses the existing public services for the City of Walnut Creek and focuses on the following topics: police protection services, fire and emergency medical services, schools, and parks and recreation facilities.

4.10.1.1 Police Protection Services

Information about police protection services for the City of Walnut Creek is discussed below.

City of Walnut Creek Police Department. The Walnut Creek Police Department (WCPD) is located in City Hall at 1666 North Main Street. The mission of the WCPD is to protect and serve the community through professional conduct and proactive enforcement of the law. The WCPD preserves public peace, enforces laws, protects life and property, and provides police services to the community. The WCPD responds to 9-1-1 calls 24 hours a day and maintains an answering point for routine telecommunications services as well.

The WCPD is comprised of five divisions: Communications, Investigations, Parking, Patrol, and Reserves. The Communications division is the primary answering point for all 9-1-1 and non-emergency calls for the City of Walnut Creek. The communications center operates 24-hours a day, 7 days a week by a team of Public Safety Dispatchers.

The WCPD provides police protection services for the Plan Area, as well as the City as a whole. In 2016, the WCPD included 108 sworn officers, 36 civilian support employees, 25 volunteers, and 10 cadets.¹ The Plan Area is located within Patrol Sector 2, which also covers the northwest portion of the city.²

WCPD prioritizes calls for police services as follows: Priority 1 calls involve life-threatening situations; Priority 2 calls are not life-threatening but necessitate immediate response; all other calls are designated Priority 3. The WCPD response time standard is 5 minutes for Priority 1 calls, 7 minutes for Priority 2 calls, and 30 minutes for Priority 3 calls.

¹ Walnut Creek Police Department, 2017. *2016 Annual Report*.

² Walnut Creek Police Department, 2018. Patrol. Website: www.walnut-creek.org/departments/public-safety/police/about-wcpd/patrol (accessed February 8, 2018).

Sector 2 is Walnut Creek’s busiest sector in terms of activity and calls for service.³ In 2017, traffic incidents were the most common call for service in Sector 2, followed by non-criminal calls, burglary from motor vehicles, and motor vehicle theft.⁴

BART Police Department. The BART Police Department (BARTPD) provides a full range of police services within areas of BART jurisdiction. To prepare for major emergencies, critical incidents, and tactical responses, the BARTPD is a signatory to the Bay Area’s mutual-aid pacts and has teams of highly trained officers for tactical response. The BARTPD’s Patrol Bureau is organized into four geographical police zones, each with its own headquarters and field offices. The Plan Area is located in Zone 2C.⁵ Zone lieutenants are assigned the personnel, equipment, and resources to manage their respective police operations. This community-based deployment strategy enhances the ability of BARTPD to work closely with the local residents, allied public-safety agencies, businesses, schools, and other transit district employees. Lieutenants, officers, sergeants, and community service officers report for duty at BART police facilities and field offices in Oakland, Concord, Walnut Creek, Pittsburg, El Cerrito, Dublin/Pleasanton, Castro Valley, San Leandro, Hayward, San Francisco, Colma, and San Bruno.

BARTPD is composed of 206 sworn peace officers who have full police powers within the State of California and have the primary jurisdiction for responding to and investigating all criminal incidents occurring at facilities owned or operated by the BART district. BARTPD sworn staff is supported by community service officers, communications dispatchers, revenue protection guards, police administrative specialists, and civilian supervisors and managers. A small police field office is located across from the fare gates at the Walnut Creek BART Station. To protect the personal safety of BART riders, BARTPD utilizes video-surveillance systems in trains, stations, and parking lots.⁶

4.10.1.2 Fire and Emergency Services

The Contra Costa County Fire Protection District (CCCFD) provides fire and emergency first responder services to the City of Walnut Creek, including the Plan Area. The CCCFD is divided into four major divisions that are responsible for day-to-day operations.

Operations Division. The Operations Division provides emergency and non-emergency services to the community, including: fire; medical and trauma; vehicle rescue; technical rescue; hazardous materials and conditions; and special operations.

There are 12 battalion chiefs assigned to the Operations Division, 10 shift battalion chiefs who lead and manage 4 battalions on 3 shifts. Two battalion chiefs lead and manage the Training and Emergency Medical Services Divisions, discussed below. The Operations Division staffs 19 engine companies, 5 truck companies, and a shift training captain/safety officer daily. The Operations Division maintains 24 fully staffed stations and 2 stations staffed with paid on-call reserve

³ Walnut Creek Police Department, 2017, op. cit.

⁴ LexisNexis, 2018. Community Crime Map. Website: communitycrimemap.com (accessed February 8, 2018).

⁵ Bay Area Rapid Transit, 2018. Know Your Zone. Website: www.bart.gov/about/police/zones (accessed February 8, 2018).

⁶ Bay Area Rapid Transit, 2013. *Bay Area Rapid Transit Police Department Performance Audit*. September.

firefighters. Minimum daily staffing is 77 personnel. The 24 on-duty companies are trained and regularly cross-staff numerous specialty response units including 18 wildland fire apparatus, three rescue units, a trench rescue unit, a fire rescue boat, and a mobile breathing air support unit.⁷

Fire Station 1, located in the southern portion of the Plan Area at 1330 Civic Drive is the first-responder for all calls within the Plan Area. Fire Station 2, located approximately 2 miles north of the Plan Area at 2012 Geary Road in the City of Pleasant Hill, would provide backup if necessary.

Emergency Medical Services Division. The Emergency Medical Services (EMS) Division is responsible for the initial training of all personnel that come into the CCCFD during their Fire Academy. The EMS Division develops, delivers and coordinates all medical response related training for all District employees. The EMS Division also coordinates the purchasing of all EMS-related equipment and supplies. The District currently operates 30 full-time Advanced Life Support (ALS) engine companies. All companies are also staffed by certified Emergency Medical Technicians (EMT).

Training and Safety Division. The Training and Safety Division provides the members of CCCFD with the support, training, and education necessary to deliver superior fire/rescue/and emergency medical services. The Training and Safety Division is responsible for recruit academy training and in-service training, as well as various other training programs.

Fire Prevention Bureau. The Fire Prevention Bureau provides fire prevention services through comprehensive inspections and code enforcement, plan review and engineering services, public education, fire investigations, and exterior hazard control to ensure properties are properly constructed in accordance with local and State codes.

4.10.1.3 Schools

The Plan Area is served by the Walnut Creek School District (WCSD) and Acalanes Union High School District (AUHSD).

Walnut Creek School District. The WCSD operates five elementary schools (kindergarten through grade six), one kindergarten through grade eight school, and one intermediate school (grades six to eight). Buena Vista Elementary, located at 2355 San Juan Avenue, is the nearest elementary school to the Plan Area. Walnut Creek Intermediate School, located at 2425 Walnut Boulevard, is the only intermediate school in the WCSD.⁸ Enrollment for all schools in the WCSD is shown in Table 4.10.A. Total WCSD enrollment for Academic Year (AY) 2016-2017 was 3,582 students. As a whole, the WCSD has the capacity for 3,500 students.⁹

⁷ Contra Costa County Fire Protection District, 2014. Operations Division. Website: www.cccfpd.org/emergency-operation.php (accessed February 8, 2018).

⁸ Walnut Creek School District, 2018. About Our District. Website: www.walnutcreeksd.org/domain/3 (accessed February 8, 2018).

⁹ Dolinka Group, LLC, 2014. *Commercial/Industrial Development School Fee Justification Study*. March 12.

Table 4.10.A: Walnut Creek School District Enrollment

School	Grade Range	Enrollment
Elementary Schools		2,069
Buena Vista Elementary	K-5	454
Indian Valley Elementary	K-5	398
Murwood Elementary	K-5	372
Parkmead Elementary	K-5	449
Walnut Heights Elementary	K-5	396
Middle Schools		
Walnut Creek Intermediate	6-8	1,142
Other Schools		
Tice Creek School	K-8	371

Source: Walnut Creek School District (2018).

Acalanes Union High School District. The AUHSD serves the communities of Canyon, Moraga, Lafayette, Orinda, and a portion of Walnut Creek. The AUHSD has five high schools, including Las Lomas High School, located south of the Plan Area at 1460 South Main Street.¹⁰ Enrollment for all schools is shown in Table 4.10.B. Total AUHSD enrollment for AY 2016-17 was 5,511 students. As a whole, the AUHSD has the capacity for 5,892 students.¹¹

Table 4.10.B: Acalanes Union High School District Enrollment

School	Grade Range	Enrollment
High Schools		5,511
Acalanes High School	9-12	1,360
Campolindo High School	9-12	1,309
Las Lomas High School	9-12	1,530
Miramonte High School	9-12	1,277
Acalanes Center for Independent Study	9-12	35

Source: Acalanes Union High School District (2018).

4.10.1.4 Parks and Recreation

The City has 16 parks totaling 411 acres, as well as over 3,000 acres of open space and a municipal golf course. Additionally, the WCSD and AUHSD provide school fields and playgrounds, such as Las Lomas High School, which are available for public use. With a population of 70,974,¹² the City has a ratio of approximately 5.7 acres per 1,000 residents.

¹⁰ Acalanes Union High School District, 2016. District Information. Website: www.acalanes.k12.ca.us/districtinfo (accessed February 8, 2018).

¹¹ Cooperative Strategies, 2018. *Acalanes Union High School District Residential Development School Fee Justification Study*. March 8.

¹² California, State of, 2017. Department of Finance. *E-5 Population and Housing Estimates for Cities, Counties, and the State, January 2011-2017, with 2010 Benchmark*.

Civic Park, which contains approximately 16.7 acres of playground, recreational courts, connections to the Iron Horse Trail, and a community center, among other amenities, is located adjacent to the southern border of the Plan Area on Civic Drive. Alma Park, a neighborhood park approximately 0.6 miles south of the southwest boundary of the Plan Area, includes a picnic area, lawn, benches, and tables. Howe Homestead Park is located approximately 1 mile from the eastern border of the Plan Area and includes a community garden and access to the Shell Ridge Open Space.

The City offers a number of recreation facilities, including the Tice Valley and Foothill Community Gymnasiums, the Boundary Oaks Golf Course, and the Walnut Creek Tennis Center. Additionally, other private institutions, such as churches and private schools, offer recreational facilities for their users.

As noted above, the City manages over 3,000 acres of open space in four unique areas. These areas include: Acalanes Ridge, which includes 202 acres of open space and 4 miles of trails; Lime Ridge, which includes 1,226 acres of open space and 25 miles of trails; Shell Ridge, which includes 1,420 acres and 31 miles of trails along with Borges Ranch, a historic cattle ranch; and Sugarloaf, which includes 177 acres of open space and group camping.

4.10.1.5 Regulatory Setting

The following State and local regulations relevant to public services would apply to the Plan Area.

State Regulations. Development associated with the Specific Plan would be required to comply with the California Building Code, California Fire Code, Senate Bill 50 (SB 50), Mitigation Fee Act, and Quimby Act.

California Building Code. The State of California provides a minimum standard for building design through the California Building Code (CBC), which is located in Part 2 of Title 24 of the California Code of Regulations. The CBC is based on the 1997 Uniform Building Code, but has been modified for California conditions. It is generally adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions. Commercial and residential buildings are plan-checked by local, City, and County building officials for compliance with the CBC. Typical fire safety requirements of the CBC include: the installation of sprinklers in all high-rise buildings; the establishment of fire resistant standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

California Fire Code. The California Fire Code incorporates, by adoption, the International Fire Code of the International Code Council, with California amendments. This is the official Fire Code for the State and all political subdivisions. It is located in Part 9 of Title 24 of the California Code of Regulations. The California Fire Code is revised and published every three years by the California Building Standards Commission.

Senate Bill 50. SB 50 limits the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development and provides instead for a standardized developer fee. SB 50 generally provides for a 50/50 State and local school facilities

funding match. SB 50 also provides for three levels of statutory impact fees. The application level depends on whether State funding is available, whether the school district is eligible for State funding, and whether the school district meets certain additional criteria involving bonding capacity, year-round school schedule, and the percentage of moveable classrooms in use.

