Appendix A Air Quality, Greenhouse Gas Emissions Analysis, and Health Risk Assessment

Appendix A.1 CalEEMod Modeling, Modeling Inputs, and Emission Summary Sheets

CalEEMod Inputs - Oak Ridge Elementary School Project, Construction P1

Name:	Oak Ridge Elementary School Project, Construction	
Land Use Scale:	Project/site	
Land Use Subtypes:	Educational	Elementary School
Project Location:	4501 Martin Luther King Jr Blvd	
County:	Sacramento	
Land Use Setting:	Suburban	
TAZ:	544	
Operational Year:	2025	
Electric Utility:	Sacramento Municipal Utility District (SMUD)	
Gas Utility:	Pacific Gas & Electric (PG&E)	
Air Basin:	Sacramento Valley	
Air District:	Sacramento Metropolitant AQMD	

Project Site Acreage 3.86

Disturbed Site Acreage 3.86

Project Components				
Demolition	**Building Square Feet (SQFT)**	***Tons***		
Building Demolition	0	0		
Asphalt Demolition	2,920	43		
New Construction	**Building Square Feet (SQFT)**	**Building Footprint (BSF)**	**Acres**	**Stories/Levels**
Admin/Multi-Purpose Building	17,093	17,093	0.39	1
Classrooms Building	28,245	11,605	0.27	2
Kindergarten Buildings	7,610	7,610	0.17	1
TOTAL	52,948		0.83	
Other Land Uses	**SQFT**	**Building Footprint**	**Acres**	**Number of Stalls**
Parking Lot	57,905	NA	1.33	52
Total Non-Parking Asphalt	12,300	NA	0.28	
Total Hardscape (excluding parking, hardcourts, and	39,000	NA	0.90	
Landscaping	***SQFT***	***Acres***		
Landscaping	22,500	0.52		

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Size Metric	Size	Lot Acreage	Building Square Feet	Landscape Area Square Feet	Special Landscape Area Square Feet
Educational	Elementary School	1000 sqft	52.95	0.83	52,948	22,500	0
Parking	Parking Lot	1000 sqft	57.91	1.33	57,905	0	0
Parking	Other Asphalt Surfaces	1000 sqft	12.30	0.28	12,300	0	0
Parking	Other Non-Asphalt Surfaces	1000 sqft	39.00	0.90	39,000	0	0
				3.34	**162,153**	**22,500**	**0**

Demolition

Component	Amount to be Demolished (Tons)	Haul Truck Capacity (Tons)[1]	Haul Distance (miles)[1]	Total Trip Ends	Duration (days)	Trip Ends/Day
Building Demolition Debris Haul	0	20	20	0	36	0
Asphalt Demolition Debris Haul	43	20	20	6	36	1
Total	43			6		1

Notes:

[1] CalEEMod default used.

Architectural Coating[1]

	Non-Residential
Interior Painted (%):	95%
Exterior Painted (%):	65%

SMAQMD Rule 1113	< 50 flat / ≤ 100 nonflat
CalEEMod Default	**grams/liter**
Interior Paint VOC content:	75
Exterior Paint VOC content:	75

Notes:

[1] CalEEMod default used.

Structures	Land Use Square Feet	CalEEMod Factor[1]	Total Paintable Surface Area	Paintable Interior Area[2]	Paintable Exterior Area[2]
Residential Structures					
Educational	52,948	2.0	105,896	75,451	17,208
				75,451	**17,208**
Parking[3]					
Parking Lot (Striping)	109,205	6%		-	**6,552**
			Totals	**75,451**	**23,760**

Notes:

[1] CalEEMod assumes the total surface for painting equals 2.0 times the floor square footage for non-residential use.

[2] CalEEMod methodology calculates the paintable interior and exterior areas by multiplying the total paintable surface area by 75 and 25 percent, respectively.

[3] Architectural coatings for the parking lot is based on CalEEMod default.

CalEEMod Construction Measures/Required Basic Construction Emission Control Practices (BMPs)

C-10-A	Water Exposed Surfaces	Frequency per day:	2	
		PM10:	61	% Reduction
		PM2.5:	61	% Reduction
C-11	Limit Vehicle Speeds on Unpaved Roads	Miles per hour speed limit:	25	
		PM10:	44	% Reduction
		PM25:	44	% Reduction
C-12	Sweep Paved Roads	PM10:	9	% Reduction
		PM25:	9	% Reduction

Pavement Volume to Weight Conversion P1

Component	Total SF of Area[1]	Assumed Thickness (foot)[2]	Debris Volume (cu. ft)	Weight of Crushed Asphalt (lbs/cf)[3]	AC Mass (lbs)	AC Mass (tons)
Asphalt Demo	2,920	0.333	973	89	86,519	43.26

[1] Based on information provided by applicant.

[2] Pavements and Surface Materials. Nonpoint Education for Municipal Officials, Technical Paper Number 8. University of Connecticut Cooperative Extension System, 1999.

[3] https://www.calrecycle.ca.gov/swfacilities/cdi/Tools/Calculations

Construction Activities and Schedule Assumptions: Oak Ridge Elementary School Project P1

*based on overall construction duration provided by the Applicant

Default Construction Schedule

Construction Activities	Phase Type	Start Date	End Date	CalEEMod Duration (Workday)
Demolition	Demolition	9/1/2023	9/29/2023	20
Site Preparation	Site Preparation	9/30/2023	10/7/2023	5
Rough Grading	Rough Grading	10/8/2023	10/19/2023	8
Building Construction	Building Construction	10/20/2023	9/6/2024	230
Asphalt Paving	Paving	8/13/2024	9/6/2024	18
Architectural Coating	Architectural Coating	8/13/2024	9/6/2024	18

Normalization Calculations

CalEEMod Default Duration		Construction Duration	
9/1/2023	9/6/2024	9/1/2023	7/1/2025
days of construction	371	days of construction	669
years of construction	1.02	years of construction	1.8
months of construction	12.20	months of construction	22

Normalization Factor: 1.80

P1 New Construction Schedule (CalEEMod)

Construction Activities	**Start Date**	**End Date**	**CalEEMod Duration (Workday)**
Demolition	9/1/2023	10/20/2023	36
Site Preparation	10/21/2023	11/2/2023	9
Rough Grading	11/3/2023	11/22/2023	14
Building Construction	11/23/2023	6/25/2025	415
Asphalt Paving	5/13/2025	6/25/2025	32
Architectural Coating	5/13/2025	6/25/2025	32

Overlapping Construction Schedule (CalEEMod)

Construction Activities	**Start Date**	**End Date**	**CalEEMod Duration (Workday)**
Demolition	9/1/2023	10/20/2023	36
Site Preparation	10/21/2023	11/2/2023	9
Rough Grading	11/3/2023	11/22/2023	14
Building Construction	11/23/2023	5/12/2025	415
Building Construction, Asphalt Paving, and Architectural Coating	5/13/2025	6/25/2025	32

CalEEMod Construction Off-Road Equipment Inputs P1

**Used CalEEMod default equipment.*

General Construction Hours: Mon-Fri and 8:00 AM to 7:00 PM (with 1 hr break)

Water Truck Vendor Trip Calculation

Amount of Water (gal/acre/day)[1]	Water Truck Capacity (gallons)[2]
10,000	4,000

Notes:

[1] *Based on data provided in Guidance for Application for Dust Control Permit*
Maricopa County Air Quality Department. 2005, June. Guidance for Application of Dust Control Permit.
https://www.epa.gov/sites/default/files/2019-04/documents/mr_guidanceforapplicationfordustcontrolpermit.pdf)

[2] *Based on standard water truck capacity:*
McLellan Industries. 2022, January (access). Water Trucks. https://www.mclellanindustries.com/trucks/water-trucks/

[3] *Assumes that dozers, tractors/loaders/backhoes, and graders can disturb 0.50 acres per day and scrapers can disturb 1 acre per day.*

Construction Equipment Details

CalEEMod Equipment	# of Equipment	hr/day	hp	load factor	Total Trips/Day	On-Site Water Truck Travel Distance (miles/day)
Demolition						
Concrete/Industrial Saws	1	8	33	0.73		
Rubber Tired Dozers	2	8	367	0.4		
Excavators	3	8	36	0.38		
Worker Trips/Day					15	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					1	
Water Trucks		Acres Disturbed:	1		6	0.8
Site Preparation						
Tractors/Loaders/Backhoes	4	8	84	0.37		
Rubber Tired Dozers	3	8	367	0.4		
Worker Trips/Day					18	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Water Trucks		Acres Disturbed:	3.50		18	2.9
Grading						
Graders	1	8	148	0.41		
Rubber Tired Dozers	1	8	367	0.4		
Tractors/Loaders/Backhoes	3	8	84	0.37		
Excavators	1	8	36	0.38		
Worker Trips					15	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Water Trucks		Acres Disturbed:	2.50		14	2.1
Building Construction						
Cranes	1	7	367	0.29		
Forklifts	3	8	82	0.2		
Generator Sets	1	7	14	0.74		
Tractors/Loaders/Backhoes	3	7	84	0.37		
Welders	1	8	46	0.45		
Worker Trips					22	
Vendor Trips					9	
Hauling Trips (TOTAL TRIPS)					0	
Asphalt Paving						
Cement and Mortar Mixers	2	6	10	0.56		
Pavers	1	8	81	0.42		
Rollers	2	6	36	0.38		
Paving Equipment	2	6	89	0.36		
Worker Trips					18	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Architectural Coating						
Air Compressors	1	6	37	0.48		
Worker Trips					4	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	

Construction Trips Worksheet P1

Phase Name	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Total Haul Truck Trip Ends	Start Date	End Date	Workdays
Demolition	15	6	1	9/1/2023	10/23/2023	36
Site Preparation	18	18	0	10/24/2023	11/6/2023	9
Rough Grading	15	14	0	11/7/2023	11/27/2023	14
Building Construction	22	9	0	11/28/2023	6/30/2025	415
Asphalt Paving	18	0	0	5/15/2025	6/30/2025	32
Architectural Coating	4	0	0	5/15/2025	6/30/2025	32

Construction Activity (Overlapping)	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Total Trip Ends Per Day	Start Date	End Date	Workdays
Demolition	15	6	1	9/1/2023	10/23/2023	36
Site Preparation	18	18	0	10/24/2023	11/6/2023	9
Rough Grading	15	14	0	11/7/2023	11/27/2023	14
Building Construction	22	9	0	11/28/2023	5/14/2025	415
Building Construction, Asphalt Paving, and Architectural Coating	44	9	0	5/15/2025	6/30/2025	32
Maximum Daily Trips	**44**	**18**	**0**			

CalEEMod Inputs - Oak Ridge Elementary School Project, Construction P2

Name: Oak Ridge Elementary School Project, Construction
Land Use Scale: Project/site
Land Use Subtypes: Educational Elementary School
Project Location: 4501 Martin Luther King Jr Blvd
County: Sacramento
Land Use Setting: Suburban
TAZ: 544
Operational Year: 2025
Electric Utility: Sacramento Municipal Utility District (SMUD)
Gas Utility: Pacific Gas & Electric (PG&E)
Air Basin: Sacramento Valley
Air District: Sacramento Metropolitant AQMD

Project Site Acreage 2.52
Disturbed Site Acreage 2.52

Project Components

Demolition	**Building Square Feet (SQFT)**	***Tons***		
Building Demolition	23,415	1,077		
Asphalt Demolition	44,200	655		
Landscaping	***SQFT***	***Acres***		
Landscaping	24,570	0.56		
Other Land Uses	**SQFT**	**Building Footprint**	**Acres**	**Number of Stalls**
Parking Lot	30,208	NA	0.69	Unknown
Total Non-Parking Asphalt	37,950	NA	0.87	
Total Hardscape (excluding parking, hardcourts, and aspl	16,830	NA	0.39	

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Size Metric	Size	Lot Acreage	Building Square Feet	Landscape Area Square Feet	Special Landscape Area Square Feet
Parking	Parking Lot	1000 sqft	30.21	0.69	30,208	24,570	0
Parking	Other Asphalt Surfaces	1000 sqft	37.95	0.87	37,950	0	0
Parking	Other Non-Asphalt Surfaces	1000 sqft	16.83	0.39	16,830	0	0
				1.95	**84,988**	**24,570**	**0**

Demo Haul Trip Calculation P2

Source: CalEEMod User's Guide Version 2022.1, Appendix C

Conversion factors

0.046	ton/SF
0.5	tons/cy
20	tons
40	CY
2	CY/ton

Building	BSF Demo	Tons/SF	Tons[1]	Haul Truck (CY)	Haul Truck (Ton)[2]	Round Trips	Total Trip Ends
Combined Building Demo	23,415	0.046	1,077	40	20	54	108

Notes:

[1] Tonnage of building demolition debris to be hauled offsite provided by Applicant.

