

Appendix A

Air Quality and Greenhouse Gas Emissions

Revised Harbor View Project with Reduced Office Only - 1/21/2022 CalEEMod run

Office Park	800.15 1,000 sqft	27.1 acres
Enclosed parking with elevator	1350 spaces	0 acres
Parking lot	1240 spaces	0 acres

Construction CAP Emissions

Unmitigated Emissions 1/21/2022 CalEEMod run

Construction Year	Tons per year				Pounds per day			
	ROG	NOx	Ex PM ₁₀	Ex PM _{2.5}	ROG	NOx	Ex PM ₁₀	Ex PM _{2.5}
2022	0.34	4.29	0.16	0.14				
2023	2.92	9.77	0.30	0.29				
2024	2.83	1.94	0.06	0.05				
Total	6.09	16.00	0.51	0.48	23.83	62.60	2.00	1.89
BAAQMD Threshold					54	54	82	54

Mitigated Emissions - Tier 4 1/21/2022 CalEEMod run

Construction Year	Tons per year				Pounds per day			
	ROG	NOx	Ex PM ₁₀	Ex PM _{2.5}	ROG	NOx	Ex PM ₁₀	Ex PM _{2.5}
2022	0.08	1.16	0.01	0.01				
2023	2.23	6.38	0.04	0.04				
2024	2.78	2.24	0.01	0.01				
Total	5.08	9.78	0.06	0.06	19.88	38.29	0.23	0.23

Mitigated Emissions - Tier 4 and use of renewable diesel Reduction for renewable diesel 10% 0.1 MM not needed anymore

Construction Year	Tons per year				Pounds per day			
	ROG	NOx	Ex PM ₁₀	Ex PM _{2.5}	ROG	NOx	Ex PM ₁₀	Ex PM _{2.5}
2022	0.07	1.05	0.01	0.01				
2023	2.00	5.75	0.03	0.03				
2024	2.50	2.01	0.01	0.01				
Total	4.57	8.80	0.05	0.05	17.89	34.46	0.21	0.20

Operational CAP Emissions

First year of operation 2025

Source	Tons per year				Pounds per day			
	ROG	NOx	PM ₁₀	PM _{2.5}	ROG	NOx	PM ₁₀	PM _{2.5}
Area	3.63	0.00	0.00	0.00	19.91	0.00	0.00	0.00
Energy	0.08	0.72	0.05	0.05	0.44	3.96	0.30	0.30
Mobile	5.42	5.07	12.91	3.50	29.68	27.80	70.73	19.16
Total	9.13	5.80	12.96	3.55	50.03	31.76	71.03	19.46
BAAQMD Threshold	10	10	15	10	54	54	82	54

Construction GHG Emissions

Construction Year	Metric tons per year			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
2022	709.06	0.15	0.06	729.34
2023	2772.34	0.35	0.18	2835.52
2024	558.27	0.14	0.00	562.96
Total	4039.67	0.64	0.24	4127.82

GHG	GWP
CO ₂	1
CH ₄	25
N ₂ O	298

Land Use	size (1,000 sqft)	Daily trips	Daily trip rate
Office Park	800.15	8717	10.9

CalEEMod default trip generation

Land Use	Weekday	Sat	Sun
Office Park	11.07	1.64	0.76

Project adjusted trip generation

Land Use	Weekday	Sat	Sun
Office Park	10.9	1.61	0.75

CalEEMod default VMT from output

Land Use	Daily Trips			Annual VMT
	Weekday	Sat	Sun	

Daily VMT

Operational GHG Emissions

Source	Metric tons per year			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
Area	0.06	0.00	0.00	0.06
Energy	1970.60	0.21	0.04	1986.97
Mobile	10601.32	0.68	0.45	10751.94
Waste	151.05	8.93	0.00	374.23
Water	91.38	0.14	0.08	118.93
Total	12814.41	9.95	0.57	13232.14

Amortized construction over 30 years	137.6
Total GHG emissions	13369.7
Service population	3061
GHG/SP	4.37
GHG emissions at 2.79 MT/SP	8540.19
Reduction needed	4829.5

Total	8721.6	1288.2	600.1	16,289,365	44628.4
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Project VMT

Land Use	Daily VMT	Source: Email from Mike Hawkins, 11/16/21 @ 11.35 am
Office	95889	
TOTAL	95889	

Required Reductions per Redwood City Reach Code

- 1 No natural gas for entire project
- 2 Onsite solar PV for non-residential projects greater than 10,000 sqft
- 3 EV charging for nonresidential office buildings per reach code

5 kW
10% equipped with Level 2 EVCS
10% Level 2 EV Ready spaces
30% EV capable

Required as Mitigation

- 4 Current TDM measures' effectiveness in reducing VMT

12.7 %

Reductions per Project Features

- 5 100% Zero carbon electricity

All-Electric Projects¹

- Meet or exceed 2019 Building Energy Efficiency Standards

Solar PV

Install a solar PV system

- <10,000 sq.ft – 3kW
- ≥ 10,000 sq.ft – 5kW
- Mixed use buildings provide required PV for each use type

EV Charging² Non Residential buildings-Office

≥ 10 spaces required - serve 50% of spaces

- 10% equipped with Level 2 EVCS
- 10% Level 2 EV Ready Spaces
- 30% EV Capable

Nonresidential and High Rise Residential Projects

1 Reduction in Emissions from No Natural Gas

Estimated annual natural gas use from the project from CalEEMod

1.47468e+007 kBTU/yr

GHG emissions avoided

792 MTCO₂e/yr

Direct conversion of natural gas use to equivalent increase in electricity use

4321859 kWhr/year

1kBTu = 0.293071 kWhr

from CalEEMod PG&E GHG intensity factors

CO₂

204 lb/MWhr

CH₄

0.033 lb/MWhr

N₂O

0.004 lb/MWhr

GHG emissions from increase in electricity use

CO₂e =

881746 lb/yr

400 MTCO₂e/yr

Reduction in GHG emissions from no natural gas use after accounting for electricity increase

392 MTCO₂e/yr

Alternate Calculation

From the 2021 CAPCOA Handbook for Analyzing GHG Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (page 227),

GHG Reduction Formula

$$A = (-E * C * G * I * J) + (F * C * H * K * J)$$

A = Reduction in GHG emissions from building energy

B = office housing or building type

C = 800.15 ksf, number of DU or size of commercial building

D = 1 Electricity Demand Forecast Zone from Fig E-1.1 and Table E-1.1

E = 238 therm per ksf per year, existing fuel consumption for natural gas end uses, Tables E-14.1 and E-14.2

F = 9229 kWh per ksf per year, additional electricity use for equivalent electrified end uses, Tables E-14.1 and E-14.2

G = 119 lb CO₂e per MMBtu, carbon intensity of natural gas

H = 206 lb CO₂e per MMBtu, carbon intensity of local electricity provider, Tables E-4.3 and E-4.4

I = 0.1 MMBtu per therm conversion

J = 0.00054 MT per lb conversion

K = 0.001 MWh per kWh conversion

Reduction in GHG emissions from building energy = -402.3 MTCO₂e/yr

2 Reduction in emissions from 5kW of onsite solar a required by the City's Reach Code

Solar panel power output = Solar panel watts x average hours of sunlight x 75%

5 kW

6567 kWhr/year

6.6 MWhr/year

1340 lb/yr

0.6 MTCO₂e/yr

From <https://pvwatts.nrel.gov/pvwatts.php>

for Redwood City

GHG emissions from 5kW of onsite solar

3 Reduction in emissions from EV charging infrastructure required by the City's Reach Code

Total number of parking spaces proposed

2590 spaces

Per reach code, need

259 equipped with Level 2 EVCS

assuming only these have chargers

259 Level 2 EV Ready spaces

777 EV capable

From the 2021 CAPCOA Handbook for Analyzing GHG Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity,

$$A = \frac{B * D * (F - E) * (G - (H * I * K * L))}{-C * J}$$

Where,

A = Percent reduction in GHG emissions from vehicles accessing the project

B = Number of chargers installed at site = 259 Per reach code
 C = Total vehicles accessing the site per day 4359 Average daily trip generation divided by 2
 D = Average number of PHEVs served per day per charger installed = 2 CARB, 2019
 E = Percent of PHEV miles in electric mode without measure = 46% CARB, 2020a
 F = Percent of PHEV miles in electric mode with measure = 80 CARB, 2017
 G = Average emission factor of PHEV in gasoline mode = 205.1 CARB, 2020a; USDOE, 2021
 H = Energy efficiency of PHEV in electric mode = 0.327 CARB 2020b; USDOE, 2021
 I = Carbon intensity of local electricity provider = 204
 J = Average emission factor of non-electric vehicles accessing the site = 307.5 CARB, 2020a
 K = Conversion from lb to g = 454
 L = Conversion from kWh to MWh = 0.001

ave daily trip generation = 8717

As required by code, A = -5.374240125 -615 MTCO₂e/yr

TOTAL REDUCTIONS PER CODE PRIOR TO MITIGATION	1007 MTCO ₂ e/yr
Reduction from project features (100% zero carbon electricity)	1595 MTCO ₂ e/yr
Additional reductions needed from mitigation to bring efficiency metric to 2.79 MTCO ₂ e/SP	2227 MTCO ₂ e/yr

4 Reduction in emissions from implementation of TDM Measures

Unmitigated mobile emissions	10752 MTCO ₂ e/yr
Reduction in VMT per existing TDM Plan	12.7 %
	1365 MTCO ₂ e/yr
Reduction needed in VMT	20.7%
	2227 MTCO ₂ e/yr

Operational GHG Emissions

Source	MTCO ₂ e		check
Area	0.1		0.1
Energy	1,987.0		0.0
Mobile	10,751.9		10,751.9
Waste	374.2		374.2
Water	118.9		118.9
Amortized construction emissions	137.6		137.6
Reduction from no natural gas for entire project	-391.7	no natural gas for entire project partly offset by increased electricity use	0.0
Reduction from onsite solar	-0.6	only 5kW assumed per Reach Code	0.0
Reduction from EV charging infrastructure	-615.0	from 259 spaces using daily trip generation of 8,717/2 as the total vehicles accessing the site per day	-615.0
Reduction from no carbon electricity committed to as part of project description	-1,595.3		0.0
Total Project Total GHG emissions	10,767.8		10,767.8
Service population	3,061		3,061.0
revised GHG/SP	3.5		3.5
Additional reduction needed to get below 2030 threshold	10,768		2,227.6
VMT reduction needed as part of mitigation from TDM Plan	100.1%		20.7%

Harbor View Project - Reduced Office Only - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied
Harbor View Project - Reduced Office Only
San Mateo County, Annual

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	800.15	1000sqft	27.10	800,150.00	0
Enclosed Parking with Elevator	1,350.00	Space	0.00	540,000.00	0
Parking Lot	1,240.00	Space	0.00	496,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity	203.98	CH4 Intensity	0.033	N2O Intensity	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total project site area is 27.1 acres and remains unchanged from the DEIR analysis

Construction Phase - Project schedule moved ahead by 3 years from schedule in the DEIR analysis

Off-road Equipment - Same equipment used as in DEIR analysis

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Grading - 115,000 cy fill per Applicant - same as DEIR analysis

Demolition - Demolition - 67,000 sqft building demo = 3082 tons + 15,000 tons of pavement

Trips and VMT - 2 vendor trips added for water trucks, added 8000 cement truck trips divided over building construction = 46/day, 6000 cy asphalt = 6/day

Vehicle Trips - Default trips adjusted based on project traffic generation data from F&P

Water And Wastewater - Office water use per Utilities Feasibility Study, SVCW treatment plant assumed to use 100 percent aerobic digestion

Construction Off-road Equipment Mitigation - Tier 4F equipment used as mitigation

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	24.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	45.00
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstructionPhase	NumDays	440.00	176.00
tblConstructionPhase	NumDays	30.00	73.00
tblConstructionPhase	NumDays	45.00	185.00
tblConstructionPhase	NumDays	35.00	109.00

tblConstructionPhase	NumDays	20.00	68.00
tblConstructionPhase	PhaseEndDate	9/24/2024	5/15/2024
tblConstructionPhase	PhaseEndDate	6/18/2024	1/3/2024
tblConstructionPhase	PhaseEndDate	7/12/2022	9/11/2022
tblConstructionPhase	PhaseEndDate	10/11/2022	5/3/2023
tblConstructionPhase	PhaseEndDate	8/6/2024	5/1/2024
tblConstructionPhase	PhaseEndDate	8/6/2022	1/7/2022
tblConstructionPhase	PhaseStartDate	8/7/2024	10/1/2023
tblConstructionPhase	PhaseStartDate	10/12/2022	5/3/2023
tblConstructionPhase	PhaseStartDate	8/10/2022	8/4/2022
tblConstructionPhase	PhaseStartDate	6/19/2024	12/1/2023
tblConstructionPhase	PhaseStartDate	7/13/2022	8/4/2022
tblGrading	MaterialImported	0.00	115,000.00
tblLandUse	LotAcreage	18.37	27.10
tblLandUse	LotAcreage	12.15	0.00
tblLandUse	LotAcreage	11.16	0.00
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.31	0.31
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
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tblOffRoadEquipment	UsageHours	7.00	8.00
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tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	HaulingTripNumber	11,371.00	14,375.00
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tblTripsAndVMT	WorkerTripNumber	691.00	1,023.00
tblTripsAndVMT	WorkerTripNumber	138.00	205.00
tblVehicleTrips	ST_TR	1.64	1.61
tblVehicleTrips	SU_TR	0.76	0.75
tblVehicleTrips	WD_TR	11.07	10.90
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
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tblWater	OutdoorWaterUseRate	87,163,210.02	7,769,025.00
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tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
2022	0.3379	4.2865	2.0812	7.42E-03	1.602	0.1558	1.7578	0.6624	0.1436	0.806	0	709.0551	709.0551	0.1476	0.0557	729.3357
2023	2.9202	9.7714	10.2935	0.0303	1.8279	0.2994	2.1273	0.6109	0.2859	0.8967	0	2,772.34	2,772.34	0.348	0.1828	2,835.52

2024	2.83	1.9375	3.7078	6.31E-03	0.1012	0.0561	0.1572	0.027	0.0527	0.0797	0	558.2707	558.2707	0.1405	3.95E-03	562.9597
Maximum	2.9202	9.7714	10.2935	0.0303	1.8279	0.2994	2.1273	0.6624	0.2859	0.8967	0	2,772.34	2,772.34	0.348	0.1828	2,835.52

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.077	1.1626	2.4166	7.42E-03	0.682	0.0139	0.6959	0.274	0.0136	0.2876	0	709.0546	709.0546	0.1476	0.0557	729.3353
2023	2.227	6.3846	10.7188	0.0303	1.3785	0.0361	1.4145	0.4196	0.0352	0.4547	0	2,772.34	2,772.34	0.348	0.1828	2,835.52
2024	2.7751	2.236	4.2269	6.31E-03	0.1012	9.26E-03	0.1104	0.027	9.22E-03	0.0363	0	558.2702	558.2702	0.1405	3.95E-03	562.9592
Maximum	2.7751	6.3846	10.7188	0.0303	1.3785	0.0361	1.4145	0.4196	0.0352	0.4547	0	2,772.34	2,772.34	0.348	0.1828	2,835.52

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	16.57	38.84	-7.96	0.00	38.78	88.42	45.06	44.58	87.97	56.32	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-1-2022	8-31-2022	1.6570	0.4003
2	9-1-2022	11-30-2022	2.3678	0.6331
3	12-1-2022	2-28-2023	1.5860	0.5194
4	3-1-2023	5-31-2023	2.0266	0.8993
5	6-1-2023	8-31-2023	2.9091	1.7596
6	9-1-2023	11-30-2023	4.7541	3.9376
7	12-1-2023	2-29-2024	4.2101	3.9468
8	3-1-2024	5-31-2024	2.5472	2.7279
		Highest	4.7541	3.9468

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.6337	2.80E-04	0.0311	0		1.10E-04	1.10E-04		1.10E-04	1.10E-04	0	0.0606	0.0606	1.60E-04	0	0.0645
Energy	0.0795	0.7229	0.6072	4.34E-03		0.0549	0.0549		0.0549	0.0549	0	1,970.60	1,970.60	0.2066	0.0376	1,986.98
Mobile	2.5214	2.3611	24.7476	0.0522	5.9732	0.0341	6.0074	1.5954	0.0317	1.6271	0	4,934.04	4,934.04	0.3176	0.2086	5,004.15
Waste						0	0		0	0	151.0537	0	151.0537	8.927	0	374.2291
Water						0	0		0	0	36.7954	54.5831	91.3784	0.1355	0.0811	118.9296
Total	6.2346	3.0842	25.3859	0.0565	5.9732	0.0892	6.0624	1.5954	0.0867	1.6822	187.8491	6,959.28	7,147.13	9.5868	0.3274	7,484.36