Mitigation Fee Act. The Mitigation Fee Act requires any local agency establishing, increasing, or imposing an impact fee as a condition of development to identify the purpose of the fee and the use to which the fee is to be put. The agency must also demonstrate a reasonable relationship between the fee and the purpose for which it is charged, and between the fee and the type of development project on which it is to be levied.

On October 3, 2012, the mitigation fee charged to developers was established and approved by the AUHSD at \$3.48 per square foot for residential development, and \$0.56 for commercial construction. An agreement between AUHSD and the WCSD, as well as the Moraga School District, Orinda School District and Lafayette School District, which are all elementary school districts within the AUHSD, will split the collected fees at 30 percent for the high school district and 70 percent for the elementary districts.¹³

Quimby Act. The Quimby Act of 1975 authorizes cities and counties to pass ordinances requiring developers to set aside land, donate conservation easements, or pay fees for park improvements. The Quimby Act sets a standard park space to population ratio of up to 3 acres of park space per 1,000 persons. Cities with a ration of higher than 3 acres per 1,000 persons can set a standard of up to 5 acres per 1,000 persons for new development. The calculation of a city's park space to population ratio is based on a comparison of the population count of the last federal census to the amount of city-owned parkland.

Local Regulations. Development associated with the Specific Plan would be required to comply with the General Plan and the Walnut Creek Municipal Code.

Walnut Creek General Plan 2025. The following General Plan goals, policies, and actions relevant to public services would apply to the Specific Plan.

Chapter 2: Quality of Life

- **Goal 7: Promote strong community support systems for families and individuals of all ages**
 - Policy 7.3: Facilitate the provision of safe, affordable, high-quality childcare facilities and services to families who reside or work in Walnut Creek.
 - Action 7.3.4: Encourage developers to include childcare programs and/or facilities in large commercial and residential developments.

¹³ Acalanes Unified High School District, 2017. *Annual Accounting of Developer Fees for the 2016-2017 Fiscal Year*.

- Action 7.3.5: Encourage the establishment of childcare centers near the Walnut Creek and Pleasant Hill BART stations.

Chapter 3: Natural Environment

- **Goal 6: Acquire additional parklands.**
 - Policy 6.1: Plan park acquisitions and provide parkland and facilities adequate to support the city's recreational needs, activities, and programs.
 - Action 6.1.1: Maintain 5 acres of parkland per 1,000 people.

Chapter 6: Safety and Noise

- **Goal 4: Strive to prevent and reduce fire damage related to fire hazards.**
 - Policy 4.2: Work with the Contra Costa County Fire Protection District toward addressing fire response times and other fire-related issues inside the planning area.
 - Action 4.2.1: Require that all new development or redevelopment plans be submitted to the fire district for review.
- **Goal 5: Promote public safety.**
 - Policy 5.2: Maintain a response time of less than 5 minutes for emergency calls and for other calls less than 20 minutes, 95 percent of the time.
 - Policy 5.5: Seek ways to reduce police service demands through project design enhancements.
 - Action 5.5.2: Submit all discretionary permits to the Police Department for analysis of and recommendations to reduce crime.

Walnut Creek Municipal Code Parkland Dedication. Section 10-1.602 of the City's Municipal Code requires new residential subdivisions to either dedicate land or pay an in-lieu fee for parks or recreational purposes. Fees in lieu of land dedication are based upon the average estimated fair market value of land, which would otherwise be required to be dedicated according to the City's formula for dedication of land. The City requires both a dedication of land and a payment of an in-lieu fee for subdivisions of over 50 lots, or a condominium project, stock cooperative, or community apartment project with more than 50 dwelling units.

4.10.2 Impacts and Mitigation Measures

This section discusses the potential impacts related to public services and recreation that could result from implementation of the Specific Plan. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of

this section discusses the impacts associated with implementation of the Specific Plan and identifies mitigation measures, as appropriate.

4.10.2.1 Significance Criteria

Implementation of the Specific Plan would have a significant effect on public services if it would:

- 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:
 - Fire protection;
 - Police protection;
 - Schools; and
 - Parks;
- 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; or
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

4.10.2.2 Project Impacts

The following discussion describes the potential impacts related to public services and recreation that could result from implementation of the Specific Plan.

Police Service. Development associated with the Specific Plan could result in increased demand for police and public safety services and increased levels of reported crimes within the Plan Area. As described in Chapter 3.0, Project Description, development associated with the Specific Plan could result in up to 899 new residential units and 1,519 new residents. As a result of this increase in population and building space, the Specific Plan could result in an increase in the demand for police services from the WCPD and the BARTPD.

As development associated with the Specific Plan is completed, the WCPD and BARTPD would maintain a similar number of sworn police officers to residents and riders and would continue to provide adequate police services to the Plan Area. Additionally, future development under the Specific Plan would be subject to project-level environmental review to further evaluate potential impacts related to police protection services as development is proposed within the Plan Area.

If it is determined that expanded or new police facilities would be required, this impact would be project-specific, as it cannot be known at what time or location these facilities would be required, or what the nature of the improvements would be. Any new or expanded police facilities would require permitting and review in accordance with CEQA, which would ensure that any environmental impacts are disclosed and mitigated to the extent possible. Therefore, the Specific Plan would have a less-than-significant impact related to police services.

Fire Service. Development associated with the Specific Plan could result in increased demand for fire services and increased levels of calls for service within the Plan Area. As described in Chapter 3.0, Project Description, development associated with the Specific Plan could generate up to 899 new residential units and 1,519 new residents. As a result of this increase in population and building space, the Specific Plan could result in an increase in the demand for fire services.

While Specific Plan projected growth could increase the number and frequency of calls for service, Fire Station 1 is located within the Plan Area; therefore, response times for many calls from the Plan Area would be expected to fall within the CCCFPD's goal of 5 minutes. In addition, General Plan Action 4.2.1 in Chapter 6, Safety and Noise, requires the City to submit all new development or redevelopment plans to CCCFPD for review. Consequently, future development allowed by the Specific Plan would undergo plan review by the CCCFPD to ensure adequate fire protection services and emergency access can be provided prior to development. The review would also ensure conformance with the California Building Code and California Fire Code.

If it is determined that expanded or new fire facilities would be required, this impact would be project-specific, as it cannot be known at what time or location these facilities would be required, or what the nature of the improvements would be. Any new or expanded fire facilities would require permitting and review in accordance with CEQA, which would ensure that any environmental impacts are disclosed and mitigated to the extent possible. Therefore, the Specific Plan would have a less-than-significant impact related to fire services.

Schools. Development allowed by the Specific Plan could include up to 899 new residential units. Applying a student generation rate of 0.2 kindergarten through eighth grade students for every unit, and 0.17 high school students for every unit, development associated with the Specific Plan would be expected to generate approximately 180 students in kindergarten through eighth grade and 153 high school students.¹⁴ As noted above, the WCSD was overenrolled in the 2016-17 academic year by approximately 82 students, while the AUHSD had the additional capacity for approximately 381 additional students. Therefore, AUHSD would have the capacity to serve school-aged children generated by development associated with the Specific Plan, however, the WCSD would not.

While development associated with the Specific Plan would generate new students in both the WCSD and AUHSD, possibly requiring the expansion of school facilities, such development would be subject to the Mitigation Fee Act. The payment of such fees is deemed to fully mitigate the impacts of new development on school facilities, per California Government Code Section 65995.

¹⁴ For planning purposes, the WCSD recommends using a rate of 0.2 students per dwelling unit to estimate increase enrollment from new development (0.2×899 units = 179.8 students) and the AUHSD recommends using a rate of 0.17 students ($0.17 \times 899 = 152.83$).

Additionally, if new school construction or expanded school facilities become necessary, such projects would be subject to separate permitting and CEQA review in order to identify and mitigation potential environmental impacts. Therefore, impacts related to schools would be less than significant.

Parks. As described above, the City currently provides approximately 5.7 acres of parkland per 1,000 residents, which is more than the minimum (5 acres per 1,000 residents) established in the General Plan. Development associated with the Specific Plan would generate up to 1,519 residents, consistent with the City's population projections, as described in Chapter 4.9, Population, Housing, and Employment. At buildout of the General Plan in 2025, the City projects its population (including its SOI) would be 96,628. If no additional parkland was created by 2040, the City would provide approximately 4.25 acres per 1,000 residents, below the established minimum of 5 acres per 10,000 residents.

While development associated with the Specific Plan would increase the use of parks and recreation facilities within the City, this increase would be incremental compared to the existing use. Additionally, residents of the Plan Area would be expected to use open space provided by the City, as described above, as well as regional recreational facilities and open spaces in the vicinity of the Plan Area.

Continued implementation of the parkland dedication requirements established in the Municipal Code would ensure that additional parkland is provided as development occurs in the City. Therefore, implementation of the Specific Plan would not result in substantial adverse physical impacts associated with the provision of or need for new or physically altered parks, and this impact would be less than significant.

4.10.2.3 Cumulative Impacts

Demand for public services would increase with implementation of the Specific Plan, in combination with other cumulative projects within the City. However, as service providers regularly review the growth in population and new projects to identify any resultant need for additional staffing, cumulative effects related to these services would be less than significant.

4.11 UTILITIES AND SERVICE SYSTEMS

The following discussion describes the wastewater, water, storm drainage, solid waste, phone, cable, and gas and electric systems that serve the Plan Area. The potential impacts to these utilities related to implementation of the Specific Plan are discussed, and mitigation measures are identified, if necessary.

4.11.1 Setting

This section describes the existing infrastructure of the Plan Area, including the water supply and distribution system; the wastewater collection, treatment and disposal system; and other utilities, including solid waste, energy and telecommunications. Stormwater is discussed in Section 4.7, Hydrology and Water Quality.

4.11.1.1 Water

The following discussion provides background information on the sources of water, water treatment facilities, and water distribution system in the Plan Area.

Water Supply. Potable water is provided to the Plan Area (and the City as a whole) by a publicly-owned utility, East Bay Municipal Utility District (EBMUD). EBMUD serves approximately 1.4 million customers within 332 square miles of service area.¹

The EBMUD water supply system consists of a network of reservoirs, aqueducts, water treatment plants, pumping plants, and other distribution facilities that collect, transmit, treat, and distribute water from its primary water source, the Mokelumne River. Approximately 90 percent of the water used by EBMUD comes from the Mokelumne River watershed, located within the Sierra Nevada mountain range. EBMUD conveys water from the Pardee reservoir, located approximately 38 miles northeast of Stockton, approximately 91 miles to EBMUD water treatment plants and terminal reservoirs through the Pardee Tunnel, the Mokelumne Aqueducts, and the Lafayette Aqueducts.²

EBMUD has water rights that allow for delivery of up to 325 million gallons per day (mgd). However, this allocation may be constrained by: (1) upstream water use by prior water right holders; (2) downstream water use and other downstream obligations, including protection of public trust resources; (3) drought, or less-than-normal rainfall for more than a year; and (4) emergency shortages. EBMUD's secondary water supply source is local runoff from the East Bay Area watersheds that is stored in the terminal reservoirs located within service area boundaries. The availability of water from local runoff is dependent on hydrologic conditions and terminal reservoir storage availability.³

The majority of the water mains in the Plan Area range from 6- to 12-inches in diameter. Four major water mains are located within the southern portion of the Plan Area, including: a 24-inch main in Carlback Avenue from North Main Street; a 48-inch main that travels along North California

¹ East Bay Municipal Utility District, 2018. Service Area. Website: www.ebmud.com/about-us/who-we-are/service-area (accessed February 9, 2018).

² East Bay Municipal Utility District, 2016. *Urban Water Management Plan 2015*. July.

³ Ibid.