[2] CalEEMod default haul truck capacity used.

Pavement Volume to Weight Conversion P2

Component	Total SF of Area[1]	Assumed Thickness (foot)[2]	Debris Volume (cu. ft)	Weight of Crushed Asphalt (lbs/cf)[3]	AC Mass (lbs)	AC Mass (tons)
Asphalt Demo	44,200	0.333	14,733	89	1,309,630	654.81

[1] Based on information provided by applicant.

[2] Pavements and Surface Materials. Nonpoint Education for Municipal Officials, Technical Paper Number 8. University of Connecticut Cooperative Extension System, 1999.

[3] https://www.calrecycle.ca.gov/swfacilities/cdi/Tools/Calculations

Construction Activities and Schedule Assumptions: Oak Ridge Elementary School Project P2

*based on overall construction duration provided by the Applicant

Default Construction Schedule

Construction Activities	Phase Type	Start Date	End Date	CalEEMod Duration (Workday)
Demolition	Demolition	5/1/2025	5/29/2025	20
Site Preparation	Site Preparation	5/30/2025	6/1/2025	2
Rough Grading	Rough Grading	6/2/2025	6/7/2025	4
Asphalt Paving	Paving	6/8/2025	6/18/2025	10
Architectural Coating	Architectural Coating	6/8/2025	6/18/2025	10

Normalization Calculations

CalEEMod Default Duration		Construction Duration	
5/1/2025	6/18/2025	5/1/2025	9/1/2025
days of construction	48	days of construction	123
years of construction	0.13	years of construction	0.34
months of construction	1.58	months of construction	4

Normalization Factor: 2.56

CalEEMod Construction Off-Road Equipment Inputs P2

**Used CalEEMod default equipment.*

General Construction Hours: Mon-Fri and 8:00 AM to 7:00 PM (with 1 hr break)

Water Truck Vendor Trip Calculation

Amount of Water (gal/acre/day)[1]	Water Truck Capacity (gallons)[2]
10,000	4,000

Notes:

[1] *Based on data provided in Guidance for Application for Dust Control Permit*
Maricopa County Air Quality Department. 2005, June. Guidance for Application of Dust Control Permit.
https://www.epa.gov/sites/default/files/2019-04/documents/mr_guidanceforapplicationfordustcontrolpermit.pdf)

[2] *Based on standard water truck capacity:*
McLellan Industries. 2022, January (access). Water Trucks. https://www.mclellanindustries.com/trucks/water-trucks/

[3] *Assumes that dozers, tractors/loaders/backhoes, and graders can disturb 0.50 acres per day and scrapers can disturb 1 acre per day.*

Construction Equipment Details

CalEEMod Equipment	# of Equipment	hr/day	hp	load factor	total trips/Day	On-Site Water Truck Travel Distance (miles/day)
Demolition						
Concrete/Industrial Saws	1	8	84	0.37		
Tractors/Loaders/Backhoes	3	8	36	0.38		
Rubber Tired Dozers	1	8	367	0.4		
Worker Trips/Day					13	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					3	
Water Trucks		Acres Disturbed:	2		10	1.7
Site Preparation						
Tractors/Loaders/Backhoes	1	8	84	0.37		
Graders	1	8	148	0.41		
Rubber Tired Dozers	1	8	367	0.4		
Worker Trips/Day					8	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Water Trucks		Acres Disturbed:	2.50		14	2.1
Grading						
Graders	1	8	148	0.41		
Rubber Tired Dozers	1	8	367	0.4		
Tractors/Loaders/Backhoes	2	8	84	0.37		
Worker Trips					10	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Water Trucks		Acres Disturbed:	2		10	1.7
Asphalt Paving						
Cement and Mortar Mixers	1	6	10	0.56		
Pavers	1	6	81	0.42		
Paving Equipment	1	8	89	0.36		
Rollers	1	7	36	0.38		
Tractors/Loaders/Backhoes	1	8	84	0.37		
Worker Trips					13	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Architectural Coating						
Air Compressors	1	6	37	0.48		
Worker Trips					4	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	

Construction Trips Worksheet P2

Phase Name	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Haul Truck Trip Ends	Total Haul Truck Trip Ends	Start Date	End Date	Workdays
Demolition	13	10	0	3	5/1/2025	5/12/2025	8
Site Preparation	8	14	0	0	5/13/2025	5/13/2025	1
Rough Grading	10	10	0	0	5/14/2025	5/15/2025	2
Asphalt Paving	13	0	0	0	5/16/2025	9/2/2025	77
Architectural Coating	4	0	0	0	8/28/2025	9/2/2025	4

Construction Activity (Overlapping)	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Haul Truck Trip Ends Per Day	Total Trip Ends Per Day	Start Date	End Date	Workdays
Demolition	13	10	0	3	5/1/2025	5/12/2025	8
Site Preparation	8	14	0	0	5/13/2025	5/13/2025	1
Rough Grading	10	10	0	0	5/14/2025	5/15/2025	2
Asphalt Paving	13	0	0	0	5/16/2025	8/27/2025	77
Building Construction, Asphalt Paving, and Architectural Coating	17	0	0	0	8/28/2025	9/2/2025	4
Maximum Daily Trips	**17**	**14**	**0**	**3**			

CalEEMod Inputs - Oak Ridge Elementary School Project, Construction P3

Name:	Oak Ridge Elementary School Project, Construction	
Land Use Scale:	Project/site	
Land Use Subtypes:	Educational	Elementary School
Project Location:	4501 Martin Luther King Jr Blvd	
County:	Sacramento	
Land Use Setting:	Suburban	
TAZ:	544	
Operational Year:	2025	
Electric Utility:	Sacramento Municipal Utility District (SMUD)	
Gas Utility:	Pacific Gas & Electric (PG&E)	
Air Basin:	Sacramento Valley	
Air District:	Sacramento Metropolitant AQMD	

Proiect Site Acreage 1.60

Disturbed Site Acreage 1.60

Project Components			
Demolition	**Building Square Feet (SQFT)**	***Tons***	
Building Demolition	19,195	883	
Asphalt Demolition	44,260	656	
Other Land Uses	**SQFT**	**Building Footprint**	**Acres**
Total Non-Parking Asphalt	5,600	NA	0.13
Landscaping	63,230	NA	1.45

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Size Metric	Size	Lot Acreage	Building Square Feet	Landscape Area Square Feet	Special Landscape Area Square Feet
Parking	Other Asphalt Surfaces	1000 sqft	5.60	0.13	5,600		63,230
				0.13	**5,600**		**63,230**

Demo Haul Trip Calculation P3

Source: CalEEMod User's Guide Version 2022.1, Appendix C

Conversion factors

0.046	ton/SF
0.5	tons/cy
20	tons
40	CY
2	CY/ton

Building	BSF Demo	Tons/SF	Tons[1]	Haul Truck (CY)	Haul Truck (Ton)[2]	Round Trips	Total Trip Ends
P3 Building Demo	19,195	0.046	883	40	20	44	88
Total	19,195					44	88

Notes:

[1] Tonnage of building demolition debris to be hauled offsite provided by Applicant.

[2] CalEEMod default haul truck capacity used.

Pavement Volume to Weight Conversion P3

Component	Total SF of Area[1]	Assumed Thickness (foot)[2]	Debris Volume (cu. ft)	Weight of Crushed Asphalt (lbs/cf)[3]	AC Mass (lbs)	AC Mass (tons)
P3 Asphalt Demo	44,260	0.333	14,753	89	1,311,407	655.70
TOTAL	**44,260**					**655.70**

[1] Based on information provided by applicant.

[2] Pavements and Surface Materials. Nonpoint Education for Municipal Officials, Technical Paper Number 8. University of Connecticut Cooperative Extension System, 1999.

[3] https://www.calrecycle.ca.gov/swfacilities/cdi/Tools/Calculations

Construction Activities and Schedule Assumptions: Oak Ridge Elementary School Project P3

*based on overall construction duration provided by the Applicant

Default Construction Schedule

Construction Activities	Phase Type	Start Date	End Date	CalEEMod Duration (Workday)
Demolition	Demolition	5/1/2025	5/15/2025	10
Site Preparation	Site Preparation	5/16/2025	5/17/2025	1
Rough Grading	Rough Grading	5/18/2025	5/20/2025	2
Asphalt Paving	Paving	5/21/2025	5/26/2025	5
Architectural Coating	Architectural Coating	5/21/2025	5/26/2025	5

Normalization Calculations

CalEEMod Default Duration		Construction Duration	
5/1/2025	5/26/2025	5/1/2025	9/1/2025
days of construction	25	days of construction	123
years of construction	0.07	years of construction	0
months of construction	0.82	months of construction	4

Normalization Factor: 4.92

CalEEMod Construction Off-Road Equipment Inputs P3

**Used CalEEMod default equipment.*

General Construction Hours: Mon-Fri and 8:00 AM to 7:00 PM (with 1 hr break)

Water Truck Vendor Trip Calculation

Amount of Water (gal/acre/day)[1]	Water Truck Capacity (gallons)[2]
10,000	4,000

Notes:

[1] *Based on data provided in Guidance for Application for Dust Control Permit*
Maricopa County Air Quality Department. 2005, June. Guidance for Application of Dust Control Permit.
https://www.epa.gov/sites/default/files/2019-04/documents/mr_guidanceforapplicationfordustcontrolpermit.pdf)

[2] *Based on standard water truck capacity:*
McLellan Industries. 2022, January (access). Water Trucks. https://www.mclellanindustries.com/trucks/water-trucks/

[3] *Assumes that dozers, tractors/loaders/backhoes, and graders can disturb 0.50 acres per day and scrapers can disturb 1 acre per day.*