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.6337	2.80E-04	0.0311	0		1.10E-04	1.10E-04		1.10E-04	1.10E-04	0	0.0606	0.0606	1.60E-04	0	0.0645
Energy	0.0795	0.7229	0.6072	4.34E-03		0.0549	0.0549		0.0549	0.0549	0	1,970.60	1,970.60	0.2066	0.0376	1,986.98
Mobile	2.5214	2.3611	24.7476	0.0522	5.9732	0.0341	6.0074	1.5954	0.0317	1.6271	0	4,934.04	4,934.04	0.3176	0.2086	5,004.15
Waste						0	0		0	0	151.0537	0	151.0537	8.927	0	374.2291
Water						0	0		0	0	36.7954	54.5831	91.3784	0.1355	0.0811	118.9296
Total	6.2346	3.0842	25.3859	0.0565	5.9732	0.0892	6.0624	1.5954	0.0867	1.6822	187.8491	6,959.28	7,147.13	9.5868	0.3274	7,484.36

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Month	Num Days Week	Phase Description
1	Demolition	Demolition	6/1/2022	9/11/2022	5	73	
2	Site Preparation	Site Preparation	8/4/2022	11/7/2022	5	66	
3	Grading	Grading	8/4/2022	5/3/2023	5	195	
4	Building Construction	Building Construction	5/3/2023	1/3/2024	5	176	
5	Paving	Paving	12/1/2023	5/1/2024	5	109	
6	Architectural Coating	Architectural Coating	10/1/2023	5/15/2024	5	163	
7	Trenching	Trenching	11/6/2022	6/14/2023	5	158	

Acres of Grading (Site Preparation Phase): 102

Acres of Grading (Grading Phase): 390

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,200,225; Non-Residential Outdoor: 400,075; Striped Parking Area: 62,160

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	3	8.00	78	0.48
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Building Construction	Cranes	4	8.00	231	0.29
Demolition	Excavators	2	8.00	158	0.38
Grading	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	4	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Grading	Graders	2	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	0	0.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	24	8.00	46	0.45
Site Preparation	Graders	1	8.00	187	0.41
Architectural Coating	Aerial Lifts	45	8.00	63	0.31
Trenching	Rollers	2	8.00	80	0.38
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment	Worker Trip	Vendor Trip	Hauling Trip	Worker Trip	Vendor Trip	Hauling Trip	Worker Vehicle	Vendor	Hauling
Demolition	4	10.00	0.00	1,788.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	14,375.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	32	1,023.00	491.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	48	205.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment
Water Exposed Area

3.2 Demolition - 2022

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Fugitive Dust					0.1935	0.0000	0.1935	0.0293	0.0000	0.0293	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0759	0.7717	0.4991	1.0000e-003	0.0367	0.0367	0.0338	0.0338	0.0338	0.0338	0.0000	87.8833	87.8833	0.0284	0.0000	88.5938
Total	0.0759	0.7717	0.4991	1.0000e-003	0.1935	0.0367	0.2302	0.0293	0.0338	0.0631	0.0000	87.8833	87.8833	0.0284	0.0000	88.5938

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	4.4000e-003	0.1748	0.0493	6.1000e-004	0.0150	1.3400e-003	0.0163	4.1200e-003	1.2800e-003	5.4000e-003	0.0000	63.8830	63.8830	6.0200e-003	0.0102	66.8856
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.4000e-004	5.8000e-004	7.5800e-003	2.0000e-005	2.6700e-003	1.0000e-005	2.6900e-003	7.6000e-004	1.0000e-005	7.8000e-004	0.0000	2.2202	2.2202	6.0000e-005	0.0000	2.2389
Total	5.2400e-003	0.1753	0.0568	6.3000e-004	0.0179	1.3500e-003	0.0192	4.6800e-003	1.2900e-003	6.1800e-003	0.0000	65.9032	65.9032	6.0800e-003	0.0103	69.1245

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Fugitive Dust					0.0755	0.0000	0.0755	0.0114	0.0000	0.0114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0123	0.0532	0.5659	1.0000e-003	1.6400e-003	1.6400e-003	1.6400e-003	1.6400e-003	1.6400e-003	1.6400e-003	0.0000	87.8831	87.8831	0.0284	0.0000	88.5937
Total	0.0123	0.0532	0.5659	1.0000e-003	0.0755	1.6400e-003	0.0771	0.0114	1.6400e-003	0.0131	0.0000	87.8831	87.8831	0.0284	0.0000	88.5937

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	4.4000e-003	0.1748	0.0493	6.1000e-004	0.0150	1.3400e-003	0.0163	4.1200e-003	1.2800e-003	5.4000e-003	0.0000	63.8830	63.8830	6.0200e-003	0.0102	66.8856

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.4000e-003	5.8000e-003	7.5800e-003	2.0000e-003	2.8700e-003	1.0000e-003	2.8900e-003	7.6000e-003	1.0000e-003	7.8000e-004	0.0000	2.2202	2.2202	6.0000e-003	6.0000e-003	2.2389
Total	5.2400e-003	0.1753	0.0568	6.3000e-004	0.0179	1.3500e-003	0.0192	4.8800e-003	1.2900e-003	6.1800e-003	0.0000	65.9032	65.9032	6.0800e-003	0.0103	69.1245

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4636	0.0000	0.4636	0.2309	0.0000	0.2309	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0766	0.8331	0.3780	9.1000e-004		0.0371	0.0371		0.0341	0.0341	0.0000	80.0272	80.0272	0.0259	0.0000	80.6743
Total	0.0766	0.8331	0.3780	9.1000e-004	0.4636	0.0371	0.5007	0.2309	0.0341	0.2651	0.0000	80.0272	80.0272	0.0259	0.0000	80.6743

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.8000e-004	5.4000e-004	7.0600e-004	2.0000e-005	2.6800e-003	1.0000e-005	2.6900e-003	7.1000e-004	1.0000e-005	7.2000e-004	0.0000	2.0681	2.0681	6.0000e-005	5.0000e-005	2.0856
Total	7.8000e-004	5.4000e-004	7.0600e-004	2.0000e-005	2.6800e-003	1.0000e-005	2.6900e-003	7.1000e-004	1.0000e-005	7.2000e-004	0.0000	2.0681	2.0681	6.0000e-005	5.0000e-005	2.0856

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1808	0.0000	0.1808	0.0901	0.0000	0.0901	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0112	0.0483	0.4411	9.1000e-004		1.4900e-003	1.4900e-003		1.4900e-003	1.4900e-003	0.0000	80.0271	80.0271	0.0259	0.0000	80.6742
Total	0.0112	0.0483	0.4411	9.1000e-004	0.1808	1.4900e-003	0.1823	0.0901	1.4900e-003	0.0916	0.0000	80.0271	80.0271	0.0259	0.0000	80.6742

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.8000e-004	5.4000e-004	7.0600e-004	2.0000e-005	2.6800e-003	1.0000e-005	2.6900e-003	7.1000e-004	1.0000e-005	7.2000e-004	0.0000	2.0681	2.0681	6.0000e-005	5.0000e-005	2.0856
Total	7.8000e-004	5.4000e-004	7.0600e-004	2.0000e-005	2.6800e-003	1.0000e-005	2.6900e-003	7.1000e-004	1.0000e-005	7.2000e-004	0.0000	2.0681	2.0681	6.0000e-005	5.0000e-005	2.0856

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.8512	0.0000	0.8512	0.3765	0.0000	0.3765	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1448	1.5986	0.7417	1.9000e-003		0.0672	0.0672		0.0618	0.0618	0.0000	166.7954	166.7954	0.0540	0.0000	168.1440
Total	0.1448	1.5986	0.7417	1.9000e-003	0.8512	0.0672	0.9183	0.3765	0.0618	0.4383	0.0000	166.7954	166.7954	0.0540	0.0000	168.1440

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0194	0.7709	0.2173	2.6700e-003	0.0662	5.9100e-003	0.0721	0.0182	5.6600e-003	0.0238	0.0000	280.9397	280.9397	0.0266	0.0452	295.0678
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5900e-002	1.1000e-002	0.0145	5.0000e-003	5.4800e-003	3.0000e-006	5.5000e-003	1.4600e-003	3.0000e-003	1.4800e-003	0.0000	4.2305	4.2305	1.1000e-004	1.1000e-004	4.2662
Total	0.0210	0.7720	0.2317	2.7200e-003	0.0716	5.9400e-003	0.0776	0.0196	5.6900e-003	0.0253	0.0000	285.1702	285.1702	0.0267	0.0453	299.3340

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3320	0.0000	0.3320	0.1468	0.0000	0.1468	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0233	0.1008	0.9381	1.9000e-003		3.1000e-003	3.1000e-003		3.1000e-003	3.1000e-003	0.0000	166.7952	166.7952	0.0539	0.0000	168.1438
Total	0.0233	0.1008	0.9381	1.9000e-003	0.3320	3.1000e-003	0.3351	0.1468	3.1000e-003	0.1499	0.0000	166.7952	166.7952	0.0539	0.0000	168.1438

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0194	0.7709	0.2173	2.6700e-003	0.0662	5.9100e-003	0.0721	0.0182	5.6600e-003	0.0238	0.0000	280.9397	280.9397	0.0266	0.0452	295.0678
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5900e-002	1.1000e-002	0.0145	5.0000e-003	5.4800e-003	3.0000e-006	5.5000e-003	1.4600e-003	3.0000e-003	1.4800e-003	0.0000	4.2305	4.2305	1.1000e-004	1.1000e-004	4.2662
Total	0.0210	0.7720	0.2317	2.7200e-003	0.0716	5.9400e-003	0.0776	0.0196	5.6900e-003	0.0253	0.0000	285.1702	285.1702	0.0267	0.0453	299.3340

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Fugitive Dust					0.7367	0.0000	0.7367	0.3136	0.0000	0.3136	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1023	1.1048	0.5657	1.5600e-003		0.0448	0.0448		0.0413	0.0413	0.0000	137.1445	137.1445	0.0444	0.0000	138.2534
Total	0.1023	1.1048	0.5657	1.5600e-003	0.7367	0.0448	0.7816	0.3136	0.0413	0.3549	0.0000	137.1445	137.1445	0.0444	0.0000	138.2534

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.5700e-003	0.5099	0.1667	2.0800e-003	0.0544	3.3300e-003	0.0578	0.0150	3.1900e-003	0.0182	0.0000	220.9808	220.9808	0.0222	0.0356	232.1454
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2300e-003	8.1000e-004	0.0111	4.0000e-005	4.5000e-003	2.0000e-005	4.5200e-003	1.2000e-003	2.0000e-005	1.2200e-003	0.0000	3.3887	3.3887	9.0000e-006	8.0000e-006	3.4159
Total	8.8000e-003	0.5107	0.1778	2.1200e-003	0.0589	3.3500e-003	0.0623	0.0162	3.2100e-003	0.0194	0.0000	224.3696	224.3696	0.0223	0.0357	235.5612

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2873	0.0000	0.2873	0.1223	0.0000	0.1223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0191	0.0829	0.7715	1.5600e-003		2.5500e-003	2.5500e-003		2.5500e-003	2.5500e-003	0.0000	137.1444	137.1444	0.0444	0.0000	138.2533
Total	0.0191	0.0829	0.7715	1.5600e-003	0.2873	2.5500e-003	0.2899	0.1223	2.5500e-003	0.1249	0.0000	137.1444	137.1444	0.0444	0.0000	138.2533

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.5700e-003	0.5099	0.1667	2.0800e-003	0.0544	3.3300e-003	0.0578	0.0150	3.1900e-003	0.0182	0.0000	220.9808	220.9808	0.0222	0.0356	232.1454
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2300e-003	8.1000e-004	0.0111	4.0000e-005	4.5000e-003	2.0000e-005	4.5200e-003	1.2000e-003	2.0000e-005	1.2200e-003	0.0000	3.3887	3.3887	9.0000e-006	8.0000e-006	3.4159
Total	8.8000e-003	0.5107	0.1778	2.1200e-003	0.0589	3.3500e-003	0.0623	0.0162	3.2100e-003	0.0194	0.0000	224.3696	224.3696	0.0223	0.0357	235.5612

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.6853	4.6013	4.5142	7.8300e-003		0.1901	0.1901		0.1840	0.1840	0.0000	612.6163	612.6163	0.1144	0.0000	615.4760
Total	0.6853	4.6013	4.5142	7.8300e-003		0.1901	0.1901		0.1840	0.1840	0.0000	612.6163	612.6163	0.1144	0.0000	615.4760

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0452	1.9998	0.7171	8.9000e-003	0.2772	0.0103	0.2875	0.0802	9.8400e-003	0.0900	0.0000	902.3378	902.3378	0.0555	0.1330	943.3668
Worker	0.1908	0.1246	1.7202	5.6500e-003	0.6966	3.3700e-003	0.7000	0.1854	3.1000e-003	0.1885	0.0000	524.2404	524.2404	0.0132	0.0130	528.4439
Total	0.2360	2.1244	2.4374	0.0146	0.9739	0.0137	0.9875	0.2656	0.0129	0.2785	0.0000	1,426.5782	1,426.5782	0.0687	0.1460	1,471.8108

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1220	2.2188	4.4087	7.8300e-003		0.0102	0.0102		0.0102	0.0102	0.0000	612.6156	612.6156	0.1144	0.0000	615.4753
Total	0.1220	2.2188	4.4087	7.8300e-003		0.0102	0.0102		0.0102	0.0102	0.0000	612.6156	612.6156	0.1144	0.0000	615.4753

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0452	1.9998	0.7171	8.9000e-003	0.2772	0.0103	0.2875	0.0802	9.8400e-003	0.0900	0.0000	902.3378	902.3378	0.0555	0.1330	943.3668
Worker	0.1908	0.1246	1.7202	5.6500e-003	0.6966	3.3700e-003	0.7000	0.1854	3.1000e-003	0.1885	0.0000	524.2404	524.2404	0.0132	0.0130	528.4439
Total	0.2360	2.1244	2.4374	0.0146	0.9739	0.0137	0.9875	0.2656	0.0129	0.2785	0.0000	1,426.5782	1,426.5782	0.0687	0.1460	1,471.8108

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0111	0.0760	0.0774	1.4000e-004		2.8900e-003	2.8900e-003		2.8000e-003	2.8000e-003	0.0000	10.6233	10.6233	1.9400e-003	0.0000	10.6717
Total	0.0111	0.0760	0.0774	1.4000e-004		2.8900e-003	2.8900e-003		2.8000e-003	2.8000e-003	0.0000	10.6233	10.6233	1.9400e-003	0.0000	10.6717

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.6000e-004	0.0343	0.0124	1.5000e-004	4.8100e-003	1.8000e-004	4.8900e-003	1.3900e-003	1.7000e-004	1.5600e-003	0.0000	15.3697	15.3697	9.9000e-004	2.2700e-003	16.0704

Mitigated Construction On-Site

Mitigated Construction Off-Site

3.6 Paving - 2023

Unmitigated Construction Off-Site

Mitigated Construction On-Site

Mitigated Construction Off-Site

3.6 Paving - 2024

Unmitigated Construction Off-Site

Mitigated Construction On-Site

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	Bio- CO ₂	NBio- CO ₂	Total CO ₂	CH ₄	N ₂ O	CO _{2e}
Category	tons/yr										MT/yr					
Off-Road	0.0123	0.0535	0.7610	1.0000e-003	1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.0000	88.1166	88.1166	0.0285	0.0000	88.8291
Paving	0.0000				0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[illegible]

Worker	0.0205	0.0127	0.1839	6.2000e-004	0.0791	3.6000e-004	0.0794	0.0210	3.4000e-004	0.0214	0.0000	58.0325	58.0325	1.3600e-003	1.3800e-003	58.4773
Total	0.0205	0.0127	0.1839	6.2000e-004	0.0791	3.6000e-004	0.0794	0.0210	3.4000e-004	0.0214	0.0000	58.0325	58.0325	1.3600e-003	1.3800e-003	58.4773

3.8 Trenching - 2022

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	0.0131	0.1349	0.1626	2.3000e-004		7.5200e-003	7.5200e-003		6.9200e-003	6.9200e-003	0.0000	19.9912	19.9912	6.4700e-003	0.0000	20.1528
Total	0.0131	0.1349	0.1626	2.3000e-004		7.5200e-003	7.5200e-003		6.9200e-003	6.9200e-003	0.0000	19.9912	19.9912	6.4700e-003	0.0000	20.1528

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.2000e-004	4.1500e-003	1.0000e-005	1.5700e-003	1.0000e-005	1.5800e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.2165	1.2165	3.0000e-005	3.0000e-005	1.2268
Total	4.6000e-004	3.2000e-004	4.1500e-003	1.0000e-005	1.5700e-003	1.0000e-005	1.5800e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.2165	1.2165	3.0000e-005	3.0000e-005	1.2268