Boulevard from Civic Drive north and proceeds west on Ygnacio Valley Road; an 84-inch water main that travels on North California Boulevard from Lacassie Avenue through Parkside Drive; and a 69-inch main that travels from North California Boulevard (starting from the 48-inch main travelling east on Lacassie Avenue and Carlback Avenue) and turns south on the Iron Horse Trail past the Plan Area.⁴

EBMUD has completed recycled water projects in Alameda, North Richmond, Oakland, Albany, and San Ramon, as well as a recycled water truck program, and delivered approximately 8.6 mgd of recycled water in 2015. By 2040, EBMUD estimates that approximately 20 mgd of recycled water will be delivered to customers.⁵

Water Treatment Facilities. There are six water treatment plants in the EBMUD water supply and distribution system. Combined, the six plants have a treatment capacity of approximately 495 mgd.⁶ The Walnut Creek Water Treatment Plant (WCWTP), which serves the Plan Area, has the second largest output with a maximum capacity of 115 mgd.⁷ All water delivered to customers goes through the following steps: 1) aeration; 2) coagulation; 3) flocculation; 4) sedimentation; 5) filtration; 6) disinfection; 7) fluoridation; and 8) corrosion control.⁸

Distribution System. From the water treatment plants, water is distributed to EBMUD's service area which is divided into more than 120 pressure zones ranging in elevation from sea level to 1,450 feet. The EBMUD water distribution network includes 4,200 miles of pipe, 125 pumping plants, and 165 neighborhood reservoirs (tanks storing treated drinking water) generating a total capacity of 830 million gallons.⁹

Water Demand. In 2015, water demand on EBMUD's system was an average of 190 mgd. By 2040, EBMUD projects that water demand will increase to approximately 230 mgd. EBMUD has sufficient water rights to meet demands through 2040 during normal years and single dry years. However, during multi-year droughts, EBMUD would need to develop supplemental supplies to meet projected customer demands, even with customer demand reduction.

EBMUD is working to develop a diverse water supply portfolio that includes water conservation, recycled water, and supplemental supply projects so that it can adapt to future conditions. EBMUD's strategy is to pursue a variety of supplemental supply projects simultaneously to minimize the risks associated with implementation of any one project. These supplemental supply projects include a water transfer program with senior water rights holders in the Sacramento Valley that is already in place and potential long-term agreements with the Placer County Water Agency and Yuba County Water Agency; collaborating with four other Bay Area water districts on a potential regional

⁴ Raimi + Associates, 2016. *North Downtown Specific Plan Existing Conditions Report*. October 19.

⁵ Ibid.

⁶ Refers to permitted capacity by the State Water Board Division of Drinking Water. The actual treatment capacity may vary depending on raw water quality, season, and other factors.

⁷ Ibid.

⁸ East Bay Municipal Utility District, 2018. Water Treatment. Website: www.ebmud.com/water-and-drought/about-your-water/water-quality/water-treatment (accessed February 9, 2018).

⁹ East Bay Municipal Utility District, 2016, op. cit.

desalination project; the Bayside Groundwater Project which allows EBMUD to inject potable drinking water into the deep aquifer of the South East Bay Plain Groundwater Basin during wet years and extract, treat, and use said water as supplemental supply during times of drought; an inter-regional groundwater banking/exchange in Sacramento County and San Joaquin County; the expansion of surface water storage; and securing partnerships in regional management plans, including the San Francisco Bay Area, Mokelumne River Basin, and American River Basin.¹⁰

4.11.1.2 Wastewater (Sanitary Sewer) System

Sanitary sewer service is provided to the Plan Area by the Central Contra Costa Sanitary District (CCCSD). This section describes the CCCSD's wastewater collection, treatment, and disposal.

Wastewater Collection. The CCCSD collects and cleans an average of 32 million gallons of wastewater per day for approximately 484,200 residents and businesses in central Contra Costa County. The system includes approximately 1,500 miles of sewer lines and 19 pumping stations. All wastewater collected by CCCSD is conveyed to the wastewater treatment plant (WWTP) in Martinez, located at the intersection of Interstate 680 and State Route 4.¹¹

Wastewater collection mains within the Plan Area are typically 6 to 8 inches with two trunks larger than 15 inches that convey wastewater from the Plan Area. A 30-inch trunk line in Civic Drive carries wastewater from trunks on Locust Street, North Main Street, North Broadway, and Lacassie Avenue. A 60-inch reinforced concrete trunk line in North California Boulevard carries wastewater from trunks on North California Boulevard and North Broadway north of Ygnacio Valley Road.¹²

Wastewater Treatment. Constructed in 1948, the WWTP treats most wastewater to a secondary level and discharges it into Suisun Bay. Approximately 600 million gallons per year (MGY) are treated to a tertiary level through additional filtration and disinfection before being distributed as recycled water for landscape irrigation, industrial processes, and WWTP operations. The WWTP has a dry weather capacity of 54 mgd and a wet weather capacity of 240 mgd. The WWTP treats an average flow of 32 mgd.

4.11.1.3 Solid Waste

The Central Contra Costa Solid Waste Authority (CCCSWA), a Joint Powers Authority, oversees waste collection, disposal, and recycling services within Walnut Creek, Danville, Moraga, Lafayette, Orinda, and the unincorporated areas of Contra Costa County. The CCCSWA has agreements with Allied Waste for the collection, transfer, and disposal of residential and commercial solid waste within its jurisdiction, which includes the Plan Area.

¹⁰ Ibid.

¹¹ Central Contra Costa Sanitary District, 2017. *Comprehensive Wastewater Master Plan Technical Executive Summary*. June.

¹² Raimi + Associates, 2016, op cit.

Non-hazardous solid waste is taken to the Contra Costa Transfer and Recovery Station in Martinez, which has a maximum daily permitted throughput¹³ of 1,900 tons.¹⁴ From there, solid waste is sent to the Keller Canyon Landfill, which has a maximum daily permitted throughput of 3,500 tons and a remaining capacity of 63.408 million cubic yards.¹⁵ While the landfill is currently permitted to operate until December 31, 2030, the closure date is subject to adjustment and extension under the direction of Cal Recycle, the State’s waste reduction and management agency.¹⁶

4.11.1.4 Energy and Telecommunications

The following section describes energy and telecommunications services within the Plan Area.

Energy. Pacific Gas and Electric Company (PG&E) provides electrical and gas service to the Plan Area. A 100-foot wide easement for overhead electrical transmission lines crosses the Plan Area in the southwest-northeast direction across the southern portion of the Plan Area. A 12kV electrical distribution system is primarily underground throughout the Plan Area with overhead lines in some areas. There is a high pressure gas distribution system in the Plan Area. Crossing the Plan Area is PG&E’s Natural Gas Line 191, which is a major transmission line that serves most of the East Bay Area from Orinda through Antioch. Additionally, there is a 10-inch Kinder Morgan (KM) fuel line that runs along the eastern side of the Plan Area within the Iron Horse Trail easement.¹⁷

Telecommunications. AT&T and Comcast serve as telecommunications providers throughout the Plan Area. Both companies own facilities throughout the Plan Area on nearly every street. AT&T’s conduit is largely concentrated on Locust Street and North Main Street, while Comcast’s conduit is mainly focused on North California Boulevard, Ygnacio Valley Road, and Civic Drive.¹⁸

4.11.1.5 Regulatory Framework

The following section describes the federal, State, and local regulatory framework related to water, solid waste management, and other utilities.

Federal Regulations. The following describes federal regulations concerning utilities, including the Safe Water Drinking Act, National Pollutant Discharge Elimination System, and Energy Policy Act.

Safe Drinking Water Act. The Safe Drinking Water Act (SDWA) of 1974 gave the U. S. Environmental Protection Agency (USEPA) the authority to set standards for contaminants in drinking water supplies. The USEPA was required to establish primary regulations for the control of contaminants that affected public health and secondary regulations for compounds that

¹³ Permitted throughput is the maximum permitted amount of waste a landfill can handle and dispose of in one day. This figure is established in the current solid waste facilities permit issued by the Integrated Waste Management Board.

¹⁴ CalRecycle, 2018. Facility/Site Summary Details: Contra Costa TS and Recovery (07-AA-0027). Website: www.calrecycle.ca.gov/SWFacilities/Directory/07-AA-0027/Detail (accessed February 9, 2018).

¹⁵ CalRecycle, 2018. Facility/Site Summary Details: Keller Canyon Landfill (07-AA-0032). Website: www.calrecycle.ca.gov/SWFacilities/Directory/07-AA-0032/Detail (accessed February 9, 2018).

¹⁶ Ibid.

¹⁷ Raimi + Associates, 2016, op. cit.

¹⁸ Ibid.

affect the taste, odor, and aesthetics of drinking water. Under the provisions of SDWA, the California Department of Health Services (DHS) has the primary enforcement responsibility. Title 22 of the California Administrative Code establishes DHS authority, and stipulates State drinking water quality and monitoring standards.

National Pollutant Discharge Elimination System. Treated wastewater is closely regulated for health and environmental concerns and is included in the National Pollutant Discharge Elimination System (NPDES) program. The San Francisco Bay Regional Water Quality Control Board regulates operations and discharges from sewage systems through the NPDES permit re-issued on November 19, 2015. The permit provides a uniform standard for wastewater and stormwater discharges for the counties and agencies surrounding the San Francisco Bay. The City is mandated to comply with the NPDES Permit by State and federal laws, statutes, and regulations.

Energy Policy Act of 1992. The Federal Energy Regulatory Commission (FERC) regulates the transmission and sale of electricity in interstate commerce (including interstate gas pipelines that serve California), licensing of hydroelectric projects, and oversight of related environmental matters. As part of the license application process, environmental analysis pursuant to the National Environment Policy Act (NEPA) must be conducted. FERC acts under the legal authority of the Federal Power Act of 1935, the Public Utility Regulatory Policies, and the Energy Act of 1992, in addition to several other federal acts. The Energy Act of 1992 addresses energy efficiency, energy conservation and energy management, natural gas imports and exports, and alternative fuels (including as used in motor vehicles). It amended parts of the Federal Power Act of 1935.

State Regulations. The following describes State regulations concerning utilities, including the Senate Bills 610 and 221 (SB 610 and SB 221), the Integrated Waste Management Act, the Solid Waste Reuse and Recycling Act, and the California Green Building Standards Code (CALGreen Code).

Senate Bill 610 and 221. SB 610, codified as Sections 10910-10915 of the California Public Resources Code, requires local water providers to conduct a water supply assessment (WSA) for projects proposing: over 500 housing units; 250,000 square feet of commercial office space (or more than 1,000 employees); a shopping center or business establishment with over 500,000 square feet (or more than 1,000 employees); or equivalent usage. Issuance of a WSA determination by the local water supplier for a proposed project verifies that the supplier has previously considered a proposed project in its Urban Water Management Plan (UWMP) and has adequate capacity to serve a project in addition to its existing service commitments, or alternatively, measures that would be required to adequately serve the proposed project. SB 221 establishes consultation and analysis requirements related to water supply planning for residential subdivisions including more than 500 dwelling units. Written verification by the water supplier that sufficient water is available for the project is required before construction begins.

Integrated Waste Management Act. California's Integrated Waste Management Act of 1989 (AB 939) requires that cities and counties divert 50 percent of all solid waste from landfills as of January 1, 2000, through source reduction, recycling, and composting. AB 939 also establishes a goal for all California counties to provide at least 15 years of ongoing landfill capacity.

In 2007, Senate Bill 1016 amended AB 939 to establish a per capita disposal measurement system. The per capita disposal measurement system is calculated as the reported total disposal of solid waste divided by the population in a jurisdiction. CalRecycle sets a target per capita disposal rate for each jurisdiction. Each jurisdiction must submit an annual report to CalRecycle with an update of its progress on implementing diversion programs and its current per capita disposal rate. In 2016, CCCSWA had a disposal rate of 3.7 pounds of waste per person per day, well below the CalRecycle target of 4.7 pounds of waste per person per day.

Solid Waste Reuse and Recycling Act. The Solid Waste Reuse and Recycling Access Act requires areas in development projects to be set aside for collecting and loading recyclable materials. The Act required CalRecycle to develop a model ordinance for adoption by any local agency relating to adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own to govern adequate areas in development projects for collection and loading of recyclable materials.