Construction Equipment Details

CalEEMod Equipment	# of Equipment	hr/day	hp	load factor	total trips/Day	On-Site Water Truck Travel Distance (miles/day)
Demolition						
Concrete/Industrial Saws	1	8	33	0.73		
Tractors/Loaders/Backhoes	2	6	84	0.37		
Rubber Tired Dozers	1	1	367	0.4		
Worker Trips/Day					10	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					3	
Water Trucks		Acres Disturbed:	1.5		8	1.2
Site Preparation						
Graders	1	8	148	0.41		
Tractors/Loaders/Backhoes	1	8	84	0.37		
Worker Trips/Day					5	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Water Trucks		Acres Disturbed:	1.00		6	0.8
Grading						
Graders	1	6	148	0.41		
Rubber Tired Dozers	1	6	367	0.4		
Tractors/Loaders/Backhoes	3	7	84	0.37		
Worker Trips					8	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Water Trucks		Acres Disturbed:	2.50		14	2.1
Asphalt Paving						
Pavers	1	7	81	0.42		
Cement and Mortar Mixers	4	6	10	0.56		
Tractors/Loaders/Backhoes	1	7	84	0.37		
Rollers	1	7	36	0.38		
Worker Trips					18	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)		Acres Disturbed:	0.50		4	
Architectural Coating						
Air Compressors	1	6	37	0.48		
Worker Trips					4	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	

Construction Trips Worksheet P3

Phase Name	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Haul Truck Trip Ends	Total Haul Truck Trip Ends	Start Date	End Date	Workdays
Demolition	10	8	0	3	5/1/2025	5/12/2025	8
Site Preparation	5	6	0	0	5/13/2025	5/13/2025	1
Rough Grading	8	14	0	0	5/14/2025	5/15/2025	2
Asphalt Paving	18	0	0	4	5/16/2025	9/2/2025	78
Architectural Coating	4	0	0	0	8/28/2025	9/2/2025	4

Construction Activity (Overlapping)	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Haul Truck Trip Ends Per Day	Total Trip Ends Per Day	Start Date	End Date	Workdays
Demolition	10	8	0	3	5/1/2025	5/12/2025	8
Site Preparation	5	6	0	0	5/13/2025	5/13/2025	1
Rough Grading	8	14	0	0	5/14/2025	5/15/2025	2
Asphalt Paving	18	0	0	4	5/16/2025	8/27/2025	78
Asphalt Paving and Architectural Coating	22	0	0	4	8/28/2025	9/2/2025	4
Maximum Daily Trips	**22**	**14**	**0**	**4**			

SCUS-05 Phase 1 Custom Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SCUS-05 Phase 1
Construction Start Date	9/1/2023
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.00
Precipitation (days)	36.4
Location	38.53403326021936, -121.46406187438532
County	Sacramento
City	Sacramento
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	544
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.12

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Elementary School	52.9	1000sqft	0.83	52,948	22,500	0.00	—	—

Parking Lot	57.9	1000sqft	1.33	0.00	0.00	0.00	—	—
Other Asphalt Surfaces	12.3	1000sqft	0.28	0.00	0.00	0.00	—	—
Other Non-Asphalt Surfaces	39.0	1000sqft	0.90	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

2. Emissions Summary

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	3.50	2.92	27.9	24.7	0.03	1.20	1.36	2.56	1.11	0.17	1.28	—	3,860	3,860	0.17	0.07	1.38	3,887
2024	1.57	1.31	11.8	14.7	0.03	0.50	0.29	0.79	0.46	0.07	0.53	—	2,911	2,911	0.13	0.07	1.71	2,936
2025	2.46	13.2	17.3	23.9	0.04	0.71	0.51	1.22	0.65	0.12	0.77	—	4,344	4,344	0.17	0.08	2.58	4,376
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	4.84	4.04	41.0	36.8	0.05	1.81	22.4	24.2	1.67	10.4	12.1	—	6,026	6,026	0.26	0.13	0.06	6,072

2024	1.56	1.30	11.8	14.4	0.03	0.50	0.29	0.79	0.46	0.07	0.53	—	2,882	2,882	0.12	0.07	0.04	2,905
2025	1.47	1.22	11.0	14.2	0.03	0.44	0.29	0.73	0.40	0.07	0.47	—	2,873	2,873	0.12	0.07	0.04	2,895
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.69	0.57	5.52	5.23	0.01	0.24	1.09	1.34	0.22	0.42	0.65	—	885	885	0.04	0.02	0.17	892
2024	1.12	0.93	8.46	10.3	0.02	0.36	0.20	0.56	0.33	0.05	0.38	—	2,069	2,069	0.09	0.05	0.53	2,085
2025	0.59	1.47	4.35	5.69	0.01	0.17	0.12	0.29	0.16	0.03	0.19	—	1,116	1,116	0.05	0.02	0.28	1,125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.13	0.10	1.01	0.95	< 0.005	0.04	0.20	0.24	0.04	0.08	0.12	—	147	147	0.01	< 0.005	0.03	148
2024	0.20	0.17	1.54	1.88	< 0.005	0.07	0.04	0.10	0.06	0.01	0.07	—	342	342	0.01	0.01	0.09	345
2025	0.11	0.27	0.79	1.04	< 0.005	0.03	0.02	0.05	0.03	0.01	0.03	—	185	185	0.01	< 0.005	0.05	186

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.47	0.44	5.08	19.4	0.03	0.07	0.86	0.93	0.07	0.12	0.19	—	3,860	3,860	0.17	0.07	1.38	3,887
2024	0.49	0.44	3.39	16.4	0.03	0.08	0.29	0.37	0.08	0.07	0.15	—	2,911	2,911	0.13	0.07	1.71	2,936
2025	0.81	11.9	6.05	25.9	0.04	0.12	0.51	0.64	0.12	0.12	0.24	—	4,344	4,344	0.17	0.08	2.58	4,376
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.64	0.59	5.14	29.6	0.05	0.11	9.32	9.42	0.11	4.15	4.26	—	6,026	6,026	0.26	0.13	0.06	6,072
2024	0.48	0.43	3.45	16.1	0.03	0.08	0.29	0.37	0.08	0.07	0.15	—	2,882	2,882	0.12	0.07	0.04	2,905
2025	0.47	0.42	3.39	16.0	0.03	0.08	0.29	0.37	0.08	0.07	0.15	—	2,873	2,873	0.12	0.07	0.04	2,895
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2023	0.11	0.10	0.98	4.58	0.01	0.02	0.51	0.53	0.02	0.18	0.20	—	885	885	0.04	0.02	0.17	892
2024	0.34	0.31	2.45	11.5	0.02	0.06	0.20	0.26	0.06	0.05	0.10	—	2,069	2,069	0.09	0.05	0.53	2,085
2025	0.19	1.15	1.40	6.33	0.01	0.03	0.12	0.15	0.03	0.03	0.06	—	1,116	1,116	0.05	0.02	0.28	1,125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.02	0.02	0.18	0.84	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.04	—	147	147	0.01	< 0.005	0.03	148
2024	0.06	0.06	0.45	2.10	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	342	342	0.01	0.01	0.09	345
2025	0.03	0.21	0.26	1.15	< 0.005	0.01	0.02	0.03	0.01	0.01	0.01	—	185	185	0.01	< 0.005	0.05	186

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.39	2.84	27.3	23.5	0.03	1.20	—	1.20	1.10	—	1.10	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.06	1.06	< 0.005	0.11	0.11	—	4.74	4.74	< 0.005	< 0.005	0.01	4.99
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.39	2.84	27.3	23.5	0.03	1.20	—	1.20	1.10	—	1.10	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.06	1.06	< 0.005	0.11	0.11	—	4.71	4.71	< 0.005	< 0.005	< 0.005	4.96
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.70	2.32	< 0.005	0.12	—	0.12	0.11	—	0.11	—	338	338	0.01	< 0.005	—	339
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.10	0.10	< 0.005	0.01	0.01	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.49	0.42	< 0.005	0.02	—	0.02	0.02	—	0.02	—	55.9	55.9	< 0.005	< 0.005	—	56.1
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	1.05	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	177	177	0.01	0.01	0.77	180
Vendor	0.02	0.01	0.36	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	180	180	0.01	0.03	0.45	189
Hauling	0.01	< 0.005	0.14	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	72.8	72.8	0.01	0.01	0.15	76.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.77	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.02	159
Vendor	0.02	0.01	0.38	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	180	180	0.01	0.03	0.01	188
Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	72.8	72.8	0.01	0.01	< 0.005	76.4
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	15.9	15.9	< 0.005	< 0.005	0.03	16.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.7	17.7	< 0.005	< 0.005	0.02	18.6
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.18	7.18	< 0.005	< 0.005	0.01	7.54
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.63	2.63	< 0.005	< 0.005	0.01	2.67
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.94	2.94	< 0.005	< 0.005	< 0.005	3.08
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.19	1.19	< 0.005	< 0.005	< 0.005	1.25

3.2. Demolition (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.36	4.51	18.2	0.03	0.06	—	0.06	0.06	—	0.06	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.59	0.59	< 0.005	0.06	0.06	—	4.74	4.74	< 0.005	< 0.005	0.01	4.99
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.36	4.51	18.2	0.03	0.06	—	0.06	0.06	—	0.06	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.59	0.59	< 0.005	0.06	0.06	—	4.71	4.71	< 0.005	< 0.005	< 0.005	4.96

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.44	1.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	338	338	0.01	< 0.005	—	339
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.33	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	55.9	55.9	< 0.005	< 0.005	—	56.1
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	1.05	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	177	177	0.01	0.01	0.77	180
Vendor	0.02	0.01	0.36	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	180	180	0.01	0.03	0.45	189
Hauling	0.01	< 0.005	0.14	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	72.8	72.8	0.01	0.01	0.15	76.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.77	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.02	159
Vendor	0.02	0.01	0.38	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	180	180	0.01	0.03	0.01	188
Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	72.8	72.8	0.01	0.01	< 0.005	76.4
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	15.9	15.9	< 0.005	< 0.005	0.03	16.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.7	17.7	< 0.005	< 0.005	0.02	18.6

Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.18	7.18	< 0.005	< 0.005	0.01	7.54
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.63	2.63	< 0.005	< 0.005	0.01	2.67
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.94	2.94	< 0.005	< 0.005	< 0.005	3.08
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.19	1.19	< 0.005	< 0.005	< 0.005	1.25

3.3. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.70	3.95	39.7	35.5	0.05	1.81	—	1.81	1.66	—	1.66	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	2.39	2.39	< 0.005	0.24	0.24	—	8.48	8.48	< 0.005	< 0.005	< 0.005	8.92
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.98	0.87	< 0.005	0.04	—	0.04	0.04	—	0.04	—	131	131	0.01	< 0.005	—	131
Dust From Material Movement	—	—	—	—	—	—	0.48	0.48	—	0.25	0.25	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.18	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.6	21.6	< 0.005	< 0.005	—	21.7
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	0.90	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	183	183	< 0.005	0.01	0.02	185
Vendor	0.06	0.02	1.15	0.39	< 0.005	0.01	0.14	0.14	0.01	0.04	0.04	—	539	539	0.04	0.08	0.04	564
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.63	4.63	< 0.005	< 0.005	0.01	4.70
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.3	13.3	< 0.005	< 0.005	0.01	13.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.77	0.77	< 0.005	< 0.005	< 0.005	0.78
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.20	2.20	< 0.005	< 0.005	< 0.005	2.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.50	2.59	28.3	0.05	0.10	—	0.10	0.10	—	0.10	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movemen	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	1.34	1.34	< 0.005	0.13	0.13	—	8.48	8.48	< 0.005	< 0.005	< 0.005	8.92
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	131	131	0.01	< 0.005	—	131
Dust From Material Movemen	—	—	—	—	—	—	0.19	0.19	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.6	21.6	< 0.005	< 0.005	—	21.7

Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	0.90	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	183	183	< 0.005	0.01	0.02	185
Vendor	0.06	0.02	1.15	0.39	< 0.005	0.01	0.14	0.14	0.01	0.04	0.04	—	539	539	0.04	0.08	0.04	564
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.63	4.63	< 0.005	< 0.005	0.01	4.70
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.3	13.3	< 0.005	< 0.005	0.01	13.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.77	0.77	< 0.005	< 0.005	< 0.005	0.78
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.20	2.20	< 0.005	< 0.005	< 0.005	2.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.43	2.04	20.0	19.7	0.03	0.94	—	0.94	0.87	—	0.87	—	2,958	2,958	0.12	0.02	—	2,968
Dust From Material Movemen	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	2.78	2.78	< 0.005	0.28	0.28	—	9.61	9.61	< 0.005	< 0.005	< 0.005	10.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.77	0.76	< 0.005	0.04	—	0.04	0.03	—	0.03	—	113	113	< 0.005	< 0.005	—	114
Dust From Material Movemen	—	—	—	—	—	—	0.27	0.27	—	0.13	0.13	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.11	0.11	< 0.005	0.01	0.01	—	0.37	0.37	< 0.005	< 0.005	< 0.005	0.39
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.14	0.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	18.8	18.8	< 0.005	< 0.005	—	18.8
Dust From Material Movemen	—	—	—	—	—	—	0.05	0.05	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.77	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.02	159
Vendor	0.05	0.02	0.90	0.30	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	419	419	0.03	0.06	0.03	439
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.18	6.18	< 0.005	< 0.005	0.01	6.27
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	16.1	16.1	< 0.005	< 0.005	0.02	16.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.02	1.02	< 0.005	< 0.005	< 0.005	1.04
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.67	2.67	< 0.005	< 0.005	< 0.005	2.79
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Grading (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.29	2.04	17.8	0.03	0.06	—	0.06	0.06	—	0.06	—	2,958	2,958	0.12	0.02	—	2,968

Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	1.56	1.56	< 0.005	0.16	0.16	—	9.61	9.61	< 0.005	< 0.005	< 0.005	10.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	113	113	< 0.005	< 0.005	—	114
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.37	0.37	< 0.005	< 0.005	< 0.005	0.39
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.8	18.8	< 0.005	< 0.005	—	18.8
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.77	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.02	159
Vendor	0.05	0.02	0.90	0.30	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	419	419	0.03	0.06	0.03	439
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.18	6.18	< 0.005	< 0.005	0.01	6.27
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	16.1	16.1	< 0.005	< 0.005	0.02	16.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.02	1.02	< 0.005	< 0.005	< 0.005	1.04
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.67	2.67	< 0.005	< 0.005	< 0.005	2.79
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.50	1.26	11.8	13.2	0.02	0.55	—	0.55	0.51	—	0.51	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.10	0.90	1.01	< 0.005	0.04	—	0.04	0.04	—	0.04	—	183	183	0.01	< 0.005	—	184
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.02	0.16	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	30.3	30.3	< 0.005	< 0.005	—	30.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.11	1.14	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	233	233	0.01	0.01	0.03	235
Vendor	0.03	0.01	0.56	0.19	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	260	260	0.02	0.04	0.02	272
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.2	18.2	< 0.005	< 0.005	0.04	18.5
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	19.9	19.9	< 0.005	< 0.005	0.02	20.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.02	3.02	< 0.005	< 0.005	0.01	3.06
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.29	3.29	< 0.005	< 0.005	< 0.005	3.44
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.33	2.84	14.8	0.02	0.08	—	0.08	0.07	—	0.07	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.22	1.13	< 0.005	0.01	—	0.01	0.01	—	0.01	—	183	183	0.01	< 0.005	—	184
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	30.3	30.3	< 0.005	< 0.005	—	30.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.11	1.14	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	233	233	0.01	0.01	0.03	235
Vendor	0.03	0.01	0.56	0.19	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	260	260	0.02	0.04	0.02	272
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.2	18.2	< 0.005	< 0.005	0.04	18.5
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	19.9	19.9	< 0.005	< 0.005	0.02	20.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.02	3.02	< 0.005	< 0.005	0.01	3.06
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.29	3.29	< 0.005	< 0.005	< 0.005	3.44
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.03	0.86	8.04	9.39	0.02	0.36	—	0.36	0.33	—	0.33	—	1,717	1,717	0.07	0.01	—	1,723

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.47	1.71	< 0.005	0.07	—	0.07	0.06	—	0.06	—	284	284	0.01	< 0.005	—	285
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.07	1.44	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	258	258	0.01	0.01	1.05	262
Vendor	0.03	0.01	0.49	0.18	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	0.02	0.04	0.65	268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.10	1.06	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	229	229	0.01	0.01	0.03	231
Vendor	0.03	0.01	0.52	0.18	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	0.02	0.04	0.02	267
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.78	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	168	168	< 0.005	0.01	0.33	170
Vendor	0.02	0.01	0.37	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	183	183	0.01	0.03	0.20	192
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.8	27.8	< 0.005	< 0.005	0.05	28.2
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.3	30.3	< 0.005	< 0.005	0.03	31.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.33	2.83	14.8	0.02	0.08	—	0.08	0.07	—	0.07	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.33	2.83	14.8	0.02	0.08	—	0.08	0.07	—	0.07	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.24	2.03	10.6	0.02	0.05	—	0.05	0.05	—	0.05	—	1,717	1,717	0.07	0.01	—	1,723
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.37	1.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	284	284	0.01	< 0.005	—	285
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.07	1.44	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	258	258	0.01	0.01	1.05	262
Vendor	0.03	0.01	0.49	0.18	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	0.02	0.04	0.65	268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.10	1.06	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	229	229	0.01	0.01	0.03	231
Vendor	0.03	0.01	0.52	0.18	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	0.02	0.04	0.02	267
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.78	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	168	168	< 0.005	0.01	0.33	170
Vendor	0.02	0.01	0.37	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	183	183	0.01	0.03	0.20	192
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.8	27.8	< 0.005	< 0.005	0.05	28.2
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.3	30.3	< 0.005	< 0.005	0.03	31.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.39	3.60	4.49	0.01	0.15	—	0.15	0.14	—	0.14	—	826	826	0.03	0.01	—	829
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.66	0.82	< 0.005	0.03	—	0.03	0.02	—	0.02	—	137	137	0.01	< 0.005	—	137
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.06	1.34	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	252	252	< 0.005	0.01	0.97	256
Vendor	0.03	0.01	0.45	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	251	251	0.02	0.04	0.65	263
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.99	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	224	224	0.01	0.01	0.03	227

Vendor	0.03	0.01	0.49	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	251	251	0.02	0.04	0.02	262
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.35	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	79.2	79.2	< 0.005	< 0.005	0.14	80.3
Vendor	0.01	< 0.005	0.16	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	86.4	86.4	0.01	0.01	0.10	90.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.1	13.1	< 0.005	< 0.005	0.02	13.3
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.3	14.3	< 0.005	< 0.005	0.02	15.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.33	2.82	14.8	0.02	0.08	—	0.08	0.07	—	0.07	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.33	2.82	14.8	0.02	0.08	—	0.08	0.07	—	0.07	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.11	0.97	5.11	0.01	0.03	—	0.03	0.03	—	0.03	—	826	826	0.03	0.01	—	829
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.18	0.93	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	137	137	0.01	< 0.005	—	137
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.06	1.34	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	252	252	< 0.005	0.01	0.97	256
Vendor	0.03	0.01	0.45	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	251	251	0.02	0.04	0.65	263
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.99	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	224	224	0.01	0.01	0.03	227
Vendor	0.03	0.01	0.49	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	251	251	0.02	0.04	0.02	262
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.35	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	79.2	79.2	< 0.005	< 0.005	0.14	80.3
Vendor	0.01	< 0.005	0.16	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	86.4	86.4	0.01	0.01	0.10	90.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.1	13.1	< 0.005	< 0.005	0.02	13.3

Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.3	14.3	< 0.005	< 0.005	0.02	15.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.61	5.42	6.93	0.01	0.24	—	0.24	0.22	—	0.22	—	1,060	1,060	0.04	0.01	—	1,064
Paving	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.48	0.61	< 0.005	0.02	—	0.02	0.02	—	0.02	—	92.9	92.9	< 0.005	< 0.005	—	93.3
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.4	15.4	< 0.005	< 0.005	—	15.4
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	1.05	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	199	199	< 0.005	0.01	0.76	202
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.9	15.9	< 0.005	< 0.005	0.03	16.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.63	2.63	< 0.005	< 0.005	< 0.005	2.66
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.14. Paving (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.19	1.99	7.32	0.01	0.04	—	0.04	0.04	—	0.04	—	1,060	1,060	0.04	0.01	—	1,064
Paving	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.64	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	92.9	92.9	< 0.005	< 0.005	—	93.3
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.4	15.4	< 0.005	< 0.005	—	15.4
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	1.05	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	199	199	< 0.005	0.01	0.76	202
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.9	15.9	< 0.005	< 0.005	0.03	16.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.63	2.63	< 0.005	< 0.005	< 0.005	2.66
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	11.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.7	11.7	< 0.005	< 0.005	—	11.7
Architectural Coatings	—	0.97	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.94	1.94	< 0.005	< 0.005	—	1.94
Architectural Coatings	—	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.27	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	50.5	50.5	< 0.005	< 0.005	0.19	51.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.03	4.03	< 0.005	< 0.005	0.01	4.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.67	0.67	< 0.005	< 0.005	< 0.005	0.68
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.16. Architectural Coating (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	11.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.7	11.7	< 0.005	< 0.005	—	11.7
Architectural Coatings	—	0.97	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.94	1.94	< 0.005	< 0.005	—	1.94
Architectural Coatings	—	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.27	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	50.5	50.5	< 0.005	< 0.005	0.19	51.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.03	4.03	< 0.005	< 0.005	0.01	4.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.67	0.67	< 0.005	< 0.005	< 0.005	0.68
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	9/1/2023	10/20/2023	5.00	36.0	—
Site Preparation	Site Preparation	10/21/2023	11/2/2023	5.00	9.00	—
Grading	Grading	11/3/2023	11/22/2023	5.00	14.0	—
Building Construction	Building Construction	11/23/2023	6/25/2025	5.00	415	—
Paving	Paving	5/13/2025	6/25/2025	5.00	32.0	—
Architectural Coating	Architectural Coating	5/13/2025	6/25/2025	5.00	32.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	6.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Tier 4 Final	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Tier 4 Final	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 4 Final	1.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Tier 4 Final	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Final	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Tier 4 Final	2.00	6.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	14.3	LDA,LDT1,LDT2
Demolition	Vendor	6.00	8.80	HHDT,MHDT
Demolition	Hauling	0.94	20.0	HHDT
Demolition	Onsite truck	1.00	0.80	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	18.0	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.80	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	14.0	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	1.00	2.10	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	22.2	14.3	LDA,LDT1,LDT2
Building Construction	Vendor	8.68	8.80	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	0.00	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	0.00	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.45	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	14.3	LDA,LDT1,LDT2
Demolition	Vendor	6.00	8.80	HHDT,MHDT
Demolition	Hauling	0.94	20.0	HHDT
Demolition	Onsite truck	1.00	0.80	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	18.0	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.80	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	14.0	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	1.00	2.10	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	22.2	14.3	LDA,LDT1,LDT2
Building Construction	Vendor	8.68	8.80	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT

Building Construction	Onsite truck	0.00	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	0.00	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.45	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	75,451	17,208	6,553

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	2,920	—
Site Preparation	0.00	0.00	13.5	0.00	—

Grading	0.00	0.00	14.0	0.00	—
Paving	0.00	0.00	0.00	0.00	2.51

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Elementary School	0.00	0%
Parking Lot	1.33	100%
Other Asphalt Surfaces	0.28	100%
Other Non-Asphalt Surfaces	0.90	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	375	0.01	< 0.005
2024	0.00	375	0.01	< 0.005
2025	0.00	375	0.01	< 0.005

8. User Changes to Default Data

Screen	Justification
Land Use	Overridden to accommodate the specificity provided by the client for the "building square feet"
Construction: Architectural Coatings	Updated coated area for non-residential interior and exterior areas based on information provided by architect.
Construction: Construction Phases	Phase 1 schedule
Construction: Off-Road Equipment	Removed for construction equipment overlap

Construction: Dust From Material Movement	anticipated site disturbance based on equipment use

SCUS-5 Phase 2 Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SCUS-5 Phase 2
Construction Start Date	5/1/2025
Lead Agency	Sacramento City Unified School District
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.00
Precipitation (days)	36.4
Location	38.53412936744945, -121.46400993961811
County	Sacramento
City	Sacramento
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	544
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.12

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Parking Lot	30.2	1000sqft	0.69	0.00	24,570	0.00	—	—

Other Asphalt Surfaces	38.0	1000sqft	0.87	0.00	0.00	0.00	—	—
Other Non-Asphalt Surfaces	16.8	1000sqft	0.39	16,830	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

2. Emissions Summary

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.92	1.74	15.6	16.5	0.03	0.65	9.51	10.2	0.60	3.69	4.29	—	3,562	3,562	0.18	0.17	2.63	3,619
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.40	0.40	3.17	3.45	0.01	0.12	0.86	0.99	0.11	0.21	0.32	—	694	694	0.03	0.03	0.19	703
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2025	0.07	0.07	0.58	0.63	< 0.005	0.02	0.16	0.18	0.02	0.04	0.06	—	115	115	0.01	< 0.005	0.03	116

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.42	1.28	3.99	16.0	0.03	0.06	4.20	4.25	0.06	1.51	1.56	—	3,562	3,562	0.18	0.17	2.63	3,619
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.09	0.15	0.78	3.38	0.01	0.01	0.47	0.49	0.01	0.10	0.12	—	694	694	0.03	0.03	0.19	703
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.02	0.03	0.14	0.62	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.02	—	115	115	0.01	< 0.005	0.03	116

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.75	1.47	13.9	15.1	0.02	0.57	—	0.57	0.52	—	0.52	—	2,494	2,494	0.10	0.02	—	2,502

Demolition	—	—	—	—	—	—	0.75	0.75	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	2.25	2.25	< 0.005	0.23	0.23	—	7.84	7.84	< 0.005	< 0.005	0.01	8.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.21	1.95	2.11	< 0.005	0.08	—	0.08	0.07	—	0.07	—	348	348	0.01	< 0.005	—	350
Demolition	—	—	—	—	—	—	0.10	0.10	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.31	0.31	< 0.005	0.03	0.03	—	1.09	1.09	< 0.005	< 0.005	< 0.005	1.15
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.36	0.38	< 0.005	0.01	—	0.01	0.01	—	0.01	—	57.7	57.7	< 0.005	< 0.005	—	57.9
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.19
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	142	142	< 0.005	0.01	0.54	144
Vendor	0.03	0.01	0.52	0.19	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	289	289	0.02	0.04	0.75	303
Hauling	0.08	0.02	1.13	0.44	< 0.005	0.01	0.16	0.17	0.01	0.04	0.05	—	629	629	0.06	0.10	1.32	662
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.1	18.1	< 0.005	< 0.005	0.03	18.3
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.4	40.4	< 0.005	0.01	0.05	42.3
Hauling	0.01	< 0.005	0.17	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.9	87.9	0.01	0.01	0.08	92.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.99	2.99	< 0.005	< 0.005	0.01	3.03
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.69	6.69	< 0.005	< 0.005	0.01	7.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.6	14.6	< 0.005	< 0.005	0.01	15.3

3.2. Demolition (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.25	2.27	14.6	0.02	0.05	—	0.05	0.05	—	0.05	—	2,494	2,494	0.10	0.02	—	2,502
Demolition	—	—	—	—	—	—	0.48	0.48	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	1.26	1.26	< 0.005	0.13	0.13	—	7.84	7.84	< 0.005	< 0.005	0.01	8.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.32	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	348	348	0.01	< 0.005	—	350

Demolition	—	—	—	—	—	—	0.07	0.07	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	1.09	1.09	< 0.005	< 0.005	< 0.005	1.15
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.37	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	57.7	57.7	< 0.005	< 0.005	—	57.9
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.19
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	142	142	< 0.005	0.01	0.54	144
Vendor	0.03	0.01	0.52	0.19	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	289	289	0.02	0.04	0.75	303
Hauling	0.08	0.02	1.13	0.44	< 0.005	0.01	0.16	0.17	0.01	0.04	0.05	—	629	629	0.06	0.10	1.32	662
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.1	18.1	< 0.005	< 0.005	0.03	18.3
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.4	40.4	< 0.005	0.01	0.05	42.3
Hauling	0.01	< 0.005	0.17	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.9	87.9	0.01	0.01	0.08	92.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.99	2.99	< 0.005	< 0.005	0.01	3.03
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.69	6.69	< 0.005	< 0.005	0.01	7.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.6	14.6	< 0.005	< 0.005	0.01	15.3

3.3. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.56	1.31	12.1	12.1	0.02	0.56	—	0.56	0.52	—	0.52	—	2,065	2,065	0.08	0.02	—	2,072
Dust From Material Movemen	—	—	—	—	—	—	6.26	6.26	—	3.00	3.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	2.78	2.78	< 0.005	0.28	0.28	—	9.28	9.28	< 0.005	< 0.005	0.02	9.77
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.17	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.3	28.3	< 0.005	< 0.005	—	28.4
Dust From Material Movemen	—	—	—	—	—	—	0.09	0.09	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.13
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.68	4.68	< 0.005	< 0.005	—	4.70

Dust From Material Movemen	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85.1	85.1	< 0.005	< 0.005	0.33	86.4
Vendor	0.04	0.02	0.73	0.27	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	405	405	0.03	0.06	1.05	424
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.06	1.06	< 0.005	< 0.005	< 0.005	1.08
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.55	5.55	< 0.005	< 0.005	0.01	5.81
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	0.96
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.19	1.01	11.9	0.02	0.04	—	0.04	0.04	—	0.04	—	2,065	2,065	0.08	0.02	—	2,072
Dust From Material Movemen	—	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	1.56	1.56	< 0.005	0.16	0.16	—	9.28	9.28	< 0.005	< 0.005	0.02	9.77
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.3	28.3	< 0.005	< 0.005	—	28.4
Dust From Material Movemen	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.13
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.68	4.68	< 0.005	< 0.005	—	4.70
Dust From Material Movemen	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85.1	85.1	< 0.005	< 0.005	0.33	86.4
Vendor	0.04	0.02	0.73	0.27	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	405	405	0.03	0.06	1.05	424
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.06	1.06	< 0.005	< 0.005	< 0.005	1.08
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.55	5.55	< 0.005	< 0.005	0.01	5.81
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	0.96
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.80	1.51	14.1	14.5	0.02	0.64	—	0.64	0.59	—	0.59	—	2,455	2,455	0.10	0.02	—	2,463

Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	2.25	2.25	< 0.005	0.23	0.23	—	7.84	7.84	< 0.005	< 0.005	0.01	8.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.40	< 0.005	0.02	—	0.02	0.02	—	0.02	—	67.3	67.3	< 0.005	< 0.005	—	67.5
Dust From Material Movement	—	—	—	—	—	—	0.19	0.19	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.23
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.1	11.1	< 0.005	< 0.005	—	11.2
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	114	114	< 0.005	< 0.005	0.44	115
Vendor	0.03	0.01	0.52	0.19	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	289	289	0.02	0.04	0.75	303
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	0.01	2.87
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.92	7.92	< 0.005	< 0.005	0.01	8.29
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.48
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.31	1.31	< 0.005	< 0.005	< 0.005	1.37
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.23	1.20	14.2	0.02	0.05	—	0.05	0.05	—	0.05	—	2,455	2,455	0.10	0.02	—	2,463
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	1.26	1.26	< 0.005	0.13	0.13	—	7.84	7.84	< 0.005	< 0.005	0.01	8.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.03	0.39	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	67.3	67.3	< 0.005	< 0.005	—	67.5
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.23
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.1	11.1	< 0.005	< 0.005	—	11.2
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	114	114	< 0.005	< 0.005	0.44	115
Vendor	0.03	0.01	0.52	0.19	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	289	289	0.02	0.04	0.75	303
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	0.01	2.87
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.92	7.92	< 0.005	< 0.005	0.01	8.29

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.48
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.31	1.31	< 0.005	< 0.005	< 0.005	1.37
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.49	4.63	6.50	0.01	0.20	—	0.20	0.19	—	0.19	—	992	992	0.04	0.01	—	995
Paving	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.33	0.46	< 0.005	0.01	—	0.01	0.01	—	0.01	—	70.6	70.6	< 0.005	< 0.005	—	70.9
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.7	11.7	< 0.005	< 0.005	—	11.7

Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	142	142	< 0.005	0.01	0.54	144
Vendor	-0.01	> -0.005	-0.10	-0.04	> -0.005	> -0.005	-0.02	-0.02	> -0.005	> -0.005	> -0.005	—	-57.8	-57.8	> -0.005	-0.01	-0.15	-60.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.21	9.21	< 0.005	< 0.005	0.02	9.34
Vendor	> -0.005	> -0.005	-0.01	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	—	-4.12	-4.12	> -0.005	> -0.005	> -0.005	-4.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.55
Vendor	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	—	-0.68	-0.68	> -0.005	> -0.005	> -0.005	-0.71
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Paving (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.15	0.14	1.30	6.89	0.01	0.03	—	0.03	0.03	—	0.03	—	992	992	0.04	0.01	—	995
Paving	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.49	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	70.6	70.6	< 0.005	< 0.005	—	70.9
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.7	11.7	< 0.005	< 0.005	—	11.7
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	142	142	< 0.005	0.01	0.54	144
Vendor	-0.01	> -0.005	-0.10	-0.04	> -0.005	> -0.005	-0.02	-0.02	> -0.005	> -0.005	> -0.005	—	-57.8	-57.8	> -0.005	-0.01	-0.15	-60.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.21	9.21	< 0.005	< 0.005	0.02	9.34
Vendor	> -0.005	> -0.005	-0.01	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	—	-4.12	-4.12	> -0.005	> -0.005	> -0.005	-4.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.55
Vendor	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	—	-0.68	-0.68	> -0.005	> -0.005	> -0.005	-0.71
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	0.91	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.54
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.57	1.57	< 0.005	< 0.005	—	1.58
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Architectural Coating (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	0.91	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.54
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.57	1.57	< 0.005	< 0.005	—	1.58
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	5/1/2025	7/10/2025	5.00	51.0	—
Site Preparation	Site Preparation	7/11/2025	7/17/2025	5.00	5.00	—
Grading	Grading	7/18/2025	7/31/2025	5.00	10.0	—
Paving	Paving	8/1/2025	9/5/2025	5.00	26.0	—
Architectural Coating	Architectural Coating	8/1/2025	9/5/2025	5.00	26.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Site Preparation	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	7.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Tier 4 Final	1.00	6.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Final	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 4 Final	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	14.3	LDA,LDT1,LDT2
Demolition	Vendor	10.0	8.80	HHDT,MHDT
Demolition	Hauling	8.49	20.0	HHDT