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	2.7800e-003	0.0121	0.1717	2.3000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	19.9911	19.9911	6.4700e-003	0.0000	20.1528
Total	2.7800e-003	0.0121	0.1717	2.3000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	19.9911	19.9911	6.4700e-003	0.0000	20.1528

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.2000e-004	4.1500e-003	1.0000e-005	1.5700e-003	1.0000e-005	1.5800e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.2165	1.2165	3.0000e-005	3.0000e-005	1.2268
Total	4.6000e-004	3.2000e-004	4.1500e-003	1.0000e-005	1.5700e-003	1.0000e-005	1.5800e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.2165	1.2165	3.0000e-005	3.0000e-005	1.2268

3.8 Trenching - 2023

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	0.0357	0.3681	0.4780	6.7000e-004		0.0192	0.0192		0.0177	0.0177	0.0000	59.0103	59.0103	0.0191	0.0000	59.4874
Total	0.0357	0.3681	0.4780	6.7000e-004		0.0192	0.0192		0.0177	0.0177	0.0000	59.0103	59.0103	0.0191	0.0000	59.4874

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2700e-003	8.3000e-004	0.0115	4.0000e-005	4.6400e-003	2.0000e-005	4.6700e-003	1.2400e-003	2.0000e-005	1.2600e-003	0.0000	3.4954	3.4954	9.0000e-005	9.0000e-005	3.5234
Total	1.2700e-003	8.3000e-004	0.0115	4.0000e-005	4.6400e-003	2.0000e-005	4.6700e-003	1.2400e-003	2.0000e-005	1.2600e-003	0.0000	3.4954	3.4954	9.0000e-005	9.0000e-005	3.5234

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	8.2100e-003	0.0356	0.5064	6.7000e-004		1.0900e-003	1.0900e-003		1.0900e-003	1.0900e-003	0.0000	59.0102	59.0102	0.0191	0.0000	59.4874
Total	8.2100e-003	0.0356	0.5064	6.7000e-004		1.0900e-003	1.0900e-003		1.0900e-003	1.0900e-003	0.0000	59.0102	59.0102	0.0191	0.0000	59.4874

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2700e-003	8.3000e-004	0.0115	4.0000e-005	4.6400e-003	2.0000e-005	4.6700e-003	1.2400e-003	2.0000e-005	1.2600e-003	0.0000	3.4954	3.4954	9.0000e-005	9.0000e-005	3.5234
Total	1.2700e-003	8.3000e-004	0.0115	4.0000e-005	4.6400e-003	2.0000e-005	4.6700e-003	1.2400e-003	2.0000e-005	1.2600e-003	0.0000	3.4954	3.4954	9.0000e-005	9.0000e-005	3.5234

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	2.5214	2.3611	24.7476	0.0522	5.9732	0.0341	6.0074	1.5954	0.0317	1.6271	0.0000	4,934.0368	4,934.0368	0.3176	0.2086	5,004.1501
Unmitigated	2.5214	2.3611	24.7476	0.0522	5.9732	0.0341	6.0074	1.5954	0.0317	1.6271	0.0000	4,934.0368	4,934.0368	0.3176	0.2086	5,004.1501

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Office Park	8,721.64	1,288.24	600.11	16,289,365	16,289,365
Parking Lot	0.00	0.00	0.00		
Total	8,721.64	1,288.24	600.11	16,289,365	16,289,365

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Office Park	9.50	7.30	7.30	33.00	48.00	19.00	82	15	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.465403	0.073585	0.235906	0.146720	0.025583	0.006412	0.010355	0.002060	0.001446	0.000572	0.028871	0.000432	0.002657
Office Park	0.465403	0.073585	0.235906	0.146720	0.025583	0.006412	0.010355	0.002060	0.001446	0.000572	0.028871	0.000432	0.002657
Parking Lot	0.465403	0.073585	0.235906	0.146720	0.025583	0.006412	0.010355	0.002060	0.001446	0.000572	0.028871	0.000432	0.002657

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,183.6580	1,183.6580	0.1915	0.0232	1,195.3623
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,183.6580	1,183.6580	0.1915	0.0232	1,195.3623
NaturalGas Mitigated	0.0795	0.7229	0.6072	4.3400e-003		0.0549	0.0549		0.0549	0.0549	0.0000	786.9435	786.9435	0.0151	0.0144	791.6199
NaturalGas Unmitigated	0.0795	0.7229	0.6072	4.3400e-003		0.0549	0.0549		0.0549	0.0549	0.0000	786.9435	786.9435	0.0151	0.0144	791.6199

5.2 Energy by Land Use - NaturalGas

Unmitigated

Land Use	NaturalGas Use kBtu/yr	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Office Park	1.47468e+003	0.0795	0.7229	0.6072	4.3400e-003		0.0549	0.0549		0.0549	0.0549	0.0000	786.9435	786.9435	0.0151	0.0144	791.6199
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0795	0.7229	0.6072	4.3400e-003		0.0549	0.0549		0.0549	0.0549	0.0000	786.9435	786.9435	0.0151	0.0144	791.6199

Mitigated

Land Use	NaturalGas Use kBtu/yr	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Office Park	1.47468e+003	0.0795	0.7229	0.6072	4.3400e-003		0.0549	0.0549		0.0549	0.0549	0.0000	786.9435	786.9435	0.0151	0.0144	791.6199
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0795	0.7229	0.6072	4.3400e-003		0.0549	0.0549		0.0549	0.0549	0.0000	786.9435	786.9435	0.0151	0.0144	791.6199

5.3 Energy by Land Use - Electricity

Unmitigated

Land Use	Electricity Use kWh/yr	Total CO2	CH4	N2O	CO2e
Enclosed Parking with Elevator	2.9376e+006	271.7978	0.0440	5.3300e-003	274.4854
Office Park	9.68182e+006	895.7980	0.1449	0.0176	904.6559
Parking Lot	173600	16.0621	2.6000e-003	3.1000e-004	16.2210
Total		1,183.6580	0.1915	0.0232	1,195.3623

Mitigated

Land Use	Electricity Use kWh/yr	Total CO2	CH4	N2O	CO2e
Enclosed Parking with Elevator	2.9376e+006	271.7978	0.0440	5.3300e-003	274.4854
Office Park	9.68182e+006	895.7980	0.1449	0.0176	904.6559
Parking Lot	173600	16.0621	2.6000e-003	3.1000e-004	16.2210
Total		1,183.6580	0.1915	0.0232	1,195.3623

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.6337	2.8000e-004	0.0311	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0606	0.0606	1.6000e-004	0.0000	0.0645
Unmitigated	3.6337	2.8000e-004	0.0311	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0606	0.0606	1.6000e-004	0.0000	0.0645

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4388					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.1920					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8600e-003	2.8000e-004	0.0311	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0606	0.0606	1.6000e-004	0.0000	0.0645
Total	3.6337	2.8000e-004	0.0311	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0606	0.0606	1.6000e-004	0.0000	0.0645

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4388					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.1920					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8600e-003	2.8000e-004	0.0311	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0606	0.0606	1.6000e-004	0.0000	0.0645
Total	3.6337	2.8000e-004	0.0311	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0606	0.0606	1.6000e-004	0.0000	0.0645

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	91.3784	0.1355	0.0811	118.9296
Unmitigated	91.3784	0.1355	0.0811	118.9296

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Office Park	104 / 7,759.02	91.3784	0.1355	0.0811	118.9296
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		91.3784	0.1355	0.0811	118.9296

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Office Park	104 / 7,759.02	91.3784	0.1355	0.0811	118.9296
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		91.3784	0.1355	0.0811	118.9296

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	151.0537	8.9270	0.0000	374.2291
Unmitigated	151.0537	8.9270	0.0000	374.2291

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking	0	0.0000	0.0000	0.0000	0.0000
Office Park	744.14	151.0537	8.9270	0.0000	374.2291
Parking Lot	0	0.0000	0.0000	0.0000	0.0000

Total		151.0537	8.9270	0.0000	374.2291
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Mitigated

	Waste Disposed tons	Total CO2	CH4	N2O	CO2e
Land Use		MT/yr			
Enclosed Parking	0	0.0000	0.0000	0.0000	0.0000
Office Park	744.14	151.0537	8.9270	0.0000	374.2291
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		151.0537	8.9270	0.0000	374.2291

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Appendix B

Project Applicant's Site TDM Plan

Site TDM Plan for the Harbor View Project

Redwood City, California

September 2022



Site TDM Plan for the Harbor View Project

Redwood City, California

September 2022

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Site TDM Plan for the Harbor View Project – September 2022

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1. INTRODUCTION & OVERVIEW

Transportation Demand Management (TDM) refers to strategies that result in a more efficient use of transportation resources to help reduce vehicle miles traveled (VMT), single-occupancy automobile trips, and air pollution, and aim to relieve the effects of traffic congestion. TDM plans are developed to guide efficient use of an existing transportation system and to ensure new developments are designed to maximize sustainable transportation usage.

This document describes the Site TDM Plan for the Harbor View office development (the “project”) in Redwood City, California. Conformance with the Site TDM Plan is based on meeting the performance measures identified in this document.

Harbor View Project Description

The 27-acre project site is located at the southwest corner of the intersection of Seaport Boulevard and Blomquist Street, roughly two-thirds of a mile from downtown Redwood City and 1.3 miles from the Redwood City Caltrain Station. The project location and vicinity map is shown on **Figure 1**. The project is bounded by Highway 101 to the south, Old Seaport Boulevard to the east, and Blomquist Street to the north. The project site plan is shown on **Figure 2**.



The project is a proposed high tech office campus that will include three office buildings, one parking structure, employee amenities, shared outdoor commons space, and surface parking lots. The project will provide 765,150 square feet of office space, and 35,000 square feet employee amenities building and 20,000 sf of “commons” available for use by the public which include a retail café, meeting rooms and

non-profit office space. The Commons building is excluded from TDM requirements due to the public nature of the building and its uses.

Per the City of Redwood City Municipal Code, the project is required to provide one motor vehicle parking space per 300 square feet of office space, thus 2,551 spaces, and one bicycle parking space per 5,000 sf of office space, thus 153 spaces. Based on the project site plan, 2,591 motor vehicle parking spaces and 202 bicycle parking spaces will be provided, exceeding the minimum requirements. **Figure 3** details the usage designations for the parking structure, accessible parking, and electric vehicle charging stations, clean air vanpool and visitor parking as shown on the November 2019 site plan.

TDM Plan Conformance & Required Performance Measures

Following occupancy of the site, conformance with the Site TDM Plan will be determined based on annual surveys of employee home/work commute trips, applicable to trips between employee residences and the project site, also referred to as Home-Based Work trips (both inbound and outbound to/from the project site). The surveys will determine the average trip distances and modes of travel used by employees.

The annual surveys will be used to determine the average rate of **Daily VMT per Employee**, and the average **Drive-alone Mode Share** (i.e., the percentage of employees traveling to/from the site via single-occupancy automobiles).

In addition, the annual monitoring will include conducting driveway counts to determine the rate of motor vehicle trip generation (as required by the *Redwood City TDM Program* requirements) although the trip generation rate is not relevant to either of the two performance measures and is not required for CEQA mitigation)

The Harbor View development will be in conformance with the requirements of the Site TDM Plan provided that the following two performance measures are met:

- **Daily VMT per Employee not to exceed an average of 15.0 miles per day** (based on home-based work-commute trips, to and from the project site), to satisfy the mitigation requirements of the Environmental Impact Report (EIR) being prepared for the Harbor View Project. Based on the EIR analysis: the required rate of no more than 15.0 miles per day is a reduction of approximately 12.7 percent from the current rate of Daily VMT per Employee in the immediate vicinity of the project site.
- **Drive-alone rate not to exceed an average of 52 percent of employees** as specified by the *Redwood City TDM Program* requirements for new Suburban Office developments. The current drive-alone rate for Redwood City office space ranges from 49 percent in downtown Redwood City to 78 percent for Suburban Office space (relevant to the project site). The Target Drive-alone mode share thus represents a 50 percent reduction from the typical rate for Suburban Office space in Redwood City.

Redwood City TDM Program Requirements

The *Redwood City TDM Program* (RWC-TDMP), as revised on July 13, 2018, aims to reduce the citywide rate of drive-alone automobile trips to 50 percent by 2040, and identifies "Drive-alone Mode Share

Site TDM Plan for the Harbor View Project – September 2022

targets” for new development that varies by land use type. Applicable to this project: the program specifies that new Suburban Office developments in Redwood City with 50 or more employees are subject to a 52 percent drive-alone mode share target. Projects that are subject to the TDM Program requirements are required to prepare a Site TDM Plan that demonstrates how the project will meet the minimum requirements of the City’s TDM Program.

The *Redwood City TDM Program* document describes required TDM measures applicable to specific development types, and provides a menu of typical TDM measures, but also specifies that “**there will be flexibility in how projects meet the goals, as the City is most interested in results**” (RC-TDMP, July 2018, page 3).

Required Components of Site TDM Plan

The Redwood City TDM Program specifies that the Site TDM Plan must:

- Identify the TDM Measures that the project will implement
- Describe quantitatively and qualitatively how the measures will achieve the mode split target
- Be approved by the City prior to final permit application.

Project Travel Forecast (without TDM)

VMT per Employee

The expected rate of VMT per Employee was forecasted using the San Mateo City/County Association of Governments (C/CAG) travel demand model. The model forecast is based on the estimated rate of HBW VMT (home-based work VMT) per Employee for the area east of Highway 101 that includes the project site, referred to for modeling purposes as a Transportation Analysis Zone (TAZ). Home-based work VMT refers to home/work commute trips between employee residences and places of employment, both inbound and outbound at the project site.

- Without TDM measures: the project is forecasted to generate an average 17.1 daily VMT per Employee as shown on **Table 1**.
- The average rate for jobs in San Mateo County is 17.6 daily VMT per Employee.
- To mitigate potential environmental impacts associated with VMT: the project is required to achieve a VMT per Employee rate of 15.0 miles or less (equivalent to 85 percent of the countywide average), thus a 12.7 percent reduction from the expected rate of 17.1 miles.

Table 1: Daily VMT per Employee (without TDM Reductions)

Existing Conditions (Project Area)		Existing with Project (Project Area)		Project Generated VMT		
HBW VMT	Employment	HBW VMT	Employment	HBW VMT	Proposed Employment	HBW VMT per Employee
163,989	9,025	216,880	12,111	52,891	3,086	17.1

SOURCE: Fehr & Peers, July 2020, based on C/CAG Travel Demand Model.