California Green Building Standards Code. The CALGreen Code became effective for all projects beginning after January 1, 2011. Section 4.408 of the Code, Construction Waste Reduction Disposal and Recycling, mandates that in the absence of a more stringent local ordinance, a minimum of 50 percent of non-hazardous construction and demolition debris must be recycled or salvaged. The Code requires applicants to submit a Waste Management Plan (WMP) for on-site sorting of construction debris, to the City of Walnut Creek. The plan must:

- Identify the materials to be diverted from disposal by recycling, reuse on the project, or salvage for future use or sale.
- Specify if materials will be sorted on-site or mixed for transportation to a diversion facility.
- Identify the diversion facility where the material collected will be taken.
- Identify construction methods employed to reduce the amount of waste generated.
- Specify that the amount of materials diverted shall be calculated by weight or volume, but not by both.

Local Regulations. The following describes local regulation concerning utilities, including the General Plan and the Construction Debris Ordinance.

Walnut Creek General Plan 2025. The General Plan contains the following goals, policies, and actions concerning utilities.

Chapter 4: Built Environment

- **Goal 29: Promote Water Conservation.**
 - Policy 29.2: Promote water conservation throughout the community.
 - Action 29.2.4: Follow existing standards and guidelines for water-conserving landscaping, and encourage the planting of native and drought-tolerant plants.
- **Goal 30: Meet or exceed State goals for source reduction and waste diversion.**
 - Policy 30.2: Promote source reduction and recycling throughout the community.
 - Action 30.2.7: Require the recycling of construction waste for all City and private projects.

Chapter 6: Safety and Noise

- **Goal 7: Work with water districts to ensure safe and adequate water supplies for the Planning Area.**
 - Policy 7.1: Work with water agencies to serve the Planning Area's growing number of residents and employees.
 - Action 7.1.1: Work with water agencies and the fire district to ensure the availability of an adequate water supply, particularly during peakload periods, to serve firefighting needs.

Construction Debris Ordinance. The City's Construction Debris Ordinance requires that projects equal to or greater than \$50,000 in value, 1,000 square feet or greater in construction or renovation floor area, or 300 square feet or greater in demolition surface area, must divert 50 percent of their recyclable construction and demolition debris. The Ordinance requires each project to prepare and implement a WMP, which includes the estimated volume of reusable and recyclable construction and demolition debris, the vendor or facility proposed to collect or receive the diverted materials, and the estimated volume of the residual debris that will be disposed of rather than reused or recycled. Additionally, within 30 days after the completion of any covered project, the permit holder is required to submit a Waste Management Report that proves that the covered has met the diversion requirement.

4.11.2 Impacts and Mitigation Measures

This section discusses the potential impacts related to utilities that could result from implementation of the Specific Plan. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section discusses the impacts associated with implementation of the Specific Plan and identifies mitigation measures, as appropriate.

4.11.2.1 Significance Criteria

Implementation of the Specific Plan would have a significant effect on utilities and service systems if it would:

- Exceed water supplies available to serve the project from existing entitlements and resources, and require or result in the construction of water facilities or expansion of existing facilities, construction of which could cause significant environmental effects;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments and require or result in construction of new wastewater treatment facilities or expansion of existing facilities, construction of which could cause significant environmental effects;
- Exceed wastewater treatment requirements of the San Francisco Regional Water Quality Control Board;
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, construction of which could cause significant environmental effects;
- Have insufficient water supplies available to serve the project from existing entitlements and resources or require new or expanded entitlements;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs and require or result in construction of landfill facilities or expansion of existing facilities, construction of which could cause significant environmental effects;
- Violate applicable federal, State, and local statutes and regulations related to solid waste;
- Result in a determination by the energy provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments and require or result in construction of new energy facilities or expansion of existing facilities, construction of which could cause significant environmental effects; or
- Violate applicable federal, State, and local statutes and regulations related to energy standards.

4.11.2.2 Project Impacts

As discussed in Chapter 3.0, Project Description, the Specific Plan includes recommendations for utility infrastructure and necessary capital improvements to address existing maintenance issues and the demand for new facilities that would be generated by development associated with the Specific Plan. The following improvements are identified in the Specific Plan (See Chapter 6: Infrastructure) and would be implemented as part of the plan: Upsizing approximately 7,000 linear feet of existing 6-inch water mains to 8-inch mains;

- Upsizing approximately 2,750 linear feet of existing wastewater mains to 8-inch mains;
- Replacement of 570 linear feet of 6-inch wastewater mains;
- Replacement of 2,100 linear feet of 8-inch wastewater mains; and
- Replacement of 250 linear feet of 10-inch wastewater mains.

Water Supply and Infrastructure. A WSA was not prepared for the Specific Plan pursuant to SB 610 or SB 221, as, per the definitions within the regulations, WSAs are required for individual projects and not programs such as the Specific Plan. Individual development projects under the Specific Plan that meet the criteria of a project subject to SB 610 or SB 221 would be required to prepare a WSA. Therefore, this analysis is based on EBMUD's UWMP.

EBMUD has a total water right and capacity of 325 mgd from the Mokelumne River. As noted above, this capacity exceeds EBMUD's projected demand during normal and single dry years through 2040 of 230 mgd. At full buildout, the Specific Plan could generate a total water demand of approximately 2.60 mgd, which represents a net increase of 0.35 mgd as compared to the existing demand of 2.25 mgd within the Plan Area. As noted above, EBMUD's water demand in 2015 was approximately 190 mgd. Therefore, full buildout of the Specific Plan would represent approximately 0.8 percent of the projected increase in demand.

EBMUD projects that under a multiple dry year scenario of three consecutive drought years, there is a projected 2040 shortfall for water supply of approximately 48,000 acre-feet. However, as noted above, EBMUD has completed, or is in the process of developing or expanding, a number of water supply projects to ensure that EBMUD would have sufficient water supply during a multiple-dry year scenario.

Additionally, individual development projects associated with the Specific Plan would be subject to Goal 29, Policy 29.2, and Action 29.2.4 in Chapter 4 of the General Plan which would help reduce water consumption as future development occurs.

As noted above, the Specific Plan identifies specific upgrades to be made to water supply infrastructure in the Plan Area to ensure future development can be served. Additionally, EBMUD

has confirmed that there are no known capacity or condition issues within the existing water system in the Plan Area.¹⁹

Therefore, due to the Specific Plan's minimal contribution to the EBMUD projected 2040 water demand, the various ongoing EBMUD water supply projects, individual development project compliance with the General Plan, and infrastructure improvements identified within the Specific Plan, impacts to water supply and infrastructure would be less than significant.

Wastewater System. As stated above, the WWTP treats an average flow of 32 mgd and has a dry weather capacity of 54 mgd and a wet weather capacity of 240 mgd, leaving an available capacity of approximately 22 mgd. Full buildout of the Specific Plan would generate a wastewater discharge of approximately 2.40 mgd, a net increase of 0.31 mgd compared to the existing 2.09 mgd of wastewater currently generated within the Plan Area. Therefore, full buildout of the Specific Plan would reduce the available capacity of the WWTP to 21.69 mgd, a reduction of approximately 1.4 percent. Therefore, full buildout of the Specific Plan would have a less-than-significant impact on wastewater treatment capacity.

As described above, the Specific Plan identifies specific upgrades to be made to wastewater supply infrastructure in the Plan Area to ensure future development can be served. Therefore, the Specific Plan would have a less-than-significant impact on wastewater infrastructure.

Solid Waste. As described above, solid waste in the Plan Area would be transferred to the Keller Canyon Landfill, via the Contra Costa Transfer and Recovery Station, for disposal. The Keller Canyon Landfill has a maximum daily throughput of 3,500 tons and has a remaining capacity of over 63.408 million cubic yards. As described in Chapter 3.0, Project Description, buildout of the Specific Plan could result in the addition of 899 new residential units, approximately 1,519 new residents, and approximately 3,546 new jobs. Therefore, at buildout, the Specific Plan would have a service population of 3,275,²⁰ and the total solid waste generated would be approximately 15,392.5 pounds per day. Solid waste from the Specific Plan buildout service population could reduce the permitted daily throughput at Keller Canyon by approximately 7.6 tons, or 0.22 percent.

Individual development projects associated with the Specific Plan would be required to divert 50 percent of construction and demolition debris, as well as prepare and implement a WMP, which must include: 1) the estimated volume of reusable and recyclable construction and demolition debris; 2) the vendor or facility proposed to collect or receive the diverted materials; and 3) the estimated volume of the residual debris that will be disposed of rather than reused or recycled. Additionally, individual development projects would be required to comply with Goal 30, Policy 30.2, and Action 30.2.7 in Chapter 4 of the General Plan that requires recycling of construction waste for all private projects. Therefore, development associated with the Specific Plan would have a less-than-significant impact related to solid waste.

¹⁹ Raimi + Associates, 2016, op. cit.

²⁰ Service population is calculated as follows: 100 percent of residents (1,519) + 50 percent of employees (3,512/2) = 3,275.

Energy Demand. Development associated with the Specific Plan could increase demand on electricity, gas, and telecommunications services. However, as noted above, the Plan Area is currently served by energy and telecommunications providers. Proposed development within the Plan Area is not anticipated to result in a significant increase in electrical or gas demand, however, any new or redevelopment with additional electrical or gas loads will need to be approved by PG&E.

Policy IF 1.5 of the Specific Plan would require any new or redeveloped areas to coordinate with the appropriate agency to provide electric, gas, and telecommunication service to the proposed site. Therefore, development associated with the Specific Plan would have a less-than-significant impact on energy demand.

Energy Regulations. Individual development projects associated with the Specific Plan would be subject to Title 24, California's Energy Efficiency Standards and would use energy efficient models and systems whenever possible and incorporate new technologies as they become available, per Specific Plan Policy IF 1.6. The level of public energy required to serve the Specific Plan buildout service population would not be expected to violate applicable federal, State, or local statutes and regulations relating to energy standards or exceed PG&E's service capacity or require new or expanded facilities. Therefore this impact would be less than significant.

4.11.2.3 Cumulative Impacts

Full buildout of the Specific Plan, in conjunction with planned future development, would cumulatively increase the demand on service and utility providers within the Plan Area. However, none of the various utility and infrastructure services provided to the Plan Area would experience significant impacts due to implementation of the Specific Plan. The vicinity of the Plan Area, and the City as a whole, is largely developed with a wide mix of uses. Cumulative development occurring within the vicinity would not result in cumulative impacts to the physical capacity, service levels, or funding available as projections take Citywide growth into consideration. Additionally, all other cumulative development has been, or will be, subject to the goals, policies, and actions within the General Plan, prescribed by zoning and enforced through the building permit process to avoid demand for utility service that exceeds current capacity. Individual development projects would be required to demonstrate that capacity is available and provided by existing infrastructure prior to approval or is required to construct or pay the fair share towards needed upgrades if existing systems are insufficient. Therefore, impacts related to utilities and service systems that could result from implementation of the Specific Plan would not be cumulatively considerable.

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4.12 AESTHETICS

This section describes the existing visual resources within the Plan Area and evaluates potential impacts of the Specific Plan on these resources. Included in this section is a description of existing visual conditions within the Plan Area, as well as an evaluation of the potential effects on visual resources that would result from implementation of the Specific Plan. The visual analysis is based on field observations within the Plan Area, background reports prepared for the proposed Specific Plan, and publically-available planning documents.

Visual resources include the elements that provide a “sense of place” within the Plan Area and contribute to its unique identity. These elements encompass both natural and human-made features of the local environment, as well as cultural characteristics that contribute to how the Plan Area is perceived, or “read” as a place. The setting section describes the primary features contributing to the Plan Area’s natural setting, such as gateways, scenic views, scenic highways, and creek corridors, in addition to the issue of night lighting and glare.

4.12.1 Setting

The following section describes the visual setting of the Plan Area.