Demolition	Onsite truck	1.00	1.70	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	14.0	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	2.10	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	10.0	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	1.00	1.70	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	-2.00	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	14.3	LDA,LDT1,LDT2
Demolition	Vendor	10.0	8.80	HHDT,MHDT

Demolition	Hauling	8.49	20.0	HHDT
Demolition	Onsite truck	1.00	1.70	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	14.0	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	2.10	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	10.0	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	1.00	1.70	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	-2.00	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	0.00	0.00	5,099

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Ton of Debris)	Material Exported (Ton of Debris)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	1,732	—
Site Preparation	0.00	0.00	4.69	0.00	—
Grading	0.00	0.00	10.0	0.00	—
Paving	0.00	0.00	0.00	0.00	1.95

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Parking Lot	0.69	100%
Other Asphalt Surfaces	0.87	100%
Other Non-Asphalt Surfaces	0.39	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O

2025	0.00	375	0.01	< 0.005

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Adjusted to account for overlapping construction schedule.
Construction: Trips and VMT	included water trucks

SCUS-5 Phase 3 Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SCUS-5 Phase 3
Construction Start Date	5/1/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.00
Precipitation (days)	36.4
Location	38.533984847293596, -121.46392544771638
County	Sacramento
City	Sacramento
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	544
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.12

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	5.60	1000sqft	0.13	0.00	0.00	63,230	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

2. Emissions Summary

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.37	1.14	10.9	10.8	0.02	0.47	8.28	8.75	0.43	2.89	3.33	—	2,213	2,213	0.11	0.14	2.27	2,240
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.20	0.16	1.52	1.77	< 0.005	0.05	0.61	0.66	0.05	0.13	0.18	—	392	392	0.02	0.02	0.17	399
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.04	0.03	0.28	0.32	< 0.005	0.01	0.11	0.12	0.01	0.02	0.03	—	64.8	64.8	< 0.005	< 0.005	0.03	66.0

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.37	0.40	2.99	10.5	0.02	0.06	3.81	3.85	0.06	1.20	1.24	—	2,213	2,213	0.11	0.14	2.27	2,240
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.06	0.06	0.66	1.77	< 0.005	0.01	0.35	0.36	0.01	0.07	0.08	—	392	392	0.02	0.02	0.17	399
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.01	0.01	0.12	0.32	< 0.005	< 0.005	0.06	0.07	< 0.005	0.01	0.01	—	64.8	64.8	< 0.005	< 0.005	0.03	66.0

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	4.33	5.65	0.01	0.16	—	0.16	0.14	—	0.14	—	852	852	0.03	0.01	—	855
Demolition	—	—	—	—	—	—	0.69	0.69	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.59	1.59	< 0.005	0.16	0.16	—	6.03	6.03	< 0.005	< 0.005	0.01	6.34

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.58	0.76	< 0.005	0.02	—	0.02	0.02	—	0.02	—	114	114	< 0.005	< 0.005	—	115
Demolition	—	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.21	0.21	< 0.005	0.02	0.02	—	0.81	0.81	< 0.005	< 0.005	< 0.005	0.85
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.11	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.9	18.9	< 0.005	< 0.005	—	19.0
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.14
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	114	114	< 0.005	< 0.005	0.44	115
Vendor	0.03	0.01	0.42	0.16	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	231	231	0.02	0.03	0.60	243
Hauling	0.07	0.02	1.05	0.41	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	582	582	0.06	0.09	1.22	612
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.9	13.9	< 0.005	< 0.005	0.03	14.1
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.1	31.1	< 0.005	< 0.005	0.03	32.5
Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	78.2	78.2	0.01	0.01	0.07	82.1

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.30	2.30	< 0.005	< 0.005	< 0.005	2.33
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.14	5.14	< 0.005	< 0.005	0.01	5.38
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.9	12.9	< 0.005	< 0.005	0.01	13.6

3.2. Demolition (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.10	1.47	5.63	0.01	0.02	—	0.02	0.02	—	0.02	—	852	852	0.03	0.01	—	855
Demolition	—	—	—	—	—	—	0.44	0.44	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.89	0.89	< 0.005	0.09	0.09	—	6.03	6.03	< 0.005	< 0.005	0.01	6.34
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.20	0.76	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	114	114	< 0.005	< 0.005	—	115
Demolition	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.12	0.12	< 0.005	0.01	0.01	—	0.81	0.81	< 0.005	< 0.005	< 0.005	0.85
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.9	18.9	< 0.005	< 0.005	—	19.0

Demolitio	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.14
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	114	114	< 0.005	< 0.005	0.44	115
Vendor	0.03	0.01	0.42	0.16	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	231	231	0.02	0.03	0.60	243
Hauling	0.07	0.02	1.05	0.41	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	582	582	0.06	0.09	1.22	612
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.9	13.9	< 0.005	< 0.005	0.03	14.1
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.1	31.1	< 0.005	< 0.005	0.03	32.5
Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	78.2	78.2	0.01	0.01	0.07	82.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.30	2.30	< 0.005	< 0.005	< 0.005	2.33
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.14	5.14	< 0.005	< 0.005	0.01	5.38
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.9	12.9	< 0.005	< 0.005	0.01	13.6

3.3. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.56	0.47	4.16	5.57	0.01	0.21	—	0.21	0.20	—	0.20	—	859	859	0.03	0.01	—	862
Dust From Material Movement	—	—	—	—	—	—	0.53	0.53	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.06	1.06	< 0.005	0.11	0.11	—	4.58	4.58	< 0.005	< 0.005	0.01	4.82
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.8	11.8	< 0.005	< 0.005	—	11.8
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.07
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.95	1.95	< 0.005	< 0.005	—	1.95
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.30	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	56.8	56.8	< 0.005	< 0.005	0.22	57.6

Vendor	0.02	0.01	0.31	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	174	174	0.01	0.03	0.45	182
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.71	0.71	< 0.005	< 0.005	< 0.005	0.72
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.38	2.38	< 0.005	< 0.005	< 0.005	2.49
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.12	0.12	< 0.005	< 0.005	< 0.005	0.12
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.39	0.39	< 0.005	< 0.005	< 0.005	0.41
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.08	0.42	5.99	0.01	0.02	—	0.02	0.02	—	0.02	—	859	859	0.03	0.01	—	862
Dust From Material Movemen	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.59	0.59	< 0.005	0.06	0.06	—	4.58	4.58	< 0.005	< 0.005	0.01	4.82

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.8	11.8	< 0.005	< 0.005	—	11.8
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.07
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.95	1.95	< 0.005	< 0.005	—	1.95
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.30	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	56.8	56.8	< 0.005	< 0.005	0.22	57.6
Vendor	0.02	0.01	0.31	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	174	174	0.01	0.03	0.45	182
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.71	0.71	< 0.005	< 0.005	< 0.005	0.72
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.38	2.38	< 0.005	< 0.005	< 0.005	2.49
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.12	0.12	< 0.005	< 0.005	< 0.005	0.12
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.39	0.39	< 0.005	< 0.005	< 0.005	0.41
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.29	1.09	10.1	10.0	0.02	0.46	—	0.46	0.43	—	0.43	—	1,714	1,714	0.07	0.01	—	1,720
Dust From Material Movement	—	—	—	—	—	—	5.31	5.31	—	2.57	2.57	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	2.78	2.78	< 0.005	0.28	0.28	—	9.28	9.28	< 0.005	< 0.005	0.02	9.77
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.28	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	47.0	47.0	< 0.005	< 0.005	—	47.1

Dust From Material Movemen	—	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.27
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.77	7.77	< 0.005	< 0.005	—	7.80
Dust From Material Movemen	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85.1	85.1	< 0.005	< 0.005	0.33	86.4
Vendor	0.04	0.02	0.73	0.27	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	405	405	0.03	0.06	1.05	424
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.13	2.13	< 0.005	< 0.005	< 0.005	2.15
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.01	11.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.36
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.92

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.16	0.84	9.79	0.02	0.03	—	0.03	0.03	—	0.03	—	1,714	1,714	0.07	0.01	—	1,720
Dust From Material Movemen	—	—	—	—	—	—	2.07	2.07	—	1.00	1.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	1.56	1.56	< 0.005	0.16	0.16	—	9.28	9.28	< 0.005	< 0.005	0.02	9.77
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.27	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	47.0	47.0	< 0.005	< 0.005	—	47.1
Dust From Material Movemen	—	—	—	—	—	—	0.06	0.06	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.27
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.77	7.77	< 0.005	< 0.005	—	7.80

Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85.1	85.1	< 0.005	< 0.005	0.33	86.4
Vendor	0.04	0.02	0.73	0.27	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	405	405	0.03	0.06	1.05	424
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.13	2.13	< 0.005	< 0.005	< 0.005	2.15
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.01	11.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.36
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.92
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.51	4.37	5.31	0.01	0.19	—	0.19	0.18	—	0.18	—	823	823	0.03	0.01	—	826
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.30	0.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	56.4	56.4	< 0.005	< 0.005	—	56.6
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.34	9.34	< 0.005	< 0.005	—	9.37
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	1.05	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	199	199	< 0.005	0.01	0.76	202
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.4	12.4	< 0.005	< 0.005	0.02	12.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.05	2.05	< 0.005	< 0.005	< 0.005	2.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Paving (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	2.09	5.55	0.01	0.06	—	0.06	0.06	—	0.06	—	823	823	0.03	0.01	—	826
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.02	0.14	0.38	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	56.4	56.4	< 0.005	< 0.005	—	56.6
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.34	9.34	< 0.005	< 0.005	—	9.37
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	1.05	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	199	199	< 0.005	0.01	0.76	202
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.4	12.4	< 0.005	< 0.005	0.02	12.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.05	2.05	< 0.005	< 0.005	< 0.005	2.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.15	9.15	< 0.005	< 0.005	—	9.18
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.51	1.51	< 0.005	< 0.005	—	1.52
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Architectural Coating (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.15	9.15	< 0.005	< 0.005	—	9.18
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.51	1.51	< 0.005	< 0.005	—	1.52
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	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	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	5/1/2025	7/8/2025	5.00	49.0	—
Site Preparation	Site Preparation	7/10/2025	7/16/2025	5.00	5.00	—
Grading	Grading	7/17/2025	7/30/2025	5.00	10.0	—
Paving	Paving	7/31/2025	9/3/2025	5.00	25.0	—
Architectural Coating	Architectural Coating	7/31/2025	9/3/2025	5.00	25.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	1.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	6.00	84.0	0.37
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	1.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	6.00	84.0	0.37
Site Preparation	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37