Figure 1: Project Vicinity Map

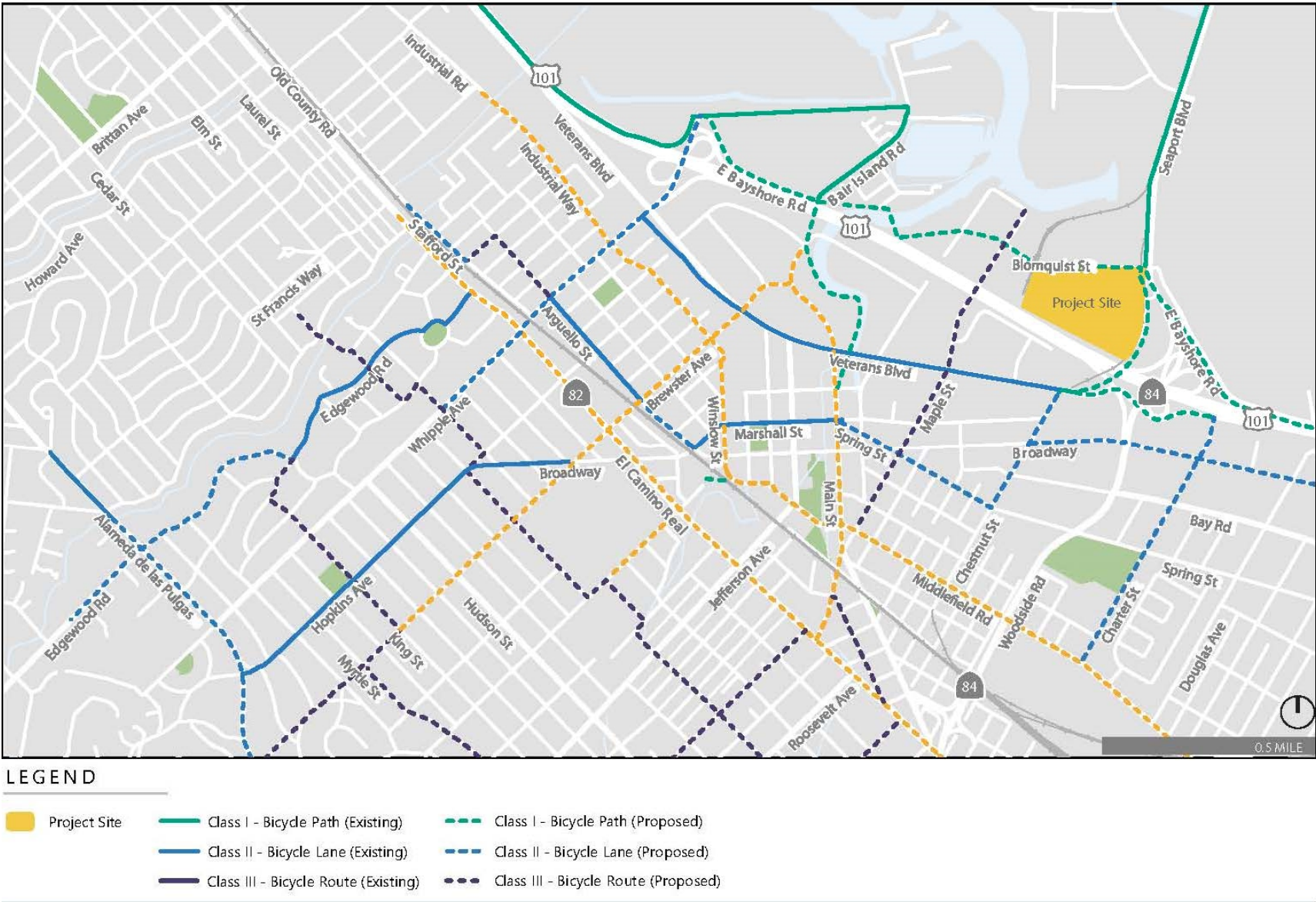
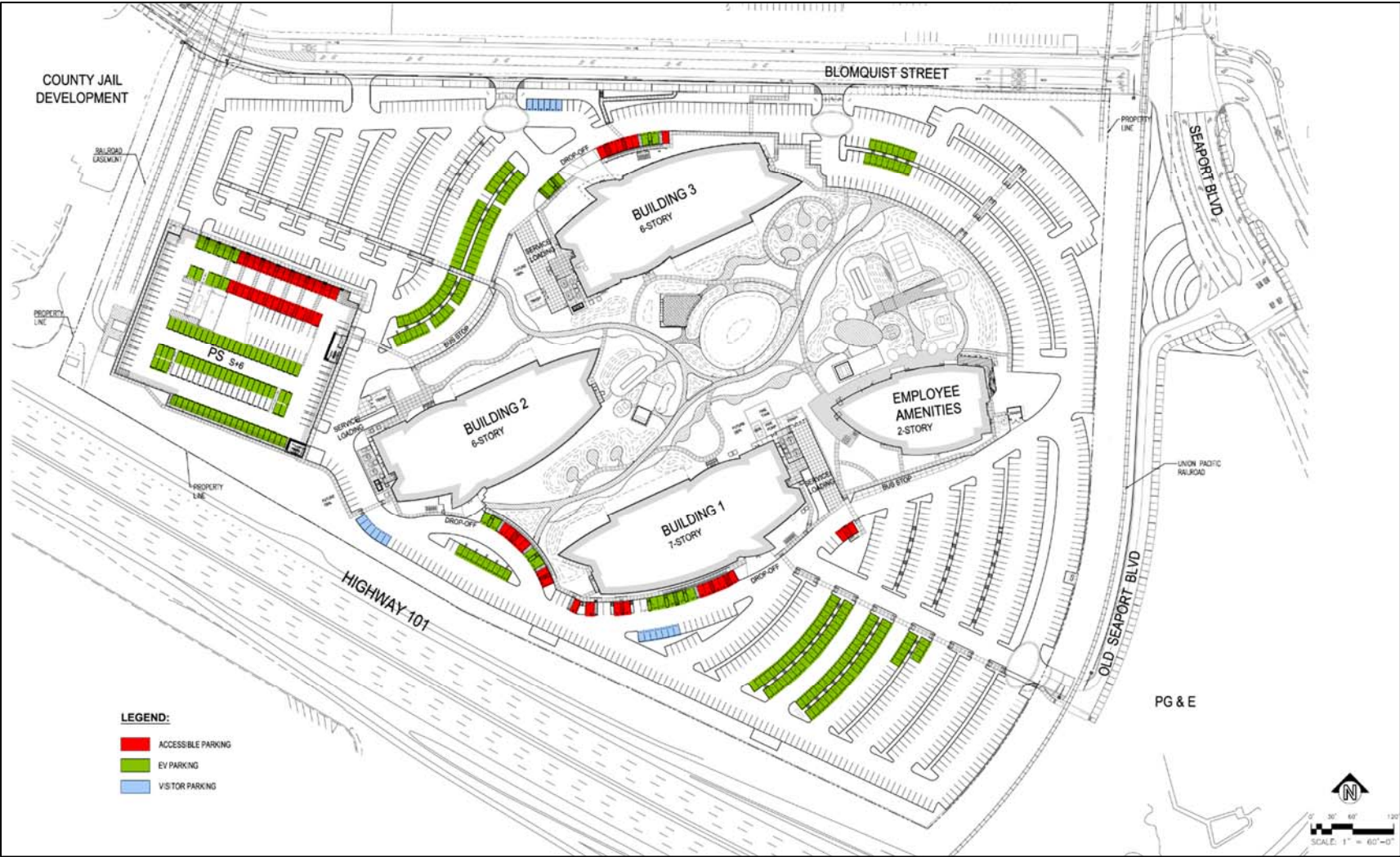


Figure 2: Project Site Plan



Figure 3: Parking Designation Plan



2. EXISTING TRANSPORTATION FACILITIES AND SERVICES

Transportation facilities and services that support sustainable transportation include light rail, buses and shuttles, bicycle facilities, and pedestrian facilities. This section describes the existing facilities and services near the project site that will support the TDM measures from this Plan.

Transit Service

Under transit facilities, BART, buses and shuttles in the surrounding area are documented. **Figure 4** shows existing transit services available in the project facility.

Caltrain

Caltrain operates commuter rail service between San Francisco and Gilroy that serves more than 63,000 daily riders on weekdays. On weekdays, Caltrain operates approximately 100 trains per day of local, limited stop, and Baby Bullet express.

The Redwood City Caltrain Station is located on James Avenue near the intersection of Broadway and Marshall Street in Downtown Redwood City. The station is located approximately 1.3 miles from the Harbor View Site. Travel times between Redwood City and San Francisco area approximately 50 minutes and between Redwood City and San Jose, 40 minutes. Baby Bullet express trains are also offered providing 35 minute headways and limited stops. The average weekday ridership at the Redwood City station is approximately 8,400 daily passengers including both boardings and alighting.

SamTrans Bus Service

San Mateo County Transit District (SamTrans) operates bus service throughout San Mateo County, with more than 50 routes that are categorized as community, express, BART connection Caltrain connection, and BART and Caltrain connection routes. Most bus routes typically operate along major arterial corridors and operate from early morning into the late evening.

SamTrans Route 270 that passes the Project site on Blomquist Street (northbound only), providing service in a one-way loop between Redwood City Caltrain Station/Transit Center and Kaiser Hospital, Seaport Village, Harbor Village, and Marsh Road (Menlo Park). Headways (frequency of service) are every 60 minutes on weekdays between 6:00 a.m. and 6:00 p.m., as well as on Saturdays between 8:00 a.m. and 6:00 p.m.

The bus stop serving the Project is located approximately a quarter mile away from the proposed office buildings at the intersection of Blomquist Street/Maple Street, and sidewalks are not continuous between the project site and bus stop. Route 270 only serves the Maple/Blomquist stop in the northbound direction (traveling to the Caltrain station) since Route 270 operates in a one-way loop.

Existing Shuttle Bus Service

Commute.org is a public agency with an alliance of 17 cities and the County of San Mateo to reduce the number of drive alone vehicles traveling to, from or through San Mateo County. Commute.org provides shuttle service in and around the County to service first and last mile service to commuters and residents.

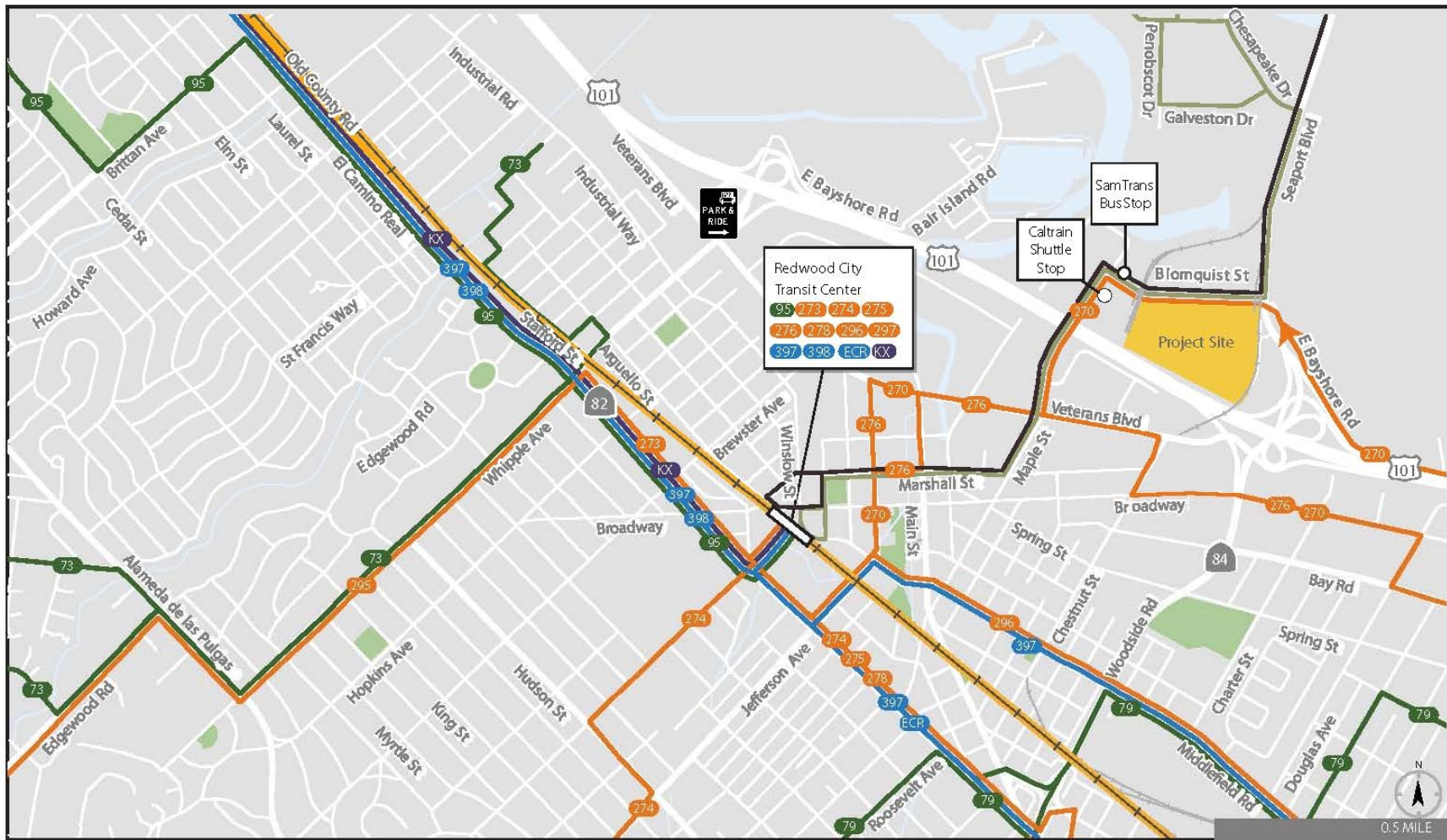
Most shuttles are free and open to the public, however are funded by employers and the member agencies within Commute.org.

Commute.org operates two free Caltrain shuttles that pass the project site on Blomquist Street during weekday commute periods between the hours of 6:15 a.m. and 10:00 a.m., and 3:50 p.m. and 7:30 p.m. The Caltrain shuttle routes and stops are shown on **Figure 5**:

- **Seaport Centre – Redwood City Caltrain shuttle** operates between the Redwood City Caltrain Station and the Seaport Centre Office Business Park (east of the project site) during the commute hours Monday through Friday. The Seaport shuttle is supported by operating grants from the City/County Association of Governments (C/CAG) of San Mateo County and San Mateo Transportation Authority (Measure A funding).
 - During peak commute periods, two shuttles per hour operate in the peak-direction (arriving from Caltrain in the morning, and traveling to Caltrain in the afternoon), thus average headways of approximately 30 minutes on the Seaport Center shuttles.
 - The nearest stop serving the Seaport Center shuttle is located at the northeast corner of the Maple Street and Blomquist Street intersection, approximately one-quarter mile from the project site, and sidewalks are not continuous between the project site and shuttle stop.
- **Pacific Shores – Redwood City Caltrain shuttle** operates between the Redwood City Caltrain Station and the Pacific Shores business park (east of the project site on Seaport Street) during the commute hours Monday through Friday. This shuttle is funded jointly by the Peninsula Corridor Joint Powers Board, the Bay Area Air Quality Management District, the San Mateo County Transportation Authority, and Google.
 - During peak commute periods, an average three shuttles per hour operate in the peak-direction (arriving from Caltrain in the morning, and traveling to Caltrain in the afternoon), with average headways of approximately 17 minutes.
 - The Pacific Shores shuttle does not stop near the project site. The nearest stop east of the Caltrain Station is located 2000 Seaport Street.

The combined frequency of the two shuttle services that pass the project site is five buses per hour in the peak-direction (arriving from Caltrain in the morning, and traveling to Caltrain in the afternoon), thus an average frequency of one shuttle bus passing the project site in the peak-direction every 12 minutes.

Figure 4: Existing Transit Services

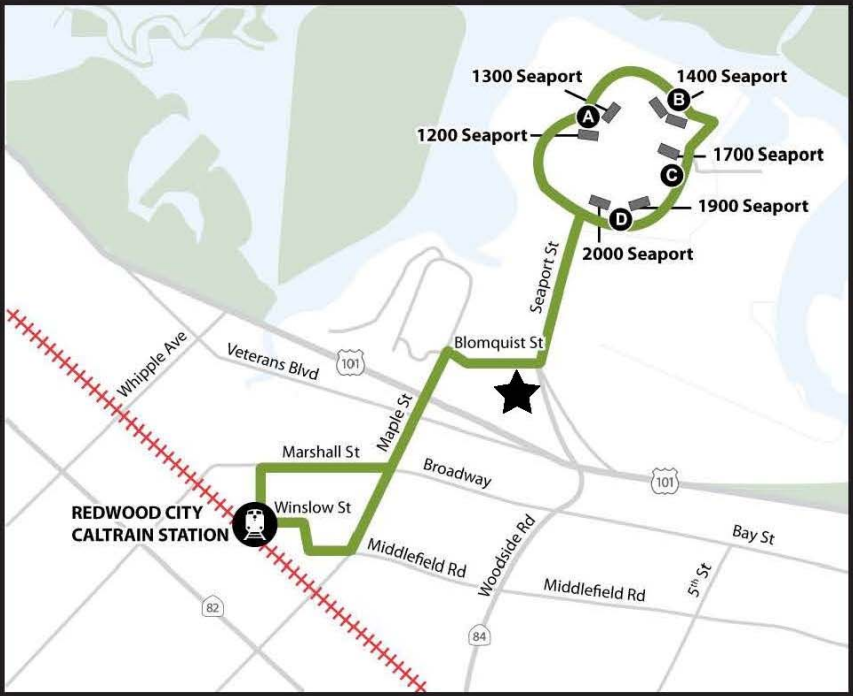


LEGEND

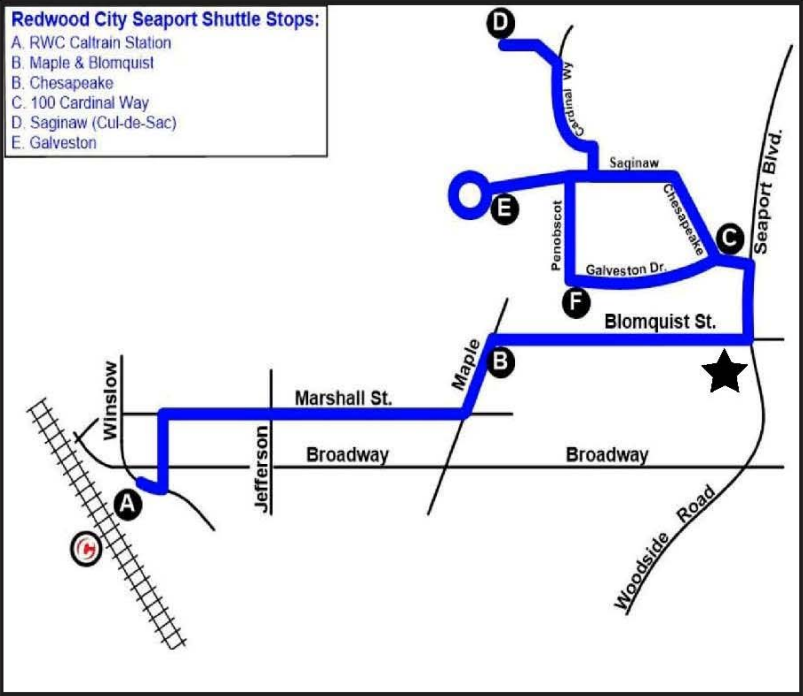
- Project Site
- Park & Ride Lot
- Caltrain Lines and Stations
- SamTrans Express Route
- SamTrans School-day Only Routes
- SamTrans Routes connecting to BART and Caltrain Stations
- SamTrans Routes connecting to Caltrain Stations
- RWC-Seaport Centre Caltrain Shuttle
- RWC-Pacific Shores Caltrain Shuttle