4.12.1.1 Visual Character

The Plan Area is located on the western edge of Walnut Creek, directly north of the traditional Downtown and directly east of the Walnut Creek BART station. The visual character of the Plan Area is influenced by some of the City’s main thoroughfares, including Ygnacio Valley Road (YVR), California Boulevard, Main Street, North Broadway, and Civic Drive. The majority of the land within the Plan Area is developed and landscaping is limited to ornamental trees and building landscaping. Buildings in the Plan Area range from single-story car dealerships with large surface parking lots east of North Main Street to seven-story office buildings with underground parking garages within the Golden Triangle (the area bordered by Interstate 680 [I-680] to the west, the Walnut Creek BART Station to the south, North California Boulevard to the east, and Parkside Drive to the north). Elevated BART tracks run along a north-south trend through the western portion of the Plan Area. Multiple civic buildings are located within the Plan Area and the vicinity of YVR, including the Walnut Creek Department of Motor Vehicles, the United States Postal Service, and the Walnut Creek Superior Court. Commercial and pedestrian-oriented retail uses in the southern portion of the Plan Area along Locust Street and North Main Street serve as a transition into the downtown area.

4.12.1.2 Significant Public Views of the Plan Area

The Plan Area is visible from several public viewpoints within and adjacent to the City including from I-680, the Walnut Creek BART Station, and from the Iron Horse Regional Trail overcrossing at YVR.

Interstate 680. Automobiles traveling both north and south on I-680 have very brief, intermittent views of the Plan Area. Views are hindered by the speed of travel, the Walnut Creek BART Station and tracks, and intersecting State Route 24 (SR 24). The Plan Area is most easily distinguishable by the large office buildings located within the Golden Triangle and near the Walnut Creek BART Station.

Walnut Creek BART Station. Passengers on a BART train to and from the Walnut Creek BART Station have brief views of the Plan Area as the BART train approaches and leaves the Walnut Creek BART Station, both from the north and south. Similar to views from I-680, the Plan Area is distinguishable by the large office buildings within the Golden Triangle, as well as YVR, which runs through the middle of the Plan Area, and the large car dealerships in the northern portion of the Plan Area. Additionally, passengers waiting for a BART train on the eastern side of the elevated station platform have significant views of the Plan Area, especially the Target located at the intersection of YVR and North California Boulevard and the office buildings located along North California Boulevard.

Iron Horse Trail Overcrossing. The Iron Horse Trail is a multi-use public trail that runs between the cities of Concord and Pleasant Hill through Walnut Creek and crosses over YVR via a bridge at the eastern boundary of the Plan Area. Accessible to pedestrians and bicyclists, the overcrossing provides views of the Plan Area along YVR, which includes the newly constructed Brio Apartments located at the intersection of YVR and Civic Drive.

4.12.1.3 Significant Public Views from Within the Plan Area

Views of Mount Diablo to the east are available from public rights-of-way and individual buildings throughout the Plan Area. However, many of these views are partially blocked due to existing development within and adjacent to the Plan Area. To the west, views of the undeveloped hill adjacent to I-680 are available throughout the Plan Area. Similar to Mount Diablo, views of these hills are partially blocked by existing development, including the BART tracks and I-680.

4.12.1.4 Light and Glare

Light pollution refers to forms of unwanted light in the night sky, including glare, sky glow, excessive night lighting, and diminished night sky visibility. Existing sources of nighttime light in and around the Plan Area include street lights, parking lot lights, building lighting, illuminated signs, vehicle headlamps, and interior lighting visible through windows.

Existing sources of glare also include those common to urban areas, such as reflection of sunlight and artificial light off of windows, buildings and other surfaces in the day, and glare from inadequately shielded and improperly directed light sources at night. Light and glare levels in the City are fairly typical of an urban environment. Performance standards addressing light and glare, including the design of exterior lighting fixtures, have been incorporated into the City's Municipal Code.

4.12.1.5 Regulatory Setting

This section describes applicable State and local regulations that pertain to visual resources.

California Scenic Highway Program. The intent of the California Scenic Highway Program (Streets and Highway Code Section 260) is to protect and enhance California's natural beauty and to protect the social and economic values provided by the State's scenic resources. The California Department of Transportation (Caltrans) defines a scenic highway as any freeway, highway, road, or other public right-of-way that traverses an area of exceptional scenic quality. Suitability for designation as a State

Scenic Highway is based on vividness, intactness, and unity. A 14-mile segment of I-680 from the southern Alameda County line north to SR 24 and a 9-mile segment of SR 24 from I-680 to the Caldecott Tunnel are officially designated State Scenic Highways.¹ Neither of the officially designated segments is located within the Plan Area.

City of Walnut Creek General Plan. The Walnut Creek General Plan 2025 (General Plan),² adopted in 2006, provides guidance to help new development and establishes regulations for building development including intensity, height, massing, and setbacks. Additionally, the General Plan identifies scenic views and corridors, landmarks, and gateways to be preserved and protected.

Goals, Policies, and Actions. The following goals, policies, and actions from the General Plan relevant to aesthetics would apply to the Specific Plan:

Chapter 2: Quality of Life

- **Goal 1: Protect and enhance the quality of life in the city's residential neighborhoods**
 - Policy 1.1: Protect and enhance the distinct characteristics of each neighborhood.
 - Action 1.1.1: Through the City's review processes, and consistent with existing neighborhood character, encourage high-quality residential design.
 - Policy 1.4: Require the development is compatible with surrounding uses
 - Policy 1.5: Support neighborhood efforts that strengthen identity and protect or enhance neighborhood character.

Chapter 4: Built Environment

- **Goal 5: Require that infill development is compatible with its surroundings**
 - Policy 5.1: Require infill development to be compatible with adjacent nearby uses.
 - Action 5.1.1: Where new development occurs, study surrounding properties and uses for potential conflicts, and address those conflicts within the City's review processes.
- **Goal 13: Maintain and enhance high-quality building design and urban design**
 - Policy 13.1: Maintain urban design and architectural standards for evaluating the scale, appearance, and compatibility of new development proposals.

¹ California Department of Transportation. California Scenic Highway Mapping System. Website: www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm (accessed February 1, 2018).

² Walnut Creek, City of, 2006. *Walnut Creek General Plan 2025*. April 4.

- Action 13.1.1: During the City’s review processes, confirm that the project design will be compatible with adjacent uses.
- Policy 13.2: Regulate building placement and upper-floor setbacks along important streets in the Core Area.
- Policy 13.3: Coordinate the building heights allowed under the general plan, zoning ordinance, and Measure A.
 - Action 13.3.2: Allow increases in height, up to Measure A height limits, for developments that provide exceptional public amenities such as accessible roof gardens, ground-level public plazas, creek orientations, public courtyards and passageways, landscaping, public art, and other desired public amenities during the normal City review process.
- **Goal 16: Maintain and enhance Walnut Creek’s identity and sense of place**
 - Policy 16.2: Use public art to enliven and beautify the public realm
- **Goal 17: Enhance the entrances to the city**
 - Policy 17.1: At all major entry points to the city develop welcoming gateways that emphasize unique qualities of Walnut Creek.
- **Goal 18: Preserve and enhance the visual amenity provided by the open spaces, hills, and creeks**
 - Policy 18.1: Preserve and enhance the urban connections to scenic views that are important to residents and visitors.
 - Action 18.1.3: Preserve and enhance the off-site visual appearance of open space lands, particularly the views from other vantage points in the city.
 - Action 18.1.4: Keep and, where possible, expand the public visual buffers between developed areas.
 - Policy 18.2: Improve the appearance and prominence of designated scenic corridors.
- **Goal 19: Enhance the urban design quality of the Core Area and its subareas**
 - Policy 19.1: Use specific plans and precise plans for subareas within the Core Area.
 - Policy 19.2: Improve directional signage for pedestrians and vehicles in the Core Area.

Scenic Resources. The General Plan identifies scenic views and corridors, landmarks, and gateways to be preserved and protected. As described in Chapter 4, Built Environment, the views from Walnut Creek to surrounding open spaces, hills, and Mount Diablo are integral to the City's identity, sense of place, and character. The General Plan designates YVR, the BART tracks, Civic Drive, and North Broadway as scenic corridors within the Plan Area. Additionally, the intersection of YVR and North California Boulevard is designated as a gateway and the Walnut Creek BART Station, Golden Triangle office buildings, and Target are designated as landmarks.

Zoning Ordinance. The City's Zoning Ordinance identifies specific zoning districts within the City and describes the development standards that apply to each district.³ The Zoning Ordinance includes standards for building height and placement that are intended to preserve views, maintain light and air, and protect the aesthetic quality of the City and its neighborhoods. In 1985, Measure A, also known as the Building Height Freeze Initiative, was passed during a special election. Measure A caps building heights within Walnut Creek at their limitations in 1985, and requires the approval of the electorate to raise building heights or allow any building over six stories in height. Additionally, the Zoning Ordinance includes regulations for exterior lighting, ensuring that light sources are shielded.

Tree Preservation Ordinance. The City's Tree Preservation Ordinance recognizes that the preservation of trees enhances the natural scenic beauty, sustains the long-term potential increase in property values that encourages quality development, maintains the original ecology, creates the identity and quality of the City that is necessary for successful business to continue, and improves the attractiveness of the City to visitors.

Design Review. The City's Design Review Commission was established to enforce design standards, policies, and practices that promote aesthetics, encourage economic vitality, and enhance the design of the City's built environment. Nearly all development within the City is subject to design review, whether by the Design Review Commission, or by an authorized designee.

Design review is intended to improve the general standards of orderly development of the City; improve and augment the controls related to planning and building to promote development that is in the best interests of the public health, safety, and welfare of the City; and to establish standards and policies that will promote and enhance good design, site relationships, and other aesthetic considerations in the City.

The City's 1996 Design Review Guidelines contains policies to evaluate and review projects proposed for the Design Review Commission's approval.⁴ The Design Review Guidelines address site relationships, landscape design, off-street parking design, fencing, screening, architecture, signage, and special environmental constraints.

4.12.2 Impacts and Mitigation Measures

This section discusses the potential impacts related to visual resources that could result from implementation of the Specific Plan, according to the significance criteria described below.

³ Walnut Creek, City of. *Zoning Ordinance*. Revised January 2018.

⁴ Walnut Creek, City of, 1996. *Design Review Guidelines*. July.

4.12.2.1 Significance Criteria

Implementation of the Specific Plan would have a significant effect on the visual resources of the area if it would:

- Have a substantial effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create new sources of substantial light or glare which would adversely affect day or nighttime views in the area.

4.12.2.2 Project Impacts

The following describes the potential impacts related to visual resources that could result from implementation of the Specific Plan and identifies mitigation measures, as appropriate.

Scenic Vistas. Implementation of the Specific Plan would have a significant impact on aesthetics if future development or infrastructure projects allowed by the Specific Plan would have a substantial adverse effect on a scenic vista. As described above, existing views primarily include open space, hills, and Mount Diablo, which are visible from scenic corridors (i.e., YVR, the BART tracks, Civic Drive, and North Broadway) within the Plan Area. Additionally, partial views of scenic resources, such as Mount Diablo, are available from other public rights-of-way throughout the Plan Area.

Development associated with the Specific Plan could potentially block or otherwise adversely affect these views, including development of buildings up to 89 feet in height. Development allowed by the Specific Plan would be subject to Goal 18, Policies 18.1 and 18.2, and Actions 18.1.3 and 18.1.4 in Chapter 4 of the General Plan that aim to protect existing views and vistas within the City.

Additionally, future development associated with the Specific Plan would be required to comply with setback, building height, and massing development standards established in the General Plan and Zoning Ordinance to preserve and enhance view corridors within the Plan Area. Development standards in the General Plan and Zoning Ordinance would ensure that new structures are appropriately limited in height and adequately set back to minimize obstruction of views and scenic vistas. The Specific Plan would amend building height regulations for certain land uses within the Plan Area, however, building heights within the Plan Area would not be increased beyond heights allowed under Measure A. Additionally, future development associated with the Specific Plan would also undergo the City's Design Review process to ensure that view corridors and scenic vistas would be identified and incorporated.

Compliance with General Plan goals, policies, and actions, the Zoning Ordinance, and the City's Design Review Process would ensure that future development associated with the Specific Plan maintains and protects views of scenic vistas. Therefore, implementation of the Specific Plan would have a less-than-significant impact related to scenic vistas.