Grading	Graders	Diesel	Tier 4 Final	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	7.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Tier 4 Final	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Tier 4 Final	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	14.3	LDA,LDT1,LDT2
Demolition	Vendor	8.00	8.80	HHDT,MHDT
Demolition	Hauling	7.86	20.0	HHDT
Demolition	Onsite truck	1.00	1.20	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	6.00	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	0.80	HHDT
Grading	—	—	—	—
Grading	Worker	7.50	14.3	LDA,LDT1,LDT2

Grading	Vendor	14.0	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	1.00	2.10	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	0.00	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	14.3	LDA,LDT1,LDT2
Demolition	Vendor	8.00	8.80	HHDT,MHDT
Demolition	Hauling	7.86	20.0	HHDT
Demolition	Onsite truck	1.00	1.20	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	6.00	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	0.80	HHDT
Grading	—	—	—	—

Grading	Worker	7.50	14.3	LDA,LDT1,LDT2
Grading	Vendor	14.0	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	1.00	2.10	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	0.00	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	0.00	0.00	336

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	1,539	—
Site Preparation	0.00	0.00	2.50	0.00	—
Grading	0.00	0.00	7.50	0.00	—
Paving	0.00	0.00	0.00	0.00	0.13

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Asphalt Surfaces	0.13	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	375	0.01	< 0.005

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Phase 3 schedule

Appendix A.2 Health Risk Assessment, AERMOD Modeling, and HARP2 Output Files

Onsite Construction PM10 Exhaust Emissions - Unmitigated

Year	Construction Activity	Days of Activity	Max Daily Emissions (lbs/day)	Emissions (lbs)	Total Construction Days	Average Hourly Emissions (lbs/hr)	Emission Rate (g/s)	Phase
2023	P1 Demolition	36	1.21	87.80	86	1.28E-01	0.016079	Phase 1
	P1 Site Preparation	9	1.82					
	P1 Grading	14	0.95					
	P1 Building Construction	27	0.55					
2024	P1 Building Construction	262	0.50	131	262	6.25E-02	0.007875	
2025	P1 Building Construction	126	0.43	62.82	126	6.23E-02	0.007853	
	P1 Paving	32	0.24					
	P1 Architectural Coating	32	0.03					
2023-2025	**P1 All Activities**	**-**	**-**	**281.62**	**474**	**7.43E-02**	**9.36E-03**	**Phase 1**
2025	P2 Demolition	51	0.58	44.58	92	6.06E-02	7.63E-03	Phase 2
	P2 Site Preparation	5	0.57					
	P2 Grading	10	0.65					
	P2 Paving	26	0.20					
	P2 Architectural Coating	26	0.03					
2025	P3 Demolition	49	0.17	19.31	89	2.71E-02	3.42E-03	Phase 3
	P3 Site Preparation	5	0.22					
	P3 Grading	10	0.47					
	P3 Paving	25	0.19					
	P3 Architectural Coating	25	0.03					
2025	**P2-3 All Activities**	**-**	**-**	**63.89**	**92**	**8.68E-02**	**1.09E-02**	**Phases 2-3**

Offsite Construction PM10 Exhaust Emissions - Unmitigated

Year	Construction Activity	Days of Activity	Max Daily Emissions (lbs/day)	Emissions (lbs)	Total Construction Days	Average Hourly Emissions (lbs/hr)	Hauling Emissions w/in 0.25-mile (lbs/hr) [3]	Emission Rate (g/s)	Phase
2023	P1 Demolition	36	0.01	2.67	86	3.87E-03	1.16E-04	1.46E-05	Phase 1
	P1 Site Preparation	9	0.01						
	P1 Grading	14	0.01						
	P1 Building Construction	27	0.01						
2024	P1 Building Construction	262	0.01	1.31	262	6.25E-04	1.88E-05	2.36E-06	
2025	P1 Building Construction	126	0.01	0.63	126	6.25E-04	1.88E-05	2.36E-06	
	P1 Paving	32	0.00						
	P1 Architectural Coating	32	0.00						
2023-2025	**P1 All Activities**	**-**	**-**	**4.61**	**474**	**1.21E-03**	**3.64E-05**	**4.59E-06**	**Phase 1**
2025	P2 Demolition	51	0.02	0.87	92	1.18E-03	3.53E-05	4.44E-06	Phase 2
	P2 Site Preparation	5	0.01						
	P2 Grading	10	0.01						
	P2 Paving	26	0.00						
	P2 Architectural Coating	26	0.00						
2025	P3 Demolition	49	0.02	0.86	89	1.21E-03	3.62E-05	4.57E-06	Phase 3
	P3 Site Preparation	5	0.01						
	P3 Grading	10	0.01						
	P3 Paving	25	0.00						
	P3 Architectural Coating	25	0.00						
2025	**P2-3 All Activities**	**-**	**-**	**1.73**	**92**	**2.34E-03**	**7.03E-05**	**8.86E-06**	**Phases 2-3**

Note: Emissions evenly distributed over all modeled volume sources.

Hauling Length (miles) [3]	20.00	miles
(mile) [4]	0.60	miles
Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks)	8.00	hours

[1] DPM emissions taken as PM_{10} exhaust emissions from CalEEMod average daily emissions.

[2] Construction durations determined for each year to adjust receptor exposures to the exposure durations for each construction year (see App C - Risk Calculations).

[3] Based on CalEEMod default 20 mile hauling distance.

[4] Emissions from CalEEMod offsite average daily emissions, which is based on proportioned haul truck trip distances , are adjusted to evaluate emissions from the 0.6-mile route within 1,000 of the project site.

[5] Work hours applied in By Hour/Day (HRDOW) variable emissions module in air dispersion model (see App C - Air Dispersion Model Output Files).

Phase 1 **3.1. Demolition (2023)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		1.200
Demolition		0.000
Onsite truck		0.005
Total		1.205

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.005
Total		0.010

Phase 2 **3.1. Demolition (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.570
Demolition		0.000
Onsite truck		0.005
Total		0.575

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.010
Total		0.015

Phase 3 **3.1. Demolition (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.160
Demolition		0.000
Onsite truck		0.005
Total		0.165

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.010
Total		0.015

Phase 1 **3.3. Site Preparation (2023)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		1.810
Dust From Material Movement		0.000
Onsite truck		0.005
Total		1.815

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 2 **3.3. Site Preparation (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.560
Demolition		0.000
Onsite truck		0.005
Total		0.565

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 3 **3.3. Site Preparation (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.210
Demolition		0.000
Onsite truck		0.005
Total		0.215

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 1 **3.5. Grading (2023)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.940
Dust from Material Movement		0.000
Onsite Truck		0.005
Total		0.945

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 2 **3.5. Grading (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.640
Demolition		0.000
Onsite truck		0.005
Total		0.645

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 3 **3.5. Grading (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.460
Demolition		0.000
Onsite truck		0.005
Total		0.465

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 1 3.7. Building Construction (2023)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.550
Onsite truck		0.000
Total		0.550

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 1 3.9. Building Construction (2024)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.500
Onsite truck		0.000
Total		0.500

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 1 3.11. Building Construction (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.430
Onsite truck		0.000
Total		0.430

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 2 3.7. Paving (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.200
Paving		0.000
Total		0.200

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 2 3.9. Architectural Coating (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.030
Architectural Coatings		0.000
Onsite truck		0.000
Total		0.030

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 3 3.7. Paving (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.190
Paving		0.000
Total		0.190

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 3 3.9. Architectural Coating (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.030
Architectural Coatings		0.000
Onsite truck		0.000
Total		0.030

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 1 **3.13. Paving (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.240
Paving		0.000
Onsite truck		0.000
Total		0.240

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 1 **3.15. Architectural Coating (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.030
Architectural Coatings		0.000
Onsite truck		0.000
Total		0.030

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Onsite Construction PM10 Exhaust Emissions - Mitigated (Tier 4 Final for Equipment >25 hp)

Year	Construction Activity	Days of Activity	Max Daily Emissions (lbs/day)	Emissions (lbs)	Total Construction Days	Average Hourly Emissions (lbs/hr)	Emission Rate (g/s)	Phase
2023	P1 Demolition	36	0.07	6.36	86	9.24E-03	0.001164	Phase 1
	P1 Site Preparation	9	0.11					
	P1 Grading	14	0.07					
	P1 Building Construction	27	0.08					
2024	P1 Building Construction	262	0.08	20.96	262	1.00E-02	0.001260	
2025	P1 Building Construction	126	0.08	11.52	126	1.14E-02	0.001440	
	P1 Paving	32	0.04					
	P1 Architectural Coating	32	0.01					
2023-2025	**P1 All Activities**	**-**	**-**	**38.84**	**474**	**1.02E-02**	**1.29E-03**	**Phase 1**
2025	P2 Demolition	51	0.06	4.49	92	6.10E-03	7.69E-04	Phase 2
	P2 Site Preparation	5	0.05					
	P2 Grading	10	0.06					
	P2 Paving	26	0.03					
	P2 Architectural Coating	26	0.01					
2025	P3 Demolition	49	0.03	3.33	89	4.67E-03	5.88E-04	Phase 3
	P3 Site Preparation	5	0.03					
	P3 Grading	10	0.04					
	P3 Paving	25	0.06					
	P3 Architectural Coating	25	0.01					
2025	**P2-3 All Activities**	**-**	**-**	**7.82**	**92**	**1.06E-02**	**1.34E-03**	**Phases 2-3**

Offsite Construction PM10 Exhaust Emissions - Mitigated (Tier 4 Final for Equipment >25 hp)

Year	Construction Activity	Days of Activity	Max Daily Emissions (lbs/day)	Emissions (lbs)	Total Construction Days	Average Hourly Emissions (lbs/hr)	Hauling Emissions w/in 0.25-mile (lbs/hr) [3]	Emission Rate (g/s)	Phase
2023	P1 Demolition	36	0.01	2.67	86	3.87E-03	1.16E-04	1.46E-05	Phase 1
	P1 Site Preparation	9	0.01						
	P1 Grading	14	0.01						
	P1 Building Construction	27	0.01						
2024	P1 Building Construction	262	0.01	1.31	262	6.25E-04	1.88E-05	2.36E-06	
2025	P1 Building Construction	126	0.01	0.63	126	6.25E-04	1.88E-05	2.36E-06	
	P1 Paving	32	0.00						
	P1 Architectural Coating	32	0.00						
2023-2025	**P1 All Activities**	**-**	**-**	**4.61**	**474**	**1.21E-03**	**3.64E-05**	**4.59E-06**	**Phase 1**
2025	P2 Demolition	51	0.02	0.87	92	1.18E-03	3.53E-05	4.44E-06	Phase 2
	P2 Site Preparation	5	0.01						
	P2 Grading	10	0.01						
	P2 Paving	26	0.00						
	P2 Architectural Coating	26	0.00						
2025	P3 Demolition	49	0.02	0.86	89	1.21E-03	3.62E-05	4.57E-06	Phase 3
	P3 Site Preparation	5	0.01						
	P3 Grading	10	0.01						
	P3 Paving	25	0.00						
	P3 Architectural Coating	25	0.00						
2025	**P2-3 All Activities**	**-**	**-**	**1.73**	**92**	**2.34E-03**	**7.03E-05**	**8.86E-06**	**Phases 2-3**

Note: Emissions evenly distributed over all modeled volume sources.