Figure 5: Existing Shuttle Routes & Stops

Pacific Shores Shuttle

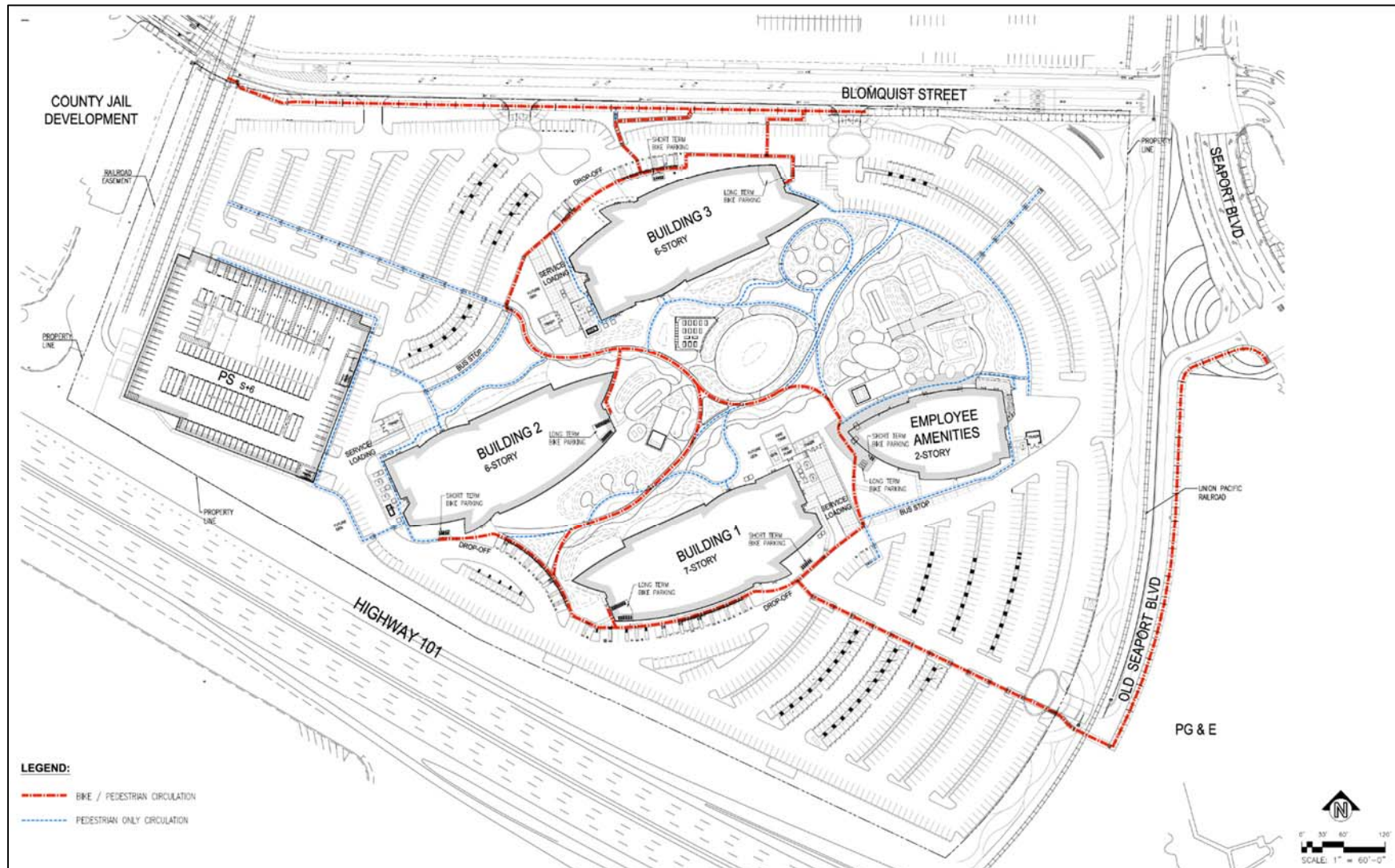


Seaport Centre Shuttle



★ Project Site

Figure 6 On-Site Pedestrian and Bicycle Circulation Plan



Bicycle and Pedestrian Facilities

The existing and proposed bicycle facilities near the project site are shown on **Figure 1**, and include the following:

- Class I Multi-use Path: a paved pathway that accommodates both bicycle and pedestrian travel and is separated from any adjacent street or highway.
- Class II Bike Lanes: travel lanes designated for the exclusive use of bicyclists on streets, through striping, signage, and pavement markings.
- Class III Bike Routes: Streets with low motorized traffic volumes and speeds designated and designed to give bicycle travel priority through signs, pavement markings, and speed.
- Class IV Separated Bikeway: On-street bike lanes with a three-foot minimum horizontal and vertical buffer from travel lanes or parking lanes. The physical separation provides a more comfortable riding experience for bicyclists, however they still must mix with vehicles at intersections.

The existing bicycle facilities in the study area mostly include bike paths and bike lanes as shown in **Figure 1**. Within the project vicinity there is a Class I Bike Path on Seaport Boulevard north of Blomquist Street. Class II Bike Lanes are located on Blomquist Street adjacent to the project area. A Class III Bike Route is located on Maple Street between Blomquist to Veterans Boulevard.

Anticipated future bicycle improvements in the project area include a planned Class I Bike Path on Seaport Boulevard between Blomquist Street connecting to Veterans Boulevard, and a planned Class I Bike Path from Seaport Boulevard that will pass under Highway 101 and provide a direct bicycle connection between the project site and downtown.

The project site will provide on-site circulation for pedestrians with lighting and pedestrian paths that connect the facilities. Currently there is limited sidewalks on Blomquist Street- the north side of the roadway has approximately 150 feet of sidewalk near the intersection of Blomquist Street and Maple, and there are some along the south side of the street, but not adjacent to the project site. Old Seaport Boulevard is also absent of any pedestrian or bicycle facilities.

As part of the project, ten foot sidewalks will be installed along the project frontage on Blomquist Street and Old Seaport Boulevard. Internal pathways will directly connect with Old Seaport Boulevard and Blomquist Street. **Figure 6** shows the on-site pedestrian and bicycle circulation plan.

3. TDM MEASURES

The City of Redwood City outlines required and recommended TDM Measures in the *Redwood City Transportation Demand Management (TDM) Program*, dated July 13, 2018 based on the project size, land use, and location. This section describes the measures to be provided by the Harbor View project, as describes the potential reductions in the drive-alone rate, and reductions in VMT, associated with specific measures. The Harbor View Site TDM Plan divides TDM Measures into three categories:

- **Standard TDM Measures** are those measures required by the *Redwood City TDM Program* for projects of this type and size.
- **Site-specific TDM Measures** refers to physical measures selected by the project developer that will be installed prior to project occupancy.
- **Discretionary TDM Measures** refers to additional non-physical measures that will be coordinated by the project manager and/or tenant(s). To achieve the performance measures described above: the Harbor View TDM Plan provides for flexibility to allow on-site employers (future office tenants) to select Discretionary TDM measures to best suit the needs of their workforce and maximize reductions in VMT and drive-alone automobile trips.

As described earlier: meeting the identified performance measures is anticipated to require the following reductions from the expected rates for this project:

- 50 percent reduction in the anticipated drive-alone rate to achieve an average rate of 52 percent drive-alone; and
- 22 percent reduction in the anticipated rate of home-based VMT per Employee

Standard TDM Measures

The project will provide the TDM measures required for office developments with 300 or more employers that are described in the Redwood City TDM Program, as well as TDM measures required for all projects subject to the TDM Program requirements. The standard measures to be provided by the Harbor View Development are described on **Table 2**. As shown: implementation of the standard measures (with no additional measures) has the potential to allow the project to meet the performance measures (with no additional measures required). All tenant agreements will include a commitment by the tenant to participate and comply with all TDM measures.

The standard measures include programmatic and promotional measures as well as physical facilities such as well-lit pedestrian paths, on-site amenities, bicycle racks and storage at each location, and drop-off areas for transit, vanpools, carpools and car-share vehicles.

Site Specific TDM Measures

In addition to the standard TDM measures, the Harbor View development has identified several additional measures that will be provided, as described on **Table 3**.

Discretionary Measures

Annual monitoring will provide a snapshot of the TDM measures that work and the ones that do not. The TDM plan should be considered a living document with the primary goal of reducing single occupancy vehicle trips. As techniques and programs change, or as innovative approaches advance, the TDM Plan should be revised accordingly. The Harbor View TDM Plan has identified additional optional measures that may be implemented, depending on tenants needs and/or as needed to meet the performance measures, based on the results of annual monitoring. The discretionary measures are described on **Table 4**.

The total potential reductions in the drive-alone rate and VMT per Employee are summarized on **Table 5**. The total shown reflects diminishing rates of return as additional measures are added.

Site TDM Plan for the Harbor View Project – September 2022

Table 2: Standard TDM Measures

Required TDM Measures	Description	Potential Drive-alone Mode Share Reduction ¹	Potential VMT Reduction ²
Transit Passes	Property owner and/or tenants will provide discounted transit passes. Tenants may coordinate with Commute.org to provide transit passes. Employees may utilize free shuttle service to the Redwood City Caltrain station. See pages 7-10 for description. Existing stops are 900 feet from site.	15 to 20% if provided to visitors	4%
Offer employees pre-tax deduction	Tenants will be required to offer payroll tax savings for transit & other eligible expenses including vanpool and bicycling subsidies. Employers also have the option of subsidizing part of their employees' commuting costs and allowing employees to pay for the remainder with pre-tax dollars.	5 to 8%	3%
Bicycle Racks	202 bicycle parking dispersed at each location including 39 short-term bicycle spaces (bicycle racks)	2 to 8%	1.5%
Indoor Bicycle Parking	A bike room will be provided at each building, with 115 total indoor bicycle parking spaces.		
Showers, lockers for cyclists	Showers and lockers will be provided in the Employee Amenities Building		
Well-lit Pedestrian paths	Project provides well-lit paths within the campus and well-lit sidewalks bordering the site.		
Onsite amenities that reduce trips (i.e. café, ATM, childcare, etc.)	Project will include a full service gym and outdoor sports facilities, with a shell space for a future café. Tenants may add food service and other amenities within the buildings.	1 to 12%	1%
Promote and participate in area- and city-wide events	Events such as Bike to Work Day or commuter events will be promoted to all employees including displays at kiosks or near building entrances.	N/A	2.5%
Designate an on-site TDM Coordinator	Developer/property owner will designate a staff person to serve as a single point of contact responsible for implementing, monitoring and coordinating the TDM Plan with City staff.	N/A	
Provide on-site information concerning TDM options	Developer/property owner will provide displays at the Employee Amenities and Commons area, and coordinate with future tenants on providing displays in each building. Property manager or tenant coordinator(s) will provide a new hire packet with multimodal options for commuting to work; this packet will be updated as needed.	1% to 4%	
Subtotal: Potential Reductions from Standard TDM Measures		28% to 72%	12%

Notes: see Table 3.

Site TDM Plan for the Harbor View Project – September 2022

Table 3: Site Specific TDM Measures

Physical TDM Measures	Description	Shown on site plan?	Potential Drive-alone Mode Share Reduction ¹	Potential VMT Reduction ²
Encourage telecommuting	Tenants will be encouraged to offer employees the option of telecommuting. If employees were to telecommute one day per week: the VMT rate would be reduced by 20%.	0.5 to 7%	5% +	5%
Employer Ride-sharing Program / Ride Matching Assistance	Advertise and promote the program to the employees; this can be through 511.org or through commute.org	10 to 20%	6%	6%
Car-share spaces	Car-shares spaces will be made available at designated locations near each building	No	0.5 to 2%	1%
Preferred parking for carpools	259 vanpool/clean air parking stalls will be provided	Yes	1 to 3%	1%
Signage for TDM features	Provide directional signs throughout the project for alternative modes access	No	0.5% to 1%	1%
Electric Vehicle (EV) plug-in stations	52 EV charging parking stalls will be provided, and 207 EV Conduit Ready Stalls	Yes	N/a	
Subtotal: Potential Reductions from Site-Specific TDM Measures			4% to 16%	14%

Notes:

1. Estimated percent reduction in drive-alone mode share as stated in *Redwood City Transportation Demand Management (TDM) Program*, July 13, 2018.
2. Potential reduction in the rate of home-based VMT per Employee, taking into account site-specific factors and adjacent land uses. Estimate was developed by TJKM based on data cited in *SB 743 Implementation TDM Strategy Assessment*, Ron Milam and Jason Pack, February 26, 2019.

Site TDM Plan for the Harbor View Project – September 2022

Table 4: Discretionary TDM Measures

Discretionary TDM Measures	Description	Potential Drive-alone Mode Share Reduction ¹	Potential VMT Reduction ²
Provide new shuttle bus or vanpool service open to the public	Tenants will subscribe to either a Project sponsored or other local shuttle service that will at minimum provide service between the Project Site and the downtown Redwood City Caltrain station during morning and afternoon peak commute hours and serve project-generated ridership without exceeding capacity under typical peak conditions. Operation of a dedicated shuttle service would be provided during the peak -periods (at a minimum) to a downtown or high-quality transit station. The project could collaborate with other adjacent property owners to organize a shuttle consortium to provide services to downtown Redwood City Caltrain Station. The need for the new shuttle service will be evaluated the earlier of (1) one year after first occupancy or (2) when the project reaches 50% occupancy, whichever occurs first. In the meantime, employees will be able to use the existing shuttle service that passes by the site, with stops located on eastbound and westbound Blomquist within 900 feet of the site..	2 to 10% for new shuttle service	6%
Install shuttle bus stop on eastbound Blomquist Street, eastbound adjacent to the project site, to serve existing shuttle routes during morning commute period.	Installation of an eastbound shuttle bus stop on Blomquist Street, if feasible, could serve the existing Seaport Centre and Redwood Shores shuttle buses arriving from the Redwood City Caltrain Station during the morning commute period. (Providing a stop to serve afternoon shuttles on these two routes may not be feasible since such a stop would need to be located on the north side of Blomquist Street. Property owner will coordinate with City to determine feasibility of a westbound shuttle stop on Blomquist Street. Existing stops on both routes are shown on Figure 5). This measure would be implemented in addition to the shuttle service described on Table 3.) Trips to the Caltrain station could potentially be re-routed to serve the project site via the planned internal bus stops. This potential measure would be subject to approval of shuttle operators.	5% to 10% for new transit stops provided within one mile of the project site.	--
Subtotal: Potential Reductions from Discretionary Measures:		15% to 37%	6% +

Notes: see Table 3.

Table 5: Summary of Potential Drive-alone & VMT Reductions

Description	Potential Drive-alone Mode Share Reduction	Potential VMT Reduction
Standard TDM Measures	28% to 72%	12%
Site-Specific TDM Measures	4% to 16%	14%
Subtotal (without Discretionary Measures)	32% to 88%	26%
Discretionary TDM Measures	15% to 37%	6%
Total (if all Discretionary Measures are provided) ¹	>50%	32%
Reduction Needed to Meet Performance Standards	50%	22%

Notes: Total reduction with all discretionary measures reflects diminishing rates of return as additional TDM measures are added.

4. MONITORING

Following site occupancy and thereafter for the life of the project, the *Redwood City TDM Program* specifies that the property owner/developer is responsible for mandatory annual monitoring that consists of:

- Collecting survey responses from employees and tenants, with a minimum response rate of 51 percent of employees, and preparing a brief annual report.
- The survey will include questions on drive-alone commute distances and mode of travel. This will enable VMT per employee calculations.
- Conducting driveway counts during typical operations (when schools are in session and not during holiday periods) to determine the rate of motor vehicle trip generation (although the trip generation rate is not relevant to either of the two performance measures and is not required for CEQA mitigation). The City's requirement to conduct driveway counts may be revised in the future to be less frequent than one year at the discretion of the City.