State Scenic Highways. As noted above, there are no State Scenic Highways located within the Plan Area. Portions of I-680 and SR 24 are designated as State Scenic Highways, however, they are located approximately 0.5 miles from the closest Plan Area boundary, and the Plan Area is not visible from the designated portions. Therefore, the Specific Plan would have no impact on State Scenic Highways.

Visual Character. As described above, the Plan Area is located within the urban Core Area of Walnut Creek, and its existing visual character includes a wide range of building massing and heights, urban design elements, and land uses. Plan Area land uses, proximity to Downtown and the Walnut Creek BART Station, and major automobile thoroughfares have an influence on its built form. Development associated with the Specific Plan would generally be consistent with the intensity and use of the Plan Area, as well as the overall urban visual character.

Chapter 4 of the Specific Plan identifies standards and guidelines for development within the Plan Area related to building height, massing, setbacks, and site planning. These standards and guidelines would ensure individual development within the Plan Area would be generally consistent with the intensity and use of the existing conditions within the Plan Area and would ensure that the visual character of the Plan Area would not be substantially changed.

Future development projects associated with the Specific Plan would be subject to review by the City's Design Review Commission to ensure consistency with the City's Design Review Guidelines. Additionally, maximum building heights and intensities would be capped at Measure A levels, per Specific Plan Policy 1.1, which would ensure future development within the Plan Area would be consistent with existing development. Therefore, development associated with the Specific Plan would avoid degradation of the visual character and quality of the Plan Area.

Additionally, development allowed by the Specific Plan would be subject to Goals 5, 13, 14, 16, and 19; Policies 5.1, 13.1, 13.2, and 13.3; and Actions 13.1.1 and 13.1.2 in Chapter 4 of the General Plan that would ensure that the visual character of the Plan Area would not be degraded.

Although future development allowed by the Specific Plan could change the existing visual character on individual project sites, the existing urban character of the Plan Area as a whole would remain unchanged. Given that the Specific Plan promotes infill and transit-oriented development and provides standards and guidelines for new development, future development is expected to remain consistent with and not degrade the existing visual character of the Plan Area through compliance with the City's Design Guidelines and General Plan. Therefore, the Specific Plan would have a less-than-significant impact related to visual character.

Light and Glare. Development associated with the Specific Plan would introduce new sources of light to the Plan Area; however, these new sources of light would be consistent with the type and intensity of light existing within the Plan Area. Future development within the Plan Area would be required to comply with the City's Zoning Ordinance, which requires exterior lighting to be shielded so that it is not visible off-site, unless it is required for safety reasons, as well as Guideline 4.74 in the Specific Plan, which requires dark sky compliant lighting to reduce light pollution. Additionally, the City's Design Review process would require the height of light fixture mounting to be appropriate for

the type of development with which it is associated and lighting to be designed so as to avoid directing light off the site, both of which would avoid adverse lighting effects.

Implementation of the Specific Plan would also result in new sources of glare within the Plan Area. Glare is typically generated by building surfaces, building windows, and vehicle windshields. New development associated with the Specific Plan would be required to comply with the City's Design Review processes, which would ensure that potential sources of glare are reduced through site planning and design, as well as the requirement to use high-quality exterior building materials and avoid using highly reflective materials.

Additionally, the Specific Plan includes development standards and guidelines for new lighting within the Plan Area. Specifically, Guideline 4.67 would ensure that night lighting and security lighting is not directed to neighboring parcels and that the overall intensity of the site lighting is not excessive. Guideline 4.65 in the Specific Plan would also discourage night-time lighting in the predominantly residential areas of the Plan Area (i.e., south of YVR and outside the Arts and Entertainment District).

Therefore, compliance with the City's Design Review processes and implementation of the Specific Plan's development standards and guidelines would ensure that potential impacts related to light and glare would be less than significant.

4.12.2.3 Cumulative Impacts

The geographic area considered for the cumulative visual impact analysis includes the neighborhoods adjacent to and within close proximity to the Plan Area. Future cumulative projects could have an impact on scenic views, visual character, and light and glare. However, similar to development associated with the Specific Plan, future development would be subject to the same General Plan goals, policies, and actions, as well as Design Review processes. Therefore, past, present, and future projects in the area are not expected to result in a significant cumulative impact to visual resources, and the Specific Plan would not make a considerable contribution to such an impact. As such, the Specific Plan would result in less-than-significant cumulative impacts related to visual resources.

5.0 OTHER CEQA CONSIDERATIONS

As required by CEQA, this chapter discusses the following types of impacts that could result from implementation of the Specific Plan: growth-inducing impacts; significant irreversible changes; unavoidable significant effects; and cumulative impacts. Less-than-significant impacts associated with the Specific Plan that are not addressed in the topical sections of Chapter 4.0 of this EIR are also discussed.

5.1 GROWTH INDUCEMENT

Section 15126.2(d) of the CEQA Guidelines requires that an EIR should discuss "...the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." Growth can be induced in a number of ways, including through the elimination of obstacles to growth, through the stimulation of economic activity within the region, or through precedent-setting action. Examples of projects likely to have significant growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or industrial parks in areas that are currently only sparsely developed or are undeveloped. Typically, redevelopment of projects on infill sites that are surrounded by existing urban uses are not considered growth-inducing because redevelopment by itself usually does not facilitate development intensification on adjacent sites.

Implementation of the Specific Plan would directly induce population and employment growth in the Plan Area, as is envisioned in the City of Walnut Creek 2025 General Plan. As has been described earlier in this Draft EIR, implementation of the Specific Plan is projected to result in the addition of 1,519 residents and 3,546 employees within the Plan Area by 2038.

Implementation of the Specific Plan would result in an intensification of commercial and residential uses within the Plan Area. However, the Specific Plan includes policies and development standards to encourage the construction of housing and transit-oriented development to improve pedestrian and bicycle connections within the Plan Area in an effort to enable the area to become more attractive, pedestrian-friendly, and multi-modal. The growth that would occur as a result of development associated with the Specific Plan would be within an urban area in the City of Walnut Creek. Proposed new residential development would support and be located near several transit options. The development of residential and mixed-use land uses in close proximity to transit represents an environmentally-sound method for accommodating population growth and reducing sprawl. Therefore, implementation of the Specific Plan would not induce uncontrolled or unplanned growth within the Plan Area or the immediate vicinity.

5.2 SIGNIFICANT IRREVERSIBLE CHANGES

An EIR must identify any significant irreversible environmental changes that could result from implementation of a proposed project. These may include current or future uses of non-renewable resources, and secondary or growth-inducing impacts that commit future generations to similar uses. CEQA requires that irretrievable commitments of resources should be evaluated to assure that such consumption is justified. The CEQA Guidelines describe three distinct categories of significant

irreversible changes: 1) consumption of non-renewable resources; 2) changes in land use that would commit future generations; and 3) irreversible changes from environmental accidents.

5.2.1 Consumption of Nonrenewable Resources

Consumption of nonrenewable resources includes conversion of agricultural lands, loss of access to mining reserves, and non-renewable energy use. As described below, there are no active agricultural or mineral uses in the Plan Area. The planned improvement of multi-modal facilities and development of dense residential and mixed-use development in close proximity to transit would de-emphasize private automobile use and encourage transit ridership, and would result in the conservation of fossil fuels. Therefore, the implementation of the Specific Plan would result in the efficient use of non-renewable energy sources.

5.2.2 Changes in Land Use Which Would Commit Future Generations

Implementation of the Specific Plan would result in the intensification of residential, commercial, and retail uses in an already urbanized area. This development would commit the City to intensification of uses in the Plan Area. The intensification of development in the Specific Plan Area would serve several purposes, including 1) reinforcing and expanding the City's position as a major employment, retail, commercial, and housing center; 2) supporting and expanding existing transit, bicycle, and pedestrian transportation to manage traffic congestion and improve mobility in the Plan Area; 3) directing and facilitating reinvestment and redevelopment within the Plan Area; and 4) ensuring that the transition from commercial land use to multi-family and mixed-use residential land use occurs in a responsible and fiscally sustainable manner. Although development associated with the Specific Plan would commit future generations to more intense development, the new development would benefit the City and the region by providing needed housing, jobs, and transit-oriented development within an existing urban area. Development associated with the Specific Plan would not commit future generations to a development pattern that is often described as "urban sprawl." The development of a denser mix of uses in close proximity to transit represents an environmentally-sound method for accommodating population growth and reducing sprawl.

5.2.3 Irreversible Changes from Environmental Accidents

Implementation of the Specific Plan would result in the development of underutilized land and consolidation of parcels. Although it is unlikely that a major hazardous waste release would occur as a result of implementation of the Specific Plan, such a release would also constitute a significant irreversible change from an environmental action. The mitigation measures, General Plan policies and actions and Conditions of Approval identified within this Draft EIR would reduce all such irreversible or nearly irreversible effects to less-than-significant levels.

5.3 SIGNIFICANT UNAVOIDABLE AND CUMULATIVE IMPACTS

Implementation of the Specific Plan would result in the following significant and unavoidable impacts:

- Implementation of the Specific Plan could result in the LOS at the Penniman Way/Lawrence Way/I-680 Northbound On-Ramp intersection to fall to LOS F in the PM peak hour.

- Implementation of the Specific Plan could reduce the average travel speed on eastbound Ygnacio Valley Road from 15.9 mph to 14.6 mph in the PM peak hour.
- Implementation of the Specific Plan could add traffic to freeway segments that currently operate below the Caltrans standard or are projected to operate below the standard without Specific Plan traffic and under Cumulative No Project conditions.

5.4 EFFECTS FOUND NOT TO BE SIGNIFICANT

The Notice of Preparation (NOP) was published on January 16, 2018, and a public scoping session was held on February 8, 2018, to solicit comments from the public about the scope of this EIR. Written comments received on the NOP were considered in the preparation of the final scope for this document and in the evaluation of the Specific Plan (and are included in Appendix A).

Based on preliminary research and discussion with City staff, the environmental topics analyzed in Chapter 4.0, Setting, Impacts, and Mitigation Measures represent those topics which may generate the greatest potential controversy and expectation of adverse impacts. The following topics were excluded from discussion in Chapter 4.0 of the EIR because it was determined during the scoping phase that these impacts would be less than significant: Agriculture and Forestry Resources, Biological Resources, Cultural Resources, and Mineral Resources. The conclusion of less-than-significant impact or no impact for these topics is discussed in the following sections.

5.4.1 Agricultural and Forestry Resources

The project site is located within a developed urban area in the City of Walnut Creek. The Plan Area does not contain any land that is designated as Open Space–Agriculture in the City’s General Plan. The project site is designated by the California Department of Conservation’s Farmland Mapping and Monitoring Program as Urban and Built-Up Land.¹ Therefore, implementation of the Specific Plan would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use; would not conflict with existing zoning for agricultural use, a Williamson Act contract, forest land or timberland; and would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland or forest land to non-agricultural or non-forest use. Therefore, there would be no impact to agricultural and forestry resources with implementation of the Specific Plan.

5.4.2 Biological Resources

The Plan Area is almost entirely developed with buildings, roads, and landscaping. Stormwater drains into the City’s storm sewer system located throughout the Plan Area into Walnut Creek, located along the southeastern edge of the Plan Area. This segment of the creek historically provided habitat for steelhead and Chinook salmon, but two flood control drop structures north of

¹ California, State of, 2016. Department of Conservation. California Important Farmland Finder. Website: maps.conservation.ca.gov/dlrp/ciff (accessed February 9, 2018).

the Plan Area (one between Willow Pass Road and Highway 242 and one south of Bancroft Road) limit anadromous fish migration.²

A database and literature review was completed in order to determine if the baseline conditions for biological resources in the Plan Area have changed since publication of the General Plan 2025 and its associated EIR that was published in 2005. No new biological resources were identified in the Plan Area that were not previously reported in the General Plan or General Plan EIR. The CNDDDB does not show any extant occurrences of special-status species within the General Plan Area.³ No special-status plants and wildlife have been identified or are expected to occur in the Plan Area due to the lack of suitable habitat.

The policies and actions of the General Plan 2025 that are relevant to biological resources in the vicinity of the Plan Area are listed below. Many of the General Plan policies and actions are related to biological resources associated with open space lands and unculverted creeks, which are not present within the Plan Area. In the General Plan EIR, the City previously identified the following biological resources policies to support a “no impact” finding for biological resources resulting from General Plan implementation.

Chapter 3: Natural Environment

- **Goal 3: Maintain and enhance the area’s creek systems, their riparian environments, and their recreational amenities.**
 - Policy 3.1: Restore riparian corridors and waterways throughout the city.
 - Policy 3.2: Make downtown creeks a central feature in new development.
 - Action 3.2.2: Incorporate the downtown creeks in project designs for new development and redevelopment in the Core Area.
- **Goal 6: Acquire additional parklands.**
 - Policy 6.1: Plan park acquisitions and provide parkland and facilities adequate to support the city’s recreational needs, activities, and programs.
 - Action 6.1.3: Evaluate the need for additional parks.
 - Policy 6.2: Require that new development address park needs generated by a project.
 - Action 6.2.1: Assess the park and recreation needs created by new Core Area housing development and changing populations.

² Leidy, R.A., G.S. Becker, and B.N. Harvey, 2005. Historical distribution and current status of steelhead/ rainbow trout (*Oncorhynchus mykiss*) in streams of the San Francisco Estuary, CA. Center for Ecosystem Management & Restoration, Oakland, CA.

³ California Department of Fish and Wildlife, 2018. California Natural Diversity Database. Sacramento, California. March 6.

- **Goal 7: Provide publicly accessible outdoor spaces in the Core Area.**
 - Policy 7.2: Encourage the development of, maintenance of, and connectivity between high-quality public spaces in the Core Area.
 - Policy 7.3: In conjunction with Core Area commercial and residential development and redevelopment, offer incentives for creating and maintaining public spaces, including pocket parks and plazas.

In summary, existing policies and actions of the General Plan 2025 would apply to future proposed projects in the Plan Area. No program-level mitigation measures for biological resources in the Plan Area are proposed as no new impacts have been identified.

Street trees that are protected by the City Tree Protection Ordinance (Chapter 8 of the City Municipal Code) and that may be removed as part of the project will require a Tree Removal Permit from the City. The City may need to implement the in-lieu fee and/or tree replacement requirements provided in the Ordinance. Ordinance-protected trees are trees that are 9 inches in diameter or 28 inches in circumference, or larger, when measured at 4.5 feet above natural grade. Trees that are considered as “Highly Protected Trees” may require additional fees or mitigation, including replacement of trees at greater than a 1:1 ratio. These trees include valley oak (*Quercus lobata*), blue oak (*Q. douglasii*), coast live oak (*Q. agrifolia*), California black oak (*Q. kelloggii*), canyon live oak (*Q. chrysoleis*), interior live oak (*Q. wilizeni* var. *wilizeni*), madrone (*Arbutus menziesii*), California buckeye (*Aesculus californica*), California black walnut (*Juglans hindsii*), and grey pine (*Pinus sabiniana*).

5.4.3 Cultural Resources

LSA conducted a records search update at the NWIC and NAHC, and a literature review, to determine if the baseline conditions for cultural resources in the Plan Area have changed since publication of the General Plan 2025 and its associated EIR that was published in 2005. No new cultural resources were identified in the Plan Area that were not previously reported in the General Plan or General Plan EIR. The literature review completed for this Specific Plan study confirmed the potential for unrecorded archaeological and paleontological deposits in the Plan Area.

The policies and actions of the General Plan 2025 that are relevant to cultural resources are listed below. In the General Plan EIR, the City previously identified these policies to support a “no impact” finding for cultural resources resulting from General Plan implementation.

Chapter 4: Built Environment

- **Goal 16: Maintain and enhance Walnut Creek’s identity and sense of place.**
 - Policy 16.1: Foster the preservation, restoration, and compatible reuse of architecturally significant structures and sites.
 - Action 16.1.1: Develop an inventory of architecturally significant properties and landmarks.

- **Goal 24: Protect and conserve archaeological and paleontological resources.**
 - Policy 24.1: Review the potential for the presence of archaeological and paleontological resources and remains in or near identified archaeological sites.
 - Action 24.1.1: Require (a) review by the California Archaeological Inventory, Northwest Information Center, Sonoma State University, of all major new projects and all projects of any size within 660 feet of a site identified on the City's map of sensitive archaeological sites and (b) add appropriate mitigations as conditions of project approval as may be recommended by the California Archaeological Inventory.
 - Action 24.1.2: Require developers to halt all work if cultural resources are encountered during a project, and to retain a qualified archaeologist to evaluate and make recommendations for conservation and mitigation.

Undiscovered archaeological and paleontological deposits may exist within the Plan Area. Such deposits could be obscured by existing development and/or Holocene-age alluvial deposition that buried former living surfaces and associated archaeological deposits. General Plan Policy 24.1 and Actions 24.1.1 and 24.1.2 would require a review of all major projects in the Plan Area and stoppage of construction if cultural resources are identified during project ground disturbance. This policy and these actions would mitigate potential impacts from Specific Plan implementation to archaeological and paleontological deposits by assessing their potential occurrence on a project-specific basis and through work stoppage and implementation of appropriate General Plan policies and actions in the event that such resources are identified during construction.

No recorded, historically significant, built-environment cultural resources were identified in the Plan Area, although a review of online assessor's parcel data indicates that buildings 50 years old or older exist in the Plan Area. Should their demolition or alteration be proposed, these buildings would need to be evaluated on a project-specific basis for their historical significance under appropriate State and federal criteria. Action 16.1.1 of the General Plan would develop an inventory of architecturally significant properties and landmarks. Through implementation of this action, architecturally and historically significant built-environment resources in the Plan Area—should these exist—would be recorded and managed on a project-specific basis.

In summary, existing policies and actions of the General Plan would apply to the development undertaken in the Plan Area. No program-level mitigation measures for cultural resources in the Plan Area are proposed as no new impacts that were not addressed in the General Plan have been identified.

5.4.4 Mineral Resources

The Plan Area is located in a developed urban area in the City of Walnut Creek and mineral exploration and extraction is not performed in the project vicinity. There are no natural gas, oil, or geothermal resources located in or adjacent to the Plan Area. Implementation of the Specific Plan would not result in a mineral resources impact.

6.0 ALTERNATIVES

In accordance with CEQA and the CEQA Guidelines (Section 15126.6), an EIR must describe a range of reasonable alternatives to the project, or to the location of the project, that would “feasibly attain most of the project's basic objectives, while avoiding or substantially lessening any of the significantly adverse environmental effects of the project.” The range of alternatives required in an EIR is governed by a “rule of reason” that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice, even if those alternatives “impede to some degree the attainment of the project objectives, or would be more costly.” An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.

The proposed project involves the implementation of the proposed Specific Plan, which will guide land use and development decision-making processes for the Plan Area. All applications for new construction, substantial modifications to existing buildings, and changes in land use shall be reviewed for conformance with the Specific Plan. The Specific Plan would be adopted under the authority of the City’s Zoning Ordinance, which establishes specific plans as tools to regulate land use and development. The potential effects of implementing the proposed project are analyzed in Chapter 4.0, Setting, Impacts, and Mitigation Measures. The proposed project has been described and analyzed in the previous chapters with an emphasis on determining and evaluating potential significant impacts resulting from the project and identifying mitigation measures to avoid or reduce these impacts to a less-than-significant level.

The following discussion is intended to inform the public and decision-makers of the relative environmental impacts of the potentially feasible alternatives that would substantially lessen the proposed project’s significant impacts. This chapter is divided into four sections. The first section briefly restates the objectives and impacts of the proposed project. The second section describes the principal characteristics of the alternatives considered in this section (i.e., the No Project alternative and Reduced Development alternative) and briefly compares these alternatives to the proposed project. The last section discusses the environmentally-superior alternative.

The two alternatives to the proposed project that are discussed in this chapter include the following:

- CEQA requires the identification and analysis of a No Project alternative to allow decision-makers the opportunity to compare the impacts of approving the proposed project with the impacts of not approving the project. The **No Project alternative** assumes that the Specific Plan would not be adopted and future development within the Plan Area would occur under the *General Plan 2025* adopted in April of 2006 and evaluated in the Final Environmental Impact Report. It is projected that this alternative would result in 280 new housing units (for a total of 1,224 housing units), 563,000 square feet of new office space, 2,006 square feet of new retail space, and 22,298 square feet of new auto sales and service space. At buildout, the No Project alternative would result in the addition of 2,259 new jobs (for a total of 15,332 jobs) and 474 new residents (for a total of 2,069 residents). The No Project alternative does not include the new goals and guidelines of the Specific Plan that would provide environmental and community benefits.

- The **Reduced Development alternative** assumes that the growth in the Plan Area at buildout would need to be approximately 40 percent to half the amount identified for the Specific Plan in order to reduce two of the four significant and unavoidable transportation impacts to a less-than-significant level. To achieve a lower amount of growth under this alternative, proposed maximum Floor Area Ratios (FAR) identified in the Draft Specific Plan would be reduced by about half, but in no case would be less than what is currently allowed per the General Plan and Zoning. It is projected that this alternative would result in approximately 911 new future residents (for a total of 2,506 residents), 539 new housing units (for a total of 1,483 units) and 2,127 new jobs (for a total of 15,166 jobs). The Reduced Development alternative would follow the same land use plan as proposed in the Draft Specific Plan. In addition, it would include the new goals, policies, and design guidelines of the Draft Specific Plan, but not development standards that support additional height and development intensity.

These alternatives represent a reasonable range of potential alternatives to the Specific Plan in light of the objective of reducing or avoiding environmental impacts identified in this EIR.

6.1 PROJECT OBJECTIVES AND IMPACTS

Project objectives are identified in Chapter 3.0, Project Description. To assist in evaluating project alternatives, the objectives are repeated below.

- Reinforce and further expand Walnut Creek’s position as a major employment, retail commercial, and housing center, and as a cultural destination in the San Francisco Bay Area.
- Plan new economic and land use policies that lead to an increase in employment opportunities in close proximity to the Walnut Creek BART station and downtown.
- Harness and direct the market demand for more urbanized development in the 191-acre area near the Walnut Creek BART station, while also preserving and enhancing the strong sales tax base in the area, especially the auto sales and service uses which are concentrated within the Plan Area.
- Support and expand existing transit, bicycle and pedestrian transportation to manage traffic congestion, serve a diverse population, and build a resilient local transportation system.
- Expand upon the concepts of the North Main Street/Ygnacio Valley Road (NMS/YVR) Specific Plan, which was adopted in 2002 prior to the arrival of denser and more urbanized residential development in areas in and near the NMS/YVR Specific Plan Area.
- Direct and facilitate reinvestment and redevelopment within this portion of the Core Area of the City and to identify new infrastructure improvements needed to expand access to a broad range of transportation options, including walking, bicycling, and transit.
- Identify where optimal non-vehicular transportation connections should occur, and create and implement land use policies which take full advantage of the Plan Area’s proximity to the Walnut Creek BART station and the traditional downtown.

- Ensure that the transition from commercial land use to multi-family residential land use occurs in a responsible and fiscally sustainable manner.

The purpose of this discussion of alternatives to the project is to enable City decision-makers to evaluate the project by considering how alternatives to the project as proposed might reduce or avoid the project's impacts on the physical environment.