Annual monitoring reports will be submitted by January 31 of each year based on surveys conducted beginning during the fourth quarter of the prior calendar year. If the annual monitoring finds the site fails to meet the **drive-alone mode share**, the following enforcement steps are applicable:

- **Year 1 Non-compliance:** If the City determines, based on the site's annual report and confirmation by the City, that a good-faith effort has been made to implement the Site TDM Plan and meet the drive-alone mode share and VMT per Employee targets, there will be no financial penalty. (If no good-faith effort is made, then penalties would be applied as described for Year 2). If the project does not meet the drive-alone mode share and VMT per Employee targets: property owner will submit revised TDM plan for City approval within two months of receiving comments from City indicating that such revisions are needed.
- **Year 2 Non-compliance:** If a site is not in compliance two years in a row, financial penalties may be applied as follows: Financial penalties will be determined by the City and represent the value of their drive-alone target shortfall and/or their VMT target shortfall. Penalties will be paid to support general community services or to provide additional funding for other sites, to be determined by the City or TMA. In addition, the property owner will submit a revised TDM plan for City approval within two months of receiving notice from City that such revisions are needed.
- **Continued Non-compliance:** if a site is in non-compliance for more than two consecutive years, the City can impose an ongoing requirement for the site to support community programs and limit future expansions or permits granted until the site is shown to be in conformance. The property owner will submit a revised TDM plan for City approval within two months of receiving notice from City that such revisions are needed.

Performance Measures for Harbor View Site TDM Plan

As noted in the introduction, the Harbor View development will be in conformance with the requirements of the Site TDM Plan provided that annual monitoring (to be conducted as specified by the *Redwood City TDM Program* and approved by the City) finds that:

- **Daily VMT per Employee does not exceed an average of 15.0 miles per day** (based on home-based work-commute trips, to and from work), to satisfy the mitigation requirements of the Draft EIR. As determined the Draft EIR: the VMT per Employee performance measure constitutes a reduction of approximately 22 percent from current conditions in the project area. The enforcement measures identified in **year 2 non-compliance** on the previous page (**drive alone mode share**), would go into effect in year 1 for this **VMT per employee** category.
- **The drive-alone mode share does not exceed the target rate of 52 percent** as specified by the *Redwood City TDM Program* requirements for new Suburban Office developments. The current drive-alone rate for Redwood City office space ranges from 49 percent (Downtown Office) to 78 percent (Suburban Office). The Target Drive-alone mode share thus represents a 50 percent reduction from the typical rate for Suburban Office space in Redwood City.

The commute survey is mandatory and requires participation by at least 51 percent of employees, as described in the *Redwood City TDM Program* Guidelines. Coordination is required between the Harbor View Development, the City of Redwood City and each tenant to ensure employee surveys are distributed and collected to report back to the City. The development will coordinate with the City on the requirements to be reported in the annual monitoring report.

Appendix C

Final Water Supply Assessment



FINAL WATER SUPPLY ASSESSMENT

for the proposed

HARBOR VIEW PROJECT

September 30, 2022

**Prepared by the
CITY OF REDWOOD CITY
PUBLIC WORKS SERVICES DEPARTMENT**

1. OVERVIEW

On September 9, 2022, the City of Redwood City (City) Public Works Services Department received a request from the Community Development & Transportation Department to prepare a Water Supply Assessment (WSA) for the Harbor View Project (Project). This WSA has been prepared in accordance with California Water Code Section 10910, subdivision(g)(2), and is to be presented to the Redwood City Council for its consideration at the time of EIR certification.

Water Use Characteristics

City staff and Project engineers used the City's Engineering Standards for Water System Design Criteria (known as " Attachment Q") to develop demand estimates for the Project. These estimates are summarized in Table 1.

Table 1. Project Water Demand (afy)

	Existing Demand	Proposed Project Demand	Potable Demand	Recycled Demand	Net New Potable Demand
Commercial (a)	0.0	131.0	26.2	104.8	26.2
Irrigation	0.0	26.7	0.0	26.7	0.0
Total	0.0	157.7	26.2	131.5	26.2

a) Potable water for Commercial uses is 20% of Proposed Project Demand, Recycled Water is 80% of Proposed Project Demand

This WSA has been developed to determine if the City has sufficient water to meet the expected future water demands of the Project together with those of existing customers and planned future development. As shown in the City's 2020 Urban Water Management Plan (UWMP), City-wide demand for potable water is projected to be 10,207 acre-feet per year (afy) in the year 2045, which is below the City's Individual Water Supply Guarantee (ISG) of 12,243 afy. This demand includes the proposed Project and anticipated growth in demand projected to occur between 2020 and 2045.

2018 Bay-Delta Plan Amendment

In December 2018, the State Water Resources Control Board (SWRCB) adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) to establish water quality objectives to maintain the health of the Bay-Delta ecosystem. The SWRCB is required by law to regularly review this plan. The adopted Bay-Delta Plan Amendment was developed with the stated goal of increasing salmonid populations in three San Joaquin River tributaries (the Stanislaus, Merced, and Tuolumne Rivers) and the Bay-Delta. The Bay-Delta Plan Amendment requires the release of 40% of the "unimpaired flow"¹ on the three tributaries from February through June in every year type, whether wet, normal, dry, or critically dry.

¹Unimpaired flow represents the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds." (Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Dec. 12, 2018) p.17, fn. 14, available at https://www.waterboards.ca.gov/plans_policies/docs/2018wqcp.pdf.)

If the Bay-Delta Plan Amendment is implemented, the SFPUC will be able to meet the projected water demands presented in this Urban Water Management Plan (UWMP) in normal years but would experience supply shortages in single dry years or multiple dry years. Implementation of the Bay-Delta Plan Amendment will require rationing in all single dry years and multiple dry years. The SFPUC has initiated an Alternative Water Supply Planning Program (AWSP) to ensure that San Francisco can meet its Retail and Wholesale Customer water needs, address projected dry years shortages, and limit rationing to a maximum 20 percent system-wide in accordance with adopted SFPUC policies. This program is in early planning stages and is intended to meet future water supply challenges and vulnerabilities such as environmental flow needs and other regulatory changes; earthquakes, disasters, and emergencies; increases in population and employment; and climate change. As the region faces future challenges – both known and unknown – the SFPUC is considering this suite of diverse nontraditional supplies and leveraging regional partnerships to meet Retail and Wholesale Customer needs through 2045.

The SWRCB has stated that it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, assuming all required approvals are obtained by that time. But implementation of the Plan Amendment is uncertain for several reasons.

First, since adoption of the Bay-Delta Plan Amendment, over a dozen lawsuits have been filed in both state and federal courts, challenging the SWRCB's adoption of the Bay-Delta Plan Amendment, including a legal challenge filed by the federal government, at the request of the U.S. Department of Interior, Bureau of Reclamation. This litigation is in the early stages and there have been no dispositive court rulings as of this date.

Second, the Bay-Delta Plan Amendment is not self-implementing and does not automatically allocate responsibility for meeting its new flow requirements to the SFPUC or any other water rights holders. Rather, the Bay-Delta Plan Amendment merely provides a regulatory framework for flow allocation, which must be accomplished by other regulatory and/or adjudicatory proceedings, such as a comprehensive water rights adjudication or, in the case of the Tuolumne River, may be implemented through the water quality certification process set forth in section 401 of the Clean Water Act as part of the Federal Energy Regulatory Commission's licensing proceedings for the Don Pedro and La Grange hydroelectric projects. It is currently unclear when the license amendment process is expected to be completed. This process and the other regulatory and/or adjudicatory proceedings would likely face legal challenges and have lengthy timelines, and quite possibly could result in a different assignment of flow responsibility (and therefore a different water supply impact on the SFPUC).

Third, in recognition of the obstacles to implementation of the Bay-Delta Plan Amendment, the SWRCB Resolution No. 2018-0059 adopting the Bay-Delta Plan Amendment directed staff to help complete a "Delta watershed-wide agreement, including potential flow measures for the Tuolumne River" by March 1, 2019, and to incorporate such agreements as an "alternative" for a future amendment to the Bay-Delta Plan to be presented to the SWRCB "as early as possible after December 1, 2019." In accordance with the SWRCB's instruction, on March 1, 2019, SFPUC, in partnership with other key stakeholders, submitted a proposed project description for the Tuolumne River that could be the basis for a voluntary substitute agreement with the SWRCB ("March 1st Proposed Voluntary Agreement"). On March 26, 2019, the Commission adopted Resolution No. 19-0057 to support the SFPUC's participation in the Voluntary

Agreement negotiation process. To date, those negotiations are ongoing under the California Natural Resources Agency and the leadership of the Newsom administration².

For all these reasons, whether and when the Bay-Delta Plan Amendment will be implemented, and how those amendments if implemented will affect the SFPUC's, and thereby Redwood City's, water supply is currently uncertain and possibly speculative. Given this uncertainty, this WSA analyzes water supply and demand through 2045 under two scenarios:

1. With full implementation of the Bay-Delta Plan Amendment in 2023
2. Without implementation of the Bay-Delta Plan Amendment

WSA Determination

Scenario 1, With full implementation of the Bay-Delta Plan Amendment in 2023: The City has sufficient water to meet all its expected future water demands, including the demands of the proposed Project, in normal years. In dry years with the implementation of its Water Shortage Contingency Plan the City will be able to meet the expected future demand, including the demands of the Project. However, shortfalls represent a significant challenge for the community, and in a single dry year or first dry year the anticipated supply shortfall is between 36% and 47%. In prolonged dry conditions with up to five multiple dry years the shortfall could increase to 55%.

Scenario 2, Without implementation of the Bay-Delta Plan Amendment: The City has sufficient water to meet all its expected future water demands, including the demands of the proposed Project, in normal years and dry years through 2040. In 2045 they City has sufficient supply in all years except for the fourth and fifth dry years in a multiple dry year scenario. When supplies will not meet demand, the City would implement its Water Shortage Contingency Plan (WSCP) to curtail demands and ensure that its supplies remain sufficient to serve all users, including the proposed Project. This determination is contingent upon the use of recycled water which requires an extension of the recycled water distribution pipeline to the Project location.

2. BACKGROUND

State Laws

During 2001, the California Legislature enacted two laws – SB 610 (Costa) and SB 221 (Kuehl) – each designed to achieve greater coordination during the land use planning process between water suppliers and local land use agencies when considering certain large-scale development projects.

SB 610 requires preparation of a WSA for any development whose approval is subject to the California Environmental Quality Act (CEQA) and which meets the definition of “project” in Water Code Section 10910 (g)(1), (2) – i.e., residential development projects of more than 500 dwelling units, commercial office building projects having more than 250,000 square feet of floor space, or other types of developments (e.g., hotels and motels, commercial buildings, industrial parks, etc.) using a comparable amount of water.

The WSA must describe the proposed project's water demand over a 20-year period, identify the sources of water available to meet that demand and include an assessment of whether those water supplies are,

² California Natural Resources Agency, “Voluntary Agreements to Improve Habitat and Flow in the Delta and its Watersheds,” available at <https://files.resources.ca.gov/voluntary-agreements/>.

or will be, sufficient to meet the demand for water associated with the proposed project, in addition to the demand of existing customers and other planned future development. The available water supply must be based on three water supply scenarios: normal year, single dry year, and multiple dry years. If the conclusion is that water supplies are or will be insufficient, then the WSA is to describe plans (if any) for acquiring additional water supplies, and the measures that are being undertaken to acquire and develop those supplies.

SB 221 is similar in many respects to SB 610. However, it applies only to residential projects of 500 units or more and requires the land use planning agency to include as a condition of approval of a tentative map, parcel map or development agreement a requirement that “sufficient water supply” be available. Proof of a sufficient water supply must be based on a written verification from the public water system that will serve the development.

Thus, the WSA required by SB 610 is to be prepared sufficiently early in the development review process that it can be incorporated in the CEQA evaluation and documentation of the project. SB 221, by contrast, becomes operative at the point that the City is considering approval of a tentative subdivision map.

The City’s Roles and Responsibilities Under SB 610

Both SB 610 and SB 221 were drafted on the assumption that the land use planning agency (i.e., the city or county) is not the water supplier for the proposed project. The statutes thus identify distinct duties on the city/county and on the water supplier – which is assumed to be an entirely separate agency. In the case of Redwood City, this assumption is not applicable since the City performs both roles. However, the statute’s terminology, while awkward, can be adapted to the City’s situation relatively easily.

The “City,” as that term is used in the statute, means the components of city government that have responsibilities for the land use decision process. At the staff level, in Redwood City this is the Community Development & Transportation Department, Planning and Housing Division.

The “water supplier,” for SB 610 purposes, can be understood to mean the Public Works Services Department, which is responsible for the City’s Water Enterprise Fund.

The “governing body,” as used in SB 610, refers to the City Council, which is required to approve the WSA at a regular or special meeting.

In Redwood City, the Community Development & Transportation Department is responsible for requesting the preparation of the WSA, including sufficient information about the project. The Public Works Services Department is responsible for preparing the WSA. The City Council is responsible for approving the WSA. The Community Development Department then directs the inclusion of the WSA in the environmental documentation of the project.

Use of the WSA

As noted above, the WSA shall be included in the environmental document prepared for the project. In the case of the Harbor View Project, it will be included in the Final EIR prepared for the project.

At the stage of project approval/disapproval, the City “shall determine based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to

existing and planned future uses.” If the City determines at that point that water supplies will not be sufficient, it must include that determination in its findings for the project.

Urban Water Management Plan (UWMP)

A foundational document for compliance with both SB 610 and SB 221 is the Urban Water Management Plan (UWMP). Both statutes identify the UWMP as a planning document that, if properly prepared, can be used by a water supplier to meet the standards set forth in both statutes. The City of Redwood City has adopted an UWMP pursuant to the State of California Urban Water Management Planning Act. The UWMP was last updated/adopted by the City Council on June 14, 2021 and duly forwarded to the California State Department of Water Resources (DWR). The water supply and demand analysis contained in this WSA is based on information contained within the City’s adopted 2020 UWMP.

3. DETERMINATION OF APPLICABILITY OF SB 610 TO THE HARBOR VIEW PROJECT

The DWR has prepared a flowchart (see Attachment 1) to assist in the determination of the applicability of SB 610 to projects and identify what WSAs must address. Based on the City’s review of the Project development application, the City has determined that the Harbor View Project is subject to CEQA, and it is considered a “project” as defined by Water Code §10912. The project also includes over 250,000 square feet of office space. Therefore, the City, as both Lead Agency and Water Supplier, is required to prepare an SB 610 WSA.

4. REDWOOD CITY WATER SUPPLY

Potable Water Supply

The City of Redwood City receives 100% of its potable water supply from the San Francisco Regional Water System operated by the San Francisco Public Utilities Commission (SFPUC). Existing water supply entitlements, rights and/or water service contracts relevant to this water supply are:

1984 Settlement Agreement and Master Water Sales Contract between Suburban Purchasers and the City and County of San Francisco. The Master Contract primarily addresses the rate-making methodology used by San Francisco in setting wholesale water rates for its wholesale customers in addition to addressing water supply and water shortages for the regional water system. The Master Contract expired on June 30, 2009. The Master Contract provided for a 184 million gallon per day (mgd) “Supply Assurance” to the SFPUC’s wholesale customers, subject to reduction in the event of drought, water shortage, earthquake, other acts of God, or rehabilitation and maintenance of the system. The Master Contract does not guarantee that San Francisco will meet peak daily or hourly customer demands when their annual usage exceeds the Supply Assurance. The SFPUC’s wholesale customers have agreed to the allocation of 184 mgd Supply Assurance among themselves, with each entity’s share of the Supply Assurance set forth on a schedule adopted in 1993. This Supply Assurance survives expiration of the Master Contract in 2009.

Water Supply Agreement between The City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County, and Santa Clara County (July 2009). Redwood City, along with 26 other Bay Area water suppliers, signed the Water Supply Agreement and an Individual Water Sales Contract with San Francisco in 2009. Redwood City’s contracted Supply Assurance from the SFPUC is 12,243 afy.

Recycled Water Supply

The Redwood City Council approved a recycled water project in 2003 with the goal of reducing demand on the Hetch Hetchy system. Silicon Valley Clean Water and Redwood City entered into agreements for the production and distribution of recycled water that is treated to the California State Title 22 standards for non-potable unrestricted use. The recycled water can be used for landscape irrigation, industrial applications, and other approved indoor uses such as toilet flushing in new commercial, and some multi-family buildings. The recycled water system has been designed to deliver up to 3,238 afy. Current demand on the recycled water system is approximately 856 afy. In 2008, the City Council of Redwood City adopted a Recycled Water Use Ordinance and established a Recycled Water Service Area. Specific uses of recycled water including landscape irrigation and toilet/urinal flushing are required within the Recycled Water Service Area for new developments. However, for properties outside of the Recycled Water Service Area recycled water use is voluntary.