It has been determined that the following potential effects of the implementation of the Specific Plan (i.e., proposed project) would be less-than-significant with or without mitigation measures or have no impact for the following topics: aesthetics; agricultural and forestry resources; air quality; biological resources; cultural resources and tribal cultural resources; geology and soils; greenhouse gas emissions; hazards and hazardous materials; hydrology and water quality; land use and planning; mineral resources; noise; population and housing; public services; recreation; and utilities and service systems. Each of these topics is addressed in the topical sections of the EIR or in Chapter 5, Other CEQA Considerations under Section 5.4, Effects Found Not to be Significant. For the proposed project, the following impacts associated with transportation and circulation are significant and unavoidable, and cannot be reduced to a less-than-significant level with implementation of mitigation measures:

- Implementation of the Specific Plan could worsen Intersection #3, Penniman Way/Lawrence Way/I-680 Northbound from Level of Service (LOS) E with a v/c ratio of 0.92 to LOS F with a v/c ratio of 1.01 in the PM peak hour.
- Implementation of the Specific Plan could cause the average travel speed on eastbound Ygnacio Valley Road in the PM peak hour to decrease from 15.9 miles per hour (mph) to 14.6 mph.
- Implementation of the Specific Plan could add traffic to freeway segments that currently operate below the California Department of Transportation (Caltrans) standard or are projected to operate below the standard without Specific Plan traffic.
- Implementation of the Specific Plan could add traffic to freeway segments that currently operate below the Caltrans standard or are projected to operate below the standard under Cumulative No Project conditions.

6.2 NO PROJECT ALTERNATIVE

The following provides a description of the No Project alternative and its anticipated environmental impacts. The emphasis of the analysis is on comparing the anticipated environmental impacts of the No Project alternative to the environmental impacts associated with the Specific Plan. The discussion includes a determination of whether or not the No Project alternative would reduce, eliminate, or create new significant environmental impacts and would or would not meet the basic objectives of the project.

6.2.1 Principal Characteristics

The No Project alternative assumes that development would occur within the Plan Area pursuant to the General Plan 2025. As shown in Table 6.A, development under this alternative would result in

the addition of 474 new residents, 280 new residential units, and 2,259 new jobs. Table 6.A shows the amount of development at buildout. The No Project alternative does not include the new goals, policies and guidelines of the Specific Plan that would provide community and environmental benefits, especially relating to land use, development standards, mobility, connectivity, and infrastructure.

Table 6.A: Walnut Creek North Downtown Specific Plan Area Alternative Projections

Units	Existing Conditions	Proposed Project (Buildout)	No Project Alternative (Buildout)	Reduced Development Alternative ^c (Buildout)
Population	1,595 ^a	3,115 ^a	2,069 ^a	2,506 ^a
Housing Units	944	1,843	1,224	1,483
Jobs	13,073	16,585 ^b	15,332 ^b	15,166 ^b

Source: Raimi + Associates, *North Downtown Growth Projection Assumptions Memo* (December 7, 2017). Table compiled by LSA (2018).

Note: While the NOP was circulated in 2018, the City is using a Year 2017 Baseline.

^a These projections were calculated using an assumed average household size of 1.69 persons.¹

^b These projections were calculated using the following standard assumptions of one job per 500 square feet of retail, one job per 250 square feet of office, 0.9 jobs per hotel room,² one job per 463 square feet of general light industrial,³ and one job per 600 square feet for auto retail or service.⁴

^c The Reduced Development Alternative would include the removal of approximately 37,087 square feet of auto sales and service use.

6.2.2 Analysis of the No Project Alternative

The No Project alternative would not result in the Plan Area becoming better connected and integrated with Walnut Creek’s traditional Downtown, the BART station, Civic Park, Iron Horse Trail, surrounding neighborhoods, and the region. Implementation of the No Project alternative would not create an important jobs center and location for automobile sales and service, while also allowing the area to continue to evolve into a vibrant mixed-use district that integrates housing, retail, restaurant, civic, hospitality, arts, and entertainment uses into cohesive neighborhoods.

Although the No Project alternative would meet some of the objectives of the proposed project, albeit to a lesser degree, this alternative would not meet the following objectives because there would not be an emphasis on providing mixed-use development or the identification of the Special Districts and lack of development guidelines:

- Harness and direct the market demand for more urbanized development in the 191-acre area near the Walnut Creek BART station, while also preserving and enhancing the strong sales tax base in the area, especially the auto sales and service uses which are concentrated within the Plan Area.

¹ Raimi + Associates, 2016. *North Downtown Specific Plan Existing Conditions Report*. Market and Economics. Table 1. October 19.

² The Natelson Company, Inc., 2001. *Employment Density Study: Summary Report*. Prepared for the Southern California Association of Governments. October 31.

³ United States Green Building Council, 2008. *Building Area Per Employee By Business Type*. May 13.

⁴ United States Green Building Council, 2017. *Appendix 2. Default occupancy counts*.

- Direct and facilitate reinvestment and redevelopment within this portion of the Core Area of the City and to identify new infrastructure improvements needed to expand access to a broad range of transportation options, including walking, bicycling, and transit.
- Identify where optimal non-vehicular transportation connections should occur, and create and implement land use policies which take full advantage of the Plan Area's proximity to the Walnut Creek BART station and the traditional downtown.
- Ensure that the transition from commercial land use to multi-family residential land use occurs in a responsible and fiscally sustainable manner.

As development under the No Project alternative would be less than the Specific Plan, two significant unavoidable impacts, related to intersection #3 LOS and travel speeds on Ygnacio Valley Road segments, would be avoided or reduced to a less-than-significant level under this alternative. Development under this alternative generates lower traffic volumes that would not trigger a significant impact under Near Term conditions at Intersection #3, Penniman Way/Lawrence Way/I-680 Northbound, and do not trigger a significant impact under Near Term conditions by decreasing the average travel speed on eastbound Ygnacio Valley Road in the PM peak hour below the City standard.

The reader should note for informational purposes that the No Project alternative would generate slightly higher (about 1 percent) vehicle miles travelled (VMT) per resident (for residential uses) and VMT per employee (for office uses). This increase is due to the lower intensity of the No Project land uses, which foster lower walking and bicycling and lower trip internalization (trips made between compatible uses with the Plan Area). See Table 4.2.BB in Section 4.2, Transportation and Circulation, for additional discussion of VMT.

The air quality, greenhouse gas emissions, and noise impacts associated with the implementation of the Specific Plan would still occur under this alternative. However, due to the reduced amount of development, these impacts would be less severe as compared to the Specific Plan due to the decreased amount of development, and mitigation measures would still reduce these potential impacts to a less-than-significant level. Implementation of the No Project alternative would result in less severe air quality, greenhouse gas emissions, and noise impacts as compared to the Specific Plan.

The hazardous materials impact associated with the implementation of the Specific Plan (accidental release of hazardous materials) would still occur under this alternative. The identified mitigation measure would reduce this potential impact to a less-than-significant level. Implementation of the No Project alternative would result in a hazardous materials impact similar to the proposed project.

6.3 REDUCED DEVELOPMENT ALTERNATIVE

The following provides a description of the Reduced Development alternative and its anticipated environmental impacts. While similar to the CEQA required No Project alternative, the Reduced Development alternative has been defined in an effort to avoid or reduce the proposed project's significant and unavoidable traffic impacts described previously. The emphasis of the analysis is on

comparing the anticipated environmental impacts of the Reduced Development alternative to the environmental impacts associated with implementation of the Specific Plan. The discussion includes a determination of whether or not the Reduced Development alternative would reduce, eliminate, or create new significant environmental impacts and would or would not meet the basic objectives of the project.

6.3.1 Principal Characteristics

The Reduced Development alternative assumes that the growth in the Plan Area would need to be approximately 40 percent to half the amount identified for the Specific Plan in order to reduce two of the four significant and unavoidable transportation impacts. To achieve a lower amount of growth under this alternative proposed maximum FAR identified in the Draft Specific Plan would be reduced by about half, but in no case would be less than what is currently allowed per the General Plan and Zoning. As shown in Table 6.A, it is projected that this alternative would result in approximately 911 new future residents (for a total of 2,506 residents), 539 new housing units (for a total of 1,483 units) and 2,127 new jobs (for a total of 15,166 jobs). The Reduced Development alternative would follow the same land use plan as proposed in the Draft Specific Plan. In addition, it would include the new goals, policies, uses, and some design guidelines of the Draft Specific Plan, but would reduce the FAR allowed under the Specific Plan by approximately half. The reduction in development potential would also result in the exclusion of any design guidelines or development standards that would require additional height and development intensity to be achieved, such as the private open space requirements, and many of the frontage requirements and guidelines that support a more compact development pattern. In addition, the community benefits program to allow greater development potential in exchange for community amenities such as plazas and affordable housing may not be feasible under this alternative due to the reductions in development needed to reduce significant traffic impacts.

6.3.2 Analysis of the Reduced Development Alternative

The potential impacts associated with the Reduced Development alternative are described below.

The circulation and infrastructure improvements identified in the Specific Plan and included as part of the Reduced Development alternative would allow the Plan Area to become better connected and integrated with Walnut Creek's traditional Downtown, the BART station, Civic Park, Iron Horse Trail, surrounding neighborhoods, and the region. However, because a lower amount of development would be allowed, fewer jobs would be created, and the Plan Area would not be as important a jobs center as under the proposed project. Additionally, because there would be fewer housing units, office and commercial uses, the area would be a less vibrant pedestrian-friendly mixed-use district that integrates housing, retail, restaurant, civic, hospitality, arts, and entertainment uses as envisioned under the Specific Plan.

Although the Reduced Development alternative would meet some of the objectives of the proposed project, it would not meet the following objectives to the same degree because less development would be allowed under this alternative:

- Reinforce and further expand Walnut Creek's position as a major employment, retail commercial, and housing center, and as a cultural destination in the San Francisco Bay Area.
- Plan new economic and land use policies that lead to an increase in employment opportunities in close proximity to the Walnut Creek BART station and downtown.
- Harness and direct the market demand for more urbanized development in the 191-acre area near the Walnut Creek BART station, while also preserving and enhancing the strong sales tax base in the area, especially the auto sales and service uses which are concentrated within the Plan Area.
- Expand upon the concepts of the North Main Street/Ygnacio Valley Road (NMS/YVR) Specific Plan, which was adopted in 2002 prior to the arrival of denser and more urbanized residential development in areas in and near the NMS/YVR Specific Plan Area.
- Direct and facilitate reinvestment and redevelopment within this portion of the Core Area of the City and to identify new infrastructure improvements needed to expand access to a broad range of transportation options, including walking, bicycling, and transit.

As stated previously, this alternative was identified to reduce two project-related significant unavoidable traffic impacts. While a trip generation estimate was not prepared for the Reduced Development alternative, it is estimated that development under this alternative would generate lower traffic volumes that are estimated to avoid or reduce to a less-than-significant level the significant impact under Near Term conditions associated with reduced level of service at Intersection #3, Penniman Way/Lawrence Way/I-680 Northbound, and the significant impact under Near Term conditions by decreasing the average travel speed on eastbound Ygnacio Valley Road in the PM peak hour to below the City standard. This finding is based on the finding for the No Project alternative, which also has substantially lower land use intensity and would not trigger these two significant impacts.

It is noted that the Reduced Development alternative would be expected to generate slightly higher vehicle miles travelled (VMT) per resident (for residential uses) and VMT per employee (for office uses). This is due to the lower intensity development allowed under the Reduced Development alternative, and the resultant lower walking and bicycling and lower trip internalization (trips made between compatible uses with the Plan Area). While VMT estimates have not been prepared for the Reduced Development alternative, this finding is based on the finding for the No Project alternative, which has substantially lower land use intensity than the proposed project, and higher VMT per resident and VMT per employee estimates.

The air quality, greenhouse gas emissions, and noise impacts associated with the implementation of the Specific Plan would still occur under this alternative. However, due to the reduced amount of development, these impacts would be less severe as compared to the Specific Plan due to the decreased amount of development, and mitigation measures would still reduce these potential impacts to a less-than-significant level. Implementation of the Reduced Development alternative would result in less severe air quality, greenhouse gas emissions, and noise impacts as compared to the Specific Plan.

The hazardous materials impact associated with the implementation of the Specific Plan (accidental release of hazardous materials) would still occur under this alternative. The identified mitigation measure would reduce this potential impact to a less-than-significant level. Implementation of the Reduced Development alternative would result in a hazardous materials impact similar to the proposed project.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of the environmentally superior alternative in an EIR. Based on this analysis, the Reduced Development alternative would be considered the environmentally superior alternative as it would reduce or avoid significant and unavoidable traffic impacts and include a majority of the transportation and infrastructure connectivity improvements and environmentally beneficial policies and actions of the Specific Plan.

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