Groundwater supply

Groundwater is not a source of potable water supply for Redwood City because of water quality, reliability, and long-term production capacity concerns. Local groundwater is currently used by a limited number of private well owners for domestic and irrigation uses. The City does not include groundwater as a source of supply in its 2020 UWMP. However, a preliminary assessment of groundwater production potential for the City conducted during the preparation of the 2020 UWMP found that sufficient groundwater supply may be available for the City to use as a source of back-up supply for emergency conditions (EKI, 2020; 2020 UWMP Appendix G).

Dry Year Water Supplies

Since adoption of the UWMP, the following milestones on the San Francisco Regional Water System have occurred:

- Calaveras Dam Replacement Project – Construction of the new dam was completed in September 2018, and the overall project was completed in June 2019.
- Regional Groundwater Storage and Recovery Project – Construction of this project is still underway. Phase 1 of the project, consisting of installation of 13 production wells, will be completed in 2019. Since May/June 2016, the project has been in a storage phase through periodic deliveries of RWS surface water in lieu of groundwater pumping by Daly City, San Bruno, and the California Water Service Company.

Summary of Current and Planned Water Supplies

As shown in Table 2 Redwood City's water supply and demand is balanced with some room for unplanned growth through 2045.

Table 2. Projected Supply vs. Demand for Normal Year Scenario

	Projected Water Demand (afy)				
	2025	2030	2035	2040	2045
Potable Water Supply	12,243	12,243	12,243	12,243	12,243
Potable Water Demand	9,520	9,623	9,880	9,995	10,207
<i>Surplus or (Deficit)</i>	<i>2,723</i>	<i>2,620</i>	<i>2,363</i>	<i>2,248</i>	<i>2,036</i>
Recycled Water Supply	3,238	3,238	3,238	3,238	3,238
Recycled Water Demand	1,286	1,426	1,686	1,701	1,716
<i>Surplus or (Deficit)</i>	<i>1,952</i>	<i>1,812</i>	<i>1,552</i>	<i>1,537</i>	<i>1,522</i>
Total Water Demand	10,806	11,049	11,566	11,969	11,923

Source: Redwood City, 2020 Urban Water Management Plan, Table 4-8

Additional Water Supplies

With the adoption of the Bay-Delta Plan Phase 1 (Bay-Delta Plan) by the State Water Resources Control Board in December of 2018, coupled with the uncertainties associated with litigation and the development of Voluntary Agreements that, if successful, would provide an alternative to the 40% unimpaired flow requirement that is required by the Bay-Delta Plan, BAWSCA redoubled its efforts to ensure that the SFPUC took necessary action to develop alternative water supplies such that they would be in place to fill any potential gap in supply by implementation of the Bay-Delta Plan and that the SFPUC would be able to meet its legal and contractual obligations to its Wholesale Customers.

In 2019, BAWSCA held numerous meetings with the SFPUC encouraging them to develop a division within their organization whose chief mission was to spearhead alternative water supply development. On June 25, 2019, BAWSCA provided a written and oral statement to the Commissioners urging the SFPUC to focus on developing new sources of supply in a manner similar to how it addressed the implementation of the Water System Improvement Program (WSIP). BAWSCA urged that a new water supply program was called for, with clear objectives, persistent focus, a dedicated team, adequate funding, and a plan for successful execution. The SFPUC Commission supported BAWSCA's recommendation and directed staff to undertake such an approach.

In early 2020, the SFPUC began implementation of the Alternative Water Supply Planning Program (AWSP), a program designed to investigate and plan for new water supplies to address future long-term water supply reliability challenges and vulnerabilities on the RWS.

Included in the AWSP is a suite of diverse, non-traditional supply projects that, to a great degree, leverage regional partnerships and are designed to meet the water supply needs of the SFPUC Retail and Wholesale Customers through 2045. As of the most recent Alternative Water Supply Planning Quarterly Update, SFPUC has budgeted \$264 million over the next ten years to fund water supply projects. BAWSCA is heavily engaged with the SFPUC on its AWSP efforts.

The SFPUC is increasing and accelerating its efforts to acquire additional water supplies and explore other projects that would increase overall water supply resilience through the AWSP. The drivers for the program include: (1) the adoption of the Bay-Delta Plan Amendment and the resulting potential limitations to RWS supply during dry years, (2) the net supply shortfall following the implementation of WSIP, (3) San Francisco's perpetual obligation to supply 184 MGD to the Wholesale Customers, (4)

adopted LOS Goals to limit rationing to no more than 20 percent system-wide during droughts, and (5) the potential need to identify water supplies that would be required to offer permanent status to interruptible customers. Developing additional supplies through this program would reduce water supply shortfalls and reduce rationing associated with such shortfalls. The planning priorities guiding the framework of the AWSP are as follows:

1. Offset instream flow needs and meet regulatory requirements
2. Meet existing obligations to existing permanent customers
3. Make interruptible customers permanent
4. Meet increased demands of existing and interruptible customers

In conjunction with these planning priorities, the SFPUC considers how the program fits within the LOS Goals and Objectives related to water supply and sustainability when considering new water supply opportunities. The key LOS Goals and Objectives relevant to this effort can be summarized as:

- Meet dry-year delivery needs while limiting rationing to a maximum of 20 percent system-wide reduction in water service during extended droughts;
- Diversify water supply options during non-drought and drought periods;
- Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers;
- Meet, at a minimum, all current and anticipated legal requirements for protection of fish and wildlife habitat;
- Maintain operational flexibility (although this LOS Goal was not intended explicitly for the addition of new supplies, it is applicable here).

Together, the planning priorities and LOS Goals and Objectives provide a lens through which the SFPUC considers water supply options and opportunities to meet all foreseeable water supply needs.

In addition to the Daly City Recycled Water Expansion project³, which was a potential project identified in the SFPUC's 2015 UWMP and had committed funding at that time, the SFPUC has taken action to fund the study of potential additional water supply projects. Capital projects under consideration to develop additional water supplies include surface water storage expansion, recycled water expansion, water transfers, desalination, and potable reuse. A more detailed list and descriptions of these efforts are provided below. The capital projects that are under consideration would be costly and are still in the early feasibility or conceptual planning stages. Because these water supply projects would take 10 to 30 years to implement, and because required environmental permitting negotiations may reduce the amount of water that can be developed, the yield from these projects are not currently incorporated into SFPUC's supply projections. State and federal grants and other financing opportunities would be pursued for eligible projects, to the extent feasible, to offset costs borne by ratepayers.

- *Daly City Recycled Water Expansion (Regional, Normal- and Dry-Year Supply).*
This project can produce up to 3 MGD of tertiary recycled water during the irrigation season (~7 months). On an average annual basis, this is equivalent to 1.25 MGD or 1,400 AFY. The project is envisioned to provide recycled water to 13 cemeteries and other smaller irrigation customers,

³ While this potential project was identified in the 2015 UWMP, it has since been approved by Daly City following environmental review and has a higher likelihood of being implemented.

offsetting existing groundwater pumping from the South Westside Groundwater Basin; this will free up groundwater, enhancing the reliability of the Basin. The project is a regional partnership between the SFPUC and Daly City. The irrigation customers are located largely within California Water Service's (Cal Water's) service area. RWS customers will benefit from the increased reliability of the South Westside Basin for additional drinking water supply during droughts. In this way, this project supports the GSR Project, which is under construction.

- *ACWD-USD Purified Water Partnership (Regional, Normal- and Dry-Year Supply).*

This project could provide a new purified water supply utilizing Union Sanitary District's (USD) treated wastewater. Purified water produced by advanced water treatment at USD could be transmitted to the Quarry Lakes Groundwater Recharge Area to supplement recharge into the Niles Cone Groundwater Basin or put to other uses in Alameda County Water District's (ACWD) service area. With the additional water supply to ACWD, an in-lieu exchange with the SFPUC would result in more water left in the RWS. Additional water supply could also be directly transmitted to the SFPUC through a new intertie between ACWD and the SFPUC.

- *Crystal Springs Purified Water (Regional, Normal- and Dry-Year Supply).*

The Crystal Springs Purified Water (PREP) Project is a purified water project that could provide 6-12 MGD of water supply through reservoir water augmentation at Crystal Springs Reservoir, which is a facility of the RWS. Treated wastewater from Silicon Valley Clean Water (SVCW) and/or the City of San Mateo would go through an advanced water treatment plant to produce purified water that meets state and federal drinking water quality standards. The purified water would then be transmitted 10 to 20 miles (depending on the alignment) to Crystal Springs Reservoir, blended with regional surface water supplies and treated again at Harry Tracy Water Treatment Plant. Project partners include the SFPUC, Bay Area Water Supply and Conservation Agency (BAWSCA), SVCW, CalWater, Redwood City, Foster City, and the City of San Mateo. Partner agencies are contributing financial and staff resources towards the work effort.

- *Los Vaqueros Reservoir Expansion (Regional, Dry Year Supply).*

The Los Vaqueros Reservoir Expansion (LVE) Project is a storage project that will enlarge the existing reservoir located in northeastern Contra Costa County from 160,000 acre-feet to 275,000 acre-feet. While the existing reservoir is owned and operated by the Contra Costa Water District (CCWD), the expansion will have regional benefits and will be managed by a Joint Powers Authority (JPA) that will be set up prior to construction. Meanwhile, CCWD is leading the planning, design and environmental review efforts. CCWD's Board certified the EIS/EIR and approved the LVE Project on May 13, 2020. The additional storage capacity from the LVE Project would provide a dry year water supply benefit to the SFPUC. BAWSCA is working in concert with the SFPUC to support their work effort on the LVE project.

- Conveyance Alternatives: The SFPUC is considering two main pathways to move water from storage in a prospective LVE Project to the SFPUC's service area, either directly to RWS facilities or indirectly via an exchange with partner agencies. The SFPUC is evaluating potential alignments for conveyance.
- Bay Area Regional Reliability Shared Water Access Program (BARR SWAP): As part of the BARR Partnership, a consortium of 8 Bay Area water utilities (including ACWD, BAWSCA,

CCWD, EBMUD, Marin Municipal Water District (MMWD), SFPUC, Valley Water, and Zone 7 Water Agency) are exploring opportunities to move water across the region as efficiently as possible, particularly during times of drought and emergencies. The BARR agencies are proposing two separate pilot projects in 2020-2021 through the Shared Water Access Program (SWAP) to test conveyance pathways and identify potential hurdles to better prepare for sharing water during a future drought or emergency. A strategy report identifying opportunities and considerations will accompany these pilot transfers and will be completed in 2021.

○

- *Bay Area Brackish Water Desalination (Regional, Normal- and Dry-Year Supply).*

The Bay Area Brackish Water Desalination (Regional Desalination) Project is a partnership between CCWD, the SFPUC, Valley Water, and Zone 7 Water Agency. The East Bay Municipal Utilities District (EBMUD) and ACWD may also participate in the project. The project could provide a new drinking water supply to the region by treating brackish water from CCWD's existing Mallard Slough intake in Contra Costa County. While this project has independent utility as a water supply project, for the current planning effort the SFPUC is considering it as a source of supply for storage in LVE. While the allocations remain to be determined among partners, the SFPUC is considering a water supply benefit of between 5 and 15 MGD during drought conditions when combined with storage at LVE.

- *Calaveras Reservoir Expansion (Regional, Dry Year Supply).*

Calaveras Reservoir would be expanded to create 289,000 acre-feet (AF) additional capacity to store excess Regional Water System supplies or other source water in wet and normal years. In addition to reservoir enlargement, the project would involve infrastructure to pump water to the reservoir, such as pump stations and transmission facilities.

- *Groundwater Banking.*

Groundwater banking in the Modesto Irrigation District (MID) and Turlock Irrigation District (TID) service areas could be used to provide some additional water supply to meet instream releases in dry years reducing water supply impacts to the SFPUC service area. For example, additional surface water could be provided to irrigators in wet years, which would offset the use of groundwater, thereby allowing the groundwater to remain in the basin rather than be consumptively used. The groundwater that remains in the basin can then be used in a subsequent dry year for irrigation, freeing up surface water that would have otherwise been delivered to irrigators to meet instream flow requirements. A feasibility study of this option is included in the proposed Tuolumne River Voluntary Agreement. Progress on this potential water supply option will depend on the negotiations of the Voluntary Agreement.

- *Inter-Basin Collaborations.*

Inter-Basin Collaborations could provide net water supply benefits in dry years by sharing responsibility for in-stream flows in the San Joaquin River and Delta more broadly among several tributary reservoir systems. One mechanism by which this could be accomplished would be to establish a partnership between interests on the Tuolumne River and those on the Stanislaus River, which would allow responsibility for streamflow to be assigned variably based on the annual

hydrology. As is the case with Groundwater Banking, feasibility of this option is included in the proposed Tuolumne River Voluntary Agreement.

If all the projects identified through the current planning process can be implemented, there would still be a supply shortfall to meet projected needs. Furthermore, each of the supply options being considered has its own inherent challenges and uncertainties that may affect the SFPUC's ability to implement it.

Given the limited availability of water supply alternatives - unless the supply risks are significantly reduced or our needs change significantly - the SFPUC will continue to plan, develop and implement all project opportunities that can help bridge the anticipated water supply gaps during droughts. In 2019, the SFPUC completed a survey among water and wastewater agencies within the service area to identify additional opportunities for purified water. Such opportunities remain limited, but the SFPUC continues to pursue all possibilities.

5. THE HARBOR VIEW PROJECT AND ITS PROJECTED WATER DEMAND

Project Description

The proposed project includes one seven-story office building and two six-story office buildings totaling 765,150 square feet, one parking structure, a 35,000 square foot employee amenities building, and a total of 2,591 parking spaces are provided at 320-350 Blomquist St. Open space comprises about 40% of the site. A copy of the proposed site plan is included below. The Project has a total estimated water demand of 140,811 gpd. The existing water demand (domestic and irrigation) for the site is currently minimal and is restricted to uses associated with the existing building materials operations along Blomquist Street. Assuming that potable water consumption on the site is currently near zero because most of the project site has been vacant since 2016 and not included in the baseline demands of the 2020 UWMP existing demand for the project area is not included in this analysis.



Projected Water Demand

The City bases its water demand projections on the adopted *City Engineering Standards for Water Demand Projection Criteria (Attachment Q)*. Project engineers provided demand estimates in Attachment Q, which have been reviewed by the City's Engineering Division. A summary of existing and projected demand is included in the request to prepare this WSA.

Does the 2020 UWMP account for the Harbor View Project demands?

Yes, the Project is included in the 2020 UWMP and is specifically listed in Table 4-5 of the UWMP as a project requiring a General Plan amendment. At the time the 2020 UWMP was prepared the scope of the Project was greater and water demands were estimated to be higher than currently proposed. The 2020 UWMP included a total demand for the project of 176.8 afy which included 28.4 afy for potable water and 148.3 afy for recycled water. This results in a reduction water demands of 2.2 afy for potable water 16.8 afy for recycled water.

Recycled Water Uses

Redwood City Municipal Code Chapter 38, Article VIII, Sec. 38.50 requires that new Commercial Properties, and New Apartments and Condominiums within the Recycled Water Service Area shall use recycled water for landscape irrigation and internally for toilet flushing. The City's Recycled Water Development Standards (Attachment U) further prescribes the uses for recycled water and excludes the use of recycled water in tenant improvement spaces intended for retail uses and makes the use of recycled water in childcare facilities optional. For properties outside of the Recycled Water Service Area recycled water use is voluntary.

The Water Demand Projections worksheet (Attachment Q) does not differentiate between potable or recycled water uses. During the preparation of the UWMP the City did not have any existing properties using recycled water for internal uses, so estimates were used to identify the ratio of potable and recycled water for internal uses.

- For commercial properties it was estimated that for all internal uses 20% would be for potable water and 80% would be for recycled water.

The Harbor View Project is within the Recycled Water Service Area, and a 24-inch recycled water pipeline is available along the frontage of the project property on Blomquist Ave.

6. WATER SUPPLY SUFFICIENCY ANALYSIS

The following section provides a supply and demand comparison for the two scenarios described in Section 1 of this report. Procedures for determining SFPUC RWS supply availability are provided in the Water Shortage Allocation Plan (WSAP) between the SFPUC's Retail and Wholesale Customers which is referred to as Tier 1 of the WSAP. The WSAP further allocates the supplies amongst Wholesale Customers (BAWSCA Members) under Tier 2 of the WSAP to derive available supply for each wholesale customer including Redwood City.

For the purposes of 2020 UWMP development only, SFPUC and BAWSCA provided revised methodologies to allocate RWS supplies during projected future single dry and multiple dry years in instances where the projects supply shortfalls are greater than 20%. SFPUC and BAWSCA assumed that Tier One allocations for system-wide shortfalls of 16% to 20% would apply for all shortfalls greater than 20%. BAWSCA also provided a revised methodology to allocate RWS supplies to Wholesale Agencies. The inclusion of the following revised methodologies, which serve as the preliminary basis for the 2020 UWMP supply reliability analyses, does not in any way imply an agreement by BAWSCA member agencies as to the exact allocation methodologies.

1. When the average Wholesale Customers' RWS shortages are 10 percent or less, an equal percent reduction will be applied across all agencies. This is consistent with the existing Tier Two requirement of a minimum 10 percent cutback in any Tier Two application scenario.
2. When average Wholesale Customers' shortages are between 10 and 20 percent, the Tier Two Plan will be applied.
3. When the average Wholesale Customers' RWS shortages are greater than 20 percent, an equal percent reduction will be applied across all agencies.

Scenario 1: With full implementation of the Bay-Delta Plan Amendment in 2023

Under this Scenario this WSA determines that the City has sufficient water supplies to serve the Project and all other existing and planned future demands, in normal years. In dry years with the implementation of its Water Shortage Contingency Plan (WSCP) the City will be able to meet future demand, including the demands of the Project. However, shortfalls represent a significant challenge for the community, and in a single dry year or first dry year the anticipated supply shortfall is between 36% and 47%. In prolonged dry conditions with up to five multiple dry years the shortfall could increase to 55%.

The WSCP lists a number of actions to be taken by the City and water customers in the event of a water shortage for the purpose of reducing water demands, and includes 6 stages of curtailment levels, ranging from 10 percent to greater than 50 percent depending on the severity of the water shortage. For a single dry year water shortage beginning in the year 2025 the WSCP indicates a Stage 4 water shortage (up to 40%) will need to be declared, and in a multiple dry year scenario a Stage 5 water shortage (up to 50%) will need to be declared. Based on projected water demand in the years 2040 and 2045 a Stage 6 shortage will need to be declared in the fourth and fifth years of a water shortage, and represents a significant reduction in water demands that must be met including no irrigation with potable water, a 35% reduction in commercial, institutional, and industrial (CII) water use, and indoor per capita or per person daily use of 27 gallons.

Table 3. Water Allocation Program Cutbacks by Customer Sector (Table 6-3, WSCP, June 2021)

Stage Reduction Goal	10%	20%	30%	40%	50%	>50%
Customer Sector	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Residential Indoor Allocation	50 gpcd	45 gpcd	40 gpcd	34 gpcd	31 gpcd	27 gpcd
Residential Outdoor Allocation	15%	35%	65%	80%	90%	100%
Commercial (CII) Reduction	3%	7%	10%	20%	30%	35%

Irrigation Accounts Reduction	15%	35%	65%	80%	90%	100%
Recycled Water Reduction	0%	0%	0%	0%	0%	0%

gpcd= gallons per capita per day

Because the Project's water demands are included in the 2020 UWMP the Project would not change the water shortage Stage that would need to be declared, and the Project would not require additional curtailments from existing or planned customers beyond the curtailments that would be required without the Project. Table 4 includes the reduction in potable water demand anticipated due to the implementation of the Bay Delta Plan for each dry year scenario.

Table 4. Potable Water Supply and Shortage Levels with Bay Delta Plan

Year Type		2025	2030	2035	2040	2045
Normal Supply		12,243	12,243	12,243	12,243	12,243
2020 UWMP Projected Potable Demand		9,852	9,520	9,623	9,995	10,207
Single Dry Year Supply		6,049	6,060	6,150	6,217	5,433
Multiple Dry Years Supply	First year	6,049	6,060	6,150	6,217	5,433
	Second year	5,186	5,197	5,265	5,332	5,433
	Third year	5,186	5,197	5,265	5,332	5,433
	Fourth year	5,186	5,197	5,265	4,705	4,615
	Fifth year	5,186	5,197	4,828	4,705	4,615
Percent Shortage based on Projected Demand						
Normal Year		0%	0%	0%	0%	0%
Single Dry Year		38.6%	36.3%	36.1%	37.8%	46.8%
Multiple Dry Years Shortage	First year	38.6%	36.3%	36.1%	37.8%	46.8%
	Second year	47.4%	45.4%	45.3%	46.7%	46.8%
	Third year	47.4%	45.4%	45.3%	46.7%	46.8%
	Fourth year	47.4%	45.4%	45.3%	52.9%	54.8%
	Fifth year	47.4%	45.4%	49.8%	52.9%	54.8%

The above conclusions assume that the Project includes the use of recycled water and subsequent compliance with the recycling water requirements in the City's Municipal Code (Chapter 38, Article VIII (Section 38.50 et seq.)). Redwood City is not currently limited in its recycled water capacity and has sufficient supply for the project in normal and dry years. The Project's anticipated net demand for recycled water is 131.5 afy, which is well within the City's available recycled water supplies.

Scenario 2: Without Implementation of the Bay-Delta Plan Amendment

Under this Scenario this WSA determines that the City has sufficient water to meet all of its expected future water demands, including the demands of the proposed Project, in normal years and dry years through 2040. In the year 2045 they City has sufficient supply in all years with the exception of the fourth and fifth consecutive dry years in a multiple dry year scenario. When supplies will not meet demand, the City would implement its Water Shortage Contingency Plan (WSCP) to curtail demands and ensure that

its supplies remain sufficient to serve all users, including the proposed Project. For a fourth and fifth consecutive dry year in 2045 the WSCP indicates a Stage 2 water shortage will need to be declared.

Table 5. Potable Water Supply and Shortage Levels Without Bay Delta Plan (afy)

Year Type		2025	2030	2035	2040	2045
Normal Supply		12,243	12,243	12,243	12,243	12,243
2020 UWMP Projected Potable Demand		9,852	9,520	9,623	9,995	10,207
Single Dry Year Supply		9,852	9,520	9,623	9,995	10,207
Multiple Dry Years Supply	First year	9,852	9,520	9,623	9,995	10,207
	Second year	9,852	9,520	9,623	9,995	10,207
	Third year	9,852	9,520	9,623	9,995	10,207
	Fourth year	9,852	9,520	9,623	9,995	9,074
	Fifth year	9,852	9,520	9,623	9,995	9,074
Percent Shortage based on Projected Demand						
Normal Year		0%	0%	0%	0%	0%
Single Dry Year		0%	0%	0%	0%	0%
Multiple Dry Years Shortage	First year	0%	0%	0%	0%	0%
	Second year	0%	0%	0%	0%	0%
	Third year	0%	0%	0%	0%	0%
	Fourth year	0%	0%	0%	0%	11.1%
	Fifth year	0%	0%	0%	0%	11.1%

The above conclusions assume that the Project includes the use of recycled water and subsequent compliance with the recycling water requirements in the City's Municipal Code (Chapter 38, Article VIII (Section 38.50 et seq.)). Redwood City is not currently limited in its recycled water capacity and has sufficient supply for the project in normal and dry years. The Project's anticipated net demand for recycled water is 131.5 afy, which is well within the City's available recycled water supplies.

7. REFERENCES

- City of Redwood City 2020 Urban Water Management Plan (UWMP).
- *Water Supply & Development, A User's Guide to California Statutes including SB 221 (Kuehl) & SB 610 (Costa)*. Association of California Water Agencies, 2002.
- 1984 Master Sales Agreement between Suburban Purchasers and the City and County of San Francisco.
- *2018 Amended and Restated Water Supply Agreement between The City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County, and Santa Clara County*.
- *Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001*. California Department of Water Resources, October 2003.

8. ATTACHMENTS

Attachment 1: SB 610 Flowchart

Attachment 2: Harbor View - Attachment Q Worksheets

ATTACHMENT Q (1 of 3)

WATER DEMAND PROJECTION WORKSHEET

JOB TITLE Habor View
JOB NUMBER 20140182
JOB LOCATION _____

CAL. BY J. Tang
CHKD. BY _____
DATE 08-27-2021

INDOOR WATER DEMAND PROJECTION

A. RESIDENTIAL

1. Multi - Family
_____ Units X 2.2 Persons = _____ Persons

2. Single Family
_____ Units X 3.4 Persons = _____ Persons

_____ Persons X 60* GPD = _____ GPD Projected

B. OFFICE/COMMERCIAL

765,150 sqft X 0.13 gpd/sqft = 99,470 GPD Projected

C. HOTEL

_____ rooms X 195 gpd/room = _____ GPD Projected

D. RESTAURANTS

_____ seats X 30 gpd/seat = _____ GPD Projected

E. ALL OTHERS SEE PAGE 3: = 17,500 GPD Projected

For report purposes, the indoor water demand for commercial uses is assumed to be 80% non-potable water.
19,894 gpd Potable Water
79,576 gpd Recycled Water

For report purposes, the indoor water demand for commercial uses is assumed to be 80% non-potable water.
3,500 gpd Potable Water
14,000 gpd Recycled Water

LANDSCAPING WATER DEMAND PROJECTION

A. RESIDENTIAL

17 gpd X _____ persons = _____ GPD Projected

B. COMMERCIAL

332,387 sqft X 3.5 cuft of water /sqft of landscape per year = 1,163,355 CUFT/YR

To convert to GPD:

1,163,355 cuft/yr X 7.48 gal/ cuft X 1 yr/ 365 days = 23,841 GPD Projected

TOTAL DOMESTIC WATER DEMAND PROJECTION

INDOOR + LANDSCAPING PROJECTION = 140,811 GPD Projected

* From SFPUC Demand Study by URS, " Projected Water Usage for BAWSCA Agencies " , Tech Memo of August 2006.

ATTACHMENT Q (2 of 3)

WATER DEMAND PROJECTION WORKSHEET OCCUPANT LOADS

JOB TITLE _____
JOB NUMBER _____
JOB LOCATION _____

CAL. BY _____
CHKD. BY _____
DATE _____

DESIGNED USE OF THE FACILITY

OCCUPANT LOAD OF FLOOR AREA

A. SCHOOL/CLASSROOM

20 sqft/person

B. HEALTH CLUB

50 sqft/person/shift
(3 shifts per day)

35,000 sqft
Amenities
Building

C. MANUFACTURING AREAS

200 sqft/person

D. NURSERIES (DAY-CARE)

35 sqft/person

E. STORAGE FACILITIES

300 sqft/person

ATTACHMENT Q (3 of 3)

WATER DEMAND PROJECTION WORKSHEET UNIT LOADS

JOB TITLE _____
JOB NUMBER _____
JOB LOCATION _____

CAL. BY _____
CHKD. BY _____
DATE _____

TYPE OF ESTABLISHMENT

VOLUME OF CONSUMPTION/DAY

Assembly Halls	2 gal per seat	
Bowling Alley	75 gal per lane	
Churches	7 gal per seat	
Dance Halls	2 gal per person	
General Hospitals	0.27 gal per sqft	35,000 sqft
Health Clubs	25 gal per person	Amenities Building
Laundries	400 gal per machine	
Manufacturing (excluding industrial usage)	30 gal per person/shift	
Motels with bath, toilet and kitchen wastes	170 gal per room	
Nursing homes/Daycare	75 gal per person	
Medical Offices (other than hospitals)	0.18 gal per sqft	
Research and Development	0.21 gal per sqft	
Schools	35 gal per person	
Service Station	750 gal per bay	
Storage facilities	1 gal per person	
Stores (Retail type)	450 gal per 25 ft frontage	
(Food -- non-restaurant type)	900 gal per 25 ft frontage	
Trailer parks or tourist camps (with built-in bath)	50 gal per person	

SB 610 Flowchart

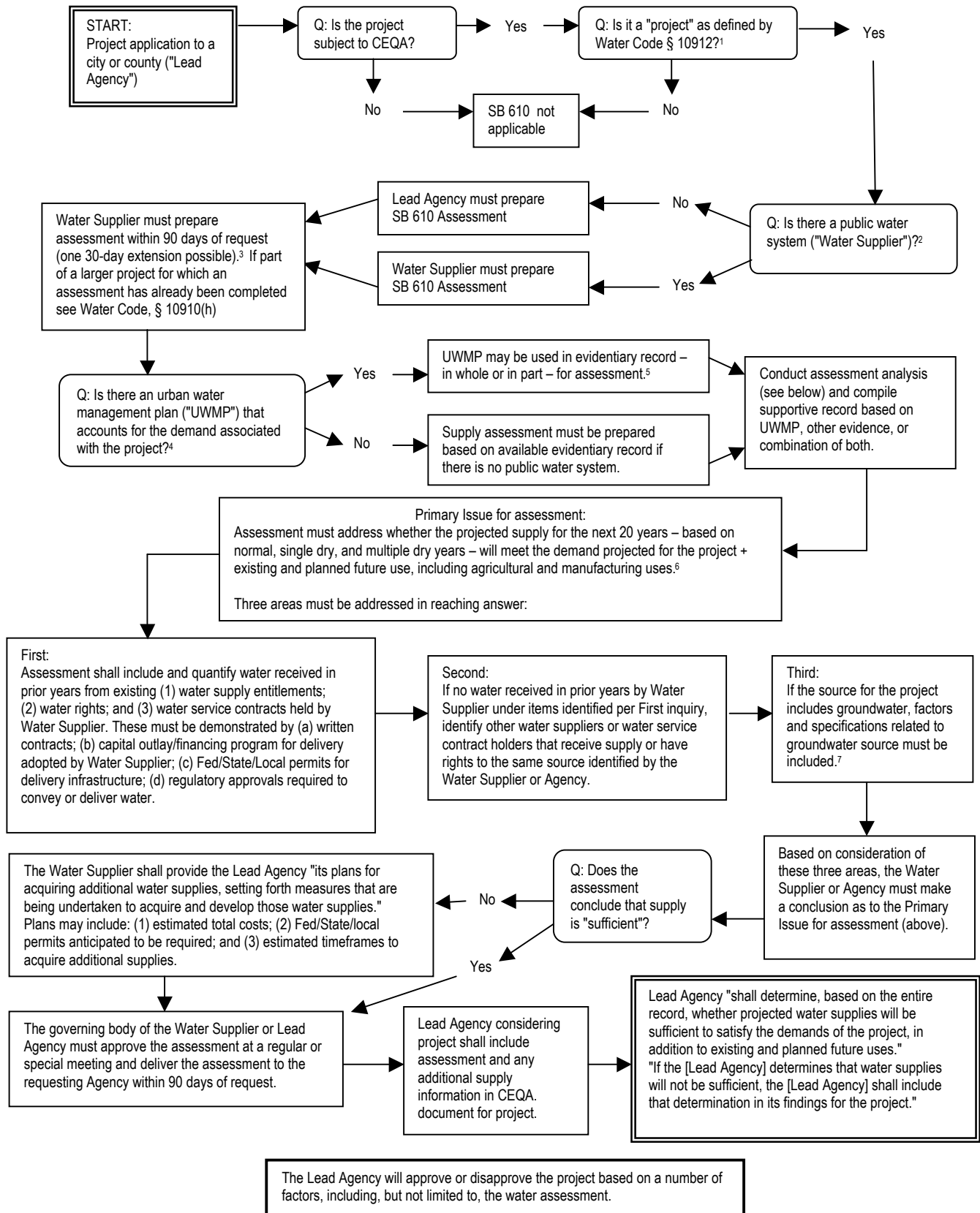


Chart Courtesy of the
The Building Industry Legal Defense

Footnote 1:

California Water Code section 10912.

For the purposes of this part, the following terms have the following meanings:

- (a) "Project" means any of the following:
 - (1) A proposed residential development of more than 500 dwelling units.
 - (2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
 - (3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
 - (4) A proposed hotel or motel, or both, having more than 500 rooms.
 - (5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
 - (6) A mixed-use project that includes one or more of the projects specified in this subdivision.
 - (7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.
- (b) If a public water system has fewer than 5,000 service connections, then "project" means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

Footnote 2:

California Water Code section 10912.

(c) "Public water system" means a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections. A public water system includes all of the following:

- (1) Any collection, treatment, storage, and distribution facility under control of the operator of the system which is used primarily in connection with the system.
- (2) Any collection or pretreatment storage facility not under the control of the operator that is used primarily in connection with the system.
- (3) Any person who treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption. It also means a system that will become a public water supplier if the project puts it over 3,000 service connections.

Footnote 3:

California Water Code section 10910, subdivision (g)(1).

Footnote 4:

The requirement for and contents of an urban water management plan are provided in California Water Code section 10631, as amended by SB 610 in 2001.

Footnote 5:

California Water Code section 10910, subdivision (c)(2) provides that the UWMP may be used, but it may or may not provide all of the information needed.

Footnote 6:

See California Water Code section 10910, subdivisions (c)(3) & (4); see also Government Code section 66473.7, subdivision (a)(2) [SB 221]

Footnote 7:

California Water Code section 10910, subdivision (f):

- (f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water assessment:
 - (1) A review of any information contained in urban water management plan relevant to the identified water supply for proposed project.
 - (2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.
 - (3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.
 - (4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.
 - (5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.