Hauling Length (miles) [3]	20.00	miles
(mile) [4]	0.60	miles
Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks)	8.00	hours

[1] DPM emissions taken as PM_{10} exhaust emissions from CalEEMod average daily emissions.

[2] Construction durations determined for each year to adjust receptor exposures to the exposure durations for each construction year (see App C - Risk Calculations).

[3] Based on CalEEMod default 20 mile hauling distance.

[4] Emissions from CalEEMod offsite average daily emissions, which is based on proportioned haul truck trip distances , are adjusted to evaluate emissions from the 0.6-mile route within 1,000 of the project site.

[5] Work hours applied in By Hour/Day (HRDOW) variable emissions module in air dispersion model (see App C - Air Dispersion Model Output Files).

Phase 1 3.1. Demolition (2023)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.060
Demolition		0.000
Onsite truck		0.005
Total		0.065

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.005
Total		0.010

Phase 1 3.3. Site Preparation (2023)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.100
Dust From Material Movement		0.000
Onsite truck		0.005
Total		0.105

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 1 3.5. Grading (2023)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.060
Dust from Material Movement		0.000
Onsite Truck		0.005
Total		0.065

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 2 3.1. Demolition (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.050
Demolition		0.000
Onsite truck		0.005
Total		0.055

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.010
Total		0.015

Phase 2 3.3. Site Preparation (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.040
Demolition		0.000
Onsite truck		0.005
Total		0.045

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 2 3.5. Grading (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.050
Demolition		0.000
Onsite truck		0.005
Total		0.055

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 3 3.1. Demolition (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.020
Demolition		0.000
Onsite truck		0.005
Total		0.025

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.010
Total		0.015

Phase 3 3.3. Site Preparation (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.020
Demolition		0.000
Onsite truck		0.005
Total		0.025

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 3 3.5. Grading (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.030
Demolition		0.000
Onsite truck		0.005
Total		0.035

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 1 3.7. Building Construction (2023)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.080
Onsite truck		0.000
Total		0.080

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 1 3.9. Building Construction (2024)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.080
Onsite truck		0.000
Total		0.080

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 1 3.11. Building Construction (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.080
Onsite truck		0.000
Total		0.080

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 2 3.7. Paving (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.030
Paving		0.000
Total		0.030

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 2 3.9. Architectural Coating (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.005
Architectural Coatings		0.000
Onsite truck		0.000
Total		0.005

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 3 3.7. Paving (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.060
Paving		0.000
Total		0.060

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 3 3.9. Architectural Coating (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.005
Architectural Coatings		0.000
Onsite truck		0.000
Total		0.005

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 1 3.13. Paving (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.040
Paving		0.000
Onsite truck		0.000
Total		0.040

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 1 3.15. Architectural Coating (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.005
Architectural Coatings		0.000
Onsite truck		0.000
Total		0.005

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Unmitigated Construction DPM Concentrations - MER Identification

Phase 1 Construction

MER Type	REC ID	X	Y	P1 CONC	P2-3 CONC
Resident	R_895 (R)	634129.42	4266181.73	0.23518	0.01719
High School Student (Christian Brothers)	CBHS_677 (HS)	634073.03	4266269.63	0.30027	0.04956
Daycare	DC_001 (DC)	634095.41	4266023.03	0.03238	0.02601
On-Site Preschool Student	ORES_157 (PS)	634000.02	4266221.37	0.10225	-
Off-Site Preschool Student	SHPS_001 (PS)	633780.15	4266557.94	0.00411	0.00777
Worker	W_005 (W)	634100.49	4266028.81	0.03584	0.02532

Phases 2-3 Construction

MER Type	REC ID	X	Y	P1 CONC	P2-3 CONC
Resident	R_2279 (R)	633975.69	4266112.74	0.01819	0.16148
High School Student	CBHS_225 (HS)	633903.03	4266229.63	0.01095	0.25682
Daycare	DC_001 (DC)	634095.41	4266023.03	0.03238	0.02601
On-Site Preschool Student	ORES_006 (PS)	634017.98	4266193.24	-	0.23015
Off-Site Preschool Student	SHPS_001 (PS)	633780.15	4266557.94	0.00411	0.00777
Worker	W_002 (W)	633871.99	4266232.21	0.00742	0.22066

Combined MERs

MER	REC ID	X	Y	P1 CONC	P2-3 CONC
P1 Resident	R_895 (R)	634129.42	4266181.73	0.23518	0.01719
P2-3 Resident	R_2279 (R)	633975.69	4266112.74	0.01819	0.16148
P1 High School Student	CBHS_677 (HS)	634073.03	4266269.63	0.30027	0.04956
P2-3 High School Student	CBHS_225 (HS)	633903.03	4266229.63	0.01095	0.25682
Daycare	DC_001 (DC)	634095.41	4266023.03	0.03238	0.02601
On-Site Preschool Student	Varies	Varies	Varies	0.10225	0.23015
Off-Site Preschool Student	SHPS_001 (PS)	633780.15	4266557.94	0.00411	0.00777
P1 Worker	W_005 (W)	634100.49	4266028.81	0.03584	0.02532
P2-3 Worker	W_002 (W)	633871.99	4266232.21	0.00742	0.22066

Notes:

1. MER = Maximally Exposed Receptor; the receptor of each type which experiences the highest DPM concentration exposure during each phase of construction.
2. Because on-site preschool students consist of the same pool of students on the Oak Ridge Elementary School campus, the maximum DPM concentration for all project phases are used for that receptor risk assessment.
3. The Daycare and On-site Preschool Student MERs represent the same location among all project phases.

Unmitigated Construction DPM Health Risk

Phase 1 Construction

GRP1	GRP2	POLID	POLABBREV	CONC	Hazard Index	RISK_SUM	Risk Per Million	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK
P1 Resident	R_895 (R)	9901	DieselExhPM	0.23518	0.047	6.84E-05	68.39	6.84E-05	0.00E+00	0.00E+00	0.00E+00
P2-3 Resident	R_2279 (R)	9901	DieselExhPM	0.01819	0.004	5.29E-06	5.29	5.29E-06	0.00E+00	0.00E+00	0.00E+00
P1 High School Student	CBHS_677 (HS)	9901	DieselExhPM	0.30027	0.060	1.02E-05	10.16	1.02E-05	0.00E+00	0.00E+00	0.00E+00
P2-3 High School Student	CBHS_225 (HS)	9901	DieselExhPM	0.01095	0.002	3.71E-07	0.37	3.71E-07	0.00E+00	0.00E+00	0.00E+00
Daycare	DC_001 (DC)	9901	DieselExhPM	0.03238	0.006	9.42E-06	9.42	9.42E-06	0.00E+00	0.00E+00	0.00E+00
On-Site Preschool Student	ORES_157 (PS)	9901	DieselExhPM	0.10225	0.020	4.26E-06	4.26	4.26E-06	0.00E+00	0.00E+00	0.00E+00
Off-Site Preschool Student	SHPS_001 (PS)	9901	DieselExhPM	0.00411	0.001	1.71E-07	0.17	1.71E-07	0.00E+00	0.00E+00	0.00E+00
P1 Worker	W_005 (W)	9901	DieselExhPM	0.03584	0.007	1.35E-07	0.14	1.35E-07	0.00E+00	0.00E+00	0.00E+00
P2-3 Worker	W_002 (W)	9901	DieselExhPM	0.00742	0.001	2.80E-08	0.03	2.80E-08	0.00E+00	0.00E+00	0.00E+00

Phases 2-3 Construction

GRP1	GRP2	POLID	POLABBREV	CONC	Hazard Index	RISK_SUM	Risk Per Million	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK
P1 Resident	R_895 (R)	9901	DieselExhPM	0.01719	0.003	1.20E-06	1.20	1.20E-06	0.00E+00	0.00E+00	0.00E+00
P2-3 Resident	R_2279 (R)	9901	DieselExhPM	0.16148	0.032	1.13E-05	11.27	1.13E-05	0.00E+00	0.00E+00	0.00E+00
P1 High School Student	CBHS_677 (HS)	9901	DieselExhPM	0.04956	0.010	6.54E-08	0.07	6.54E-08	0.00E+00	0.00E+00	0.00E+00
P2-3 High School Student	CBHS_225 (HS)	9901	DieselExhPM	0.25682	0.051	3.39E-07	0.34	3.39E-07	0.00E+00	0.00E+00	0.00E+00
Daycare	DC_001 (DC)	9901	DieselExhPM	0.02601	0.005	1.82E-06	1.82	1.82E-06	0.00E+00	0.00E+00	0.00E+00
On-Site Preschool Student	ORES_006 (PS)	9901	DieselExhPM	0.23015	0.046	2.40E-06	2.40	2.40E-06	0.00E+00	0.00E+00	0.00E+00
Off-Site Preschool Student	SHPS_001 (PS)	9901	DieselExhPM	0.00777	0.002	8.09E-08	0.08	8.09E-08	0.00E+00	0.00E+00	0.00E+00
P1 Worker	W_005 (W)	9901	DieselExhPM	0.02532	0.005	2.39E-08	0.02	2.39E-08	0.00E+00	0.00E+00	0.00E+00
P2-3 Worker	W_002 (W)	9901	DieselExhPM	0.22066	0.044	2.08E-07	0.21	2.08E-07	0.00E+00	0.00E+00	0.00E+00

Combined Construction Risk

GRP1	GRP2	POLID	POLABBREV	MAX CONC	Hazard Index	RISK_SUM	Risk Per Million	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK
P1 Resident	R_895 (R)	9901	DieselExhPM	0.23518	0.047	6.96E-05	69.58	6.96E-05	0.00E+00	0.00E+00	0.00E+00
P2-3 Resident	R_2279 (R)	9901	DieselExhPM	0.16148	0.032	1.66E-05	16.56	1.66E-05	0.00E+00	0.00E+00	0.00E+00
P1 High School Student	CBHS_677 (HS)	9901	DieselExhPM	0.30027	0.060	1.02E-05	10.23	1.02E-05	0.00E+00	0.00E+00	0.00E+00
P2-3 High School Student	CBHS_225 (HS)	9901	DieselExhPM	0.25682	0.051	7.10E-07	0.71	7.10E-07	0.00E+00	0.00E+00	0.00E+00
Daycare	DC_001 (DC)	9902	DieselExhPM	0.03238	0.006	1.12E-05	11.23	1.12E-05	0.00E+00	0.00E+00	0.00E+00
On-Site Preschool Student	-	9903	DieselExhPM	0.23015	0.046	6.66E-06	6.66	6.66E-06	0.00E+00	0.00E+00	0.00E+00
Off-Site Preschool Student	SHPS_001 (PS)	9904	DieselExhPM	0.00777	0.002	2.52E-07	0.25	2.52E-07	0.00E+00	0.00E+00	0.00E+00
P1 Worker	W_005 (W)	9905	DieselExhPM	0.03584	0.007	1.59E-07	0.16	1.59E-07	0.00E+00	0.00E+00	0.00E+00
P2-3 Worker	W_002 (W)	9901	DieselExhPM	0.22066	0.044	2.36E-07	0.24	2.36E-07	0.00E+00	0.00E+00	0.00E+00

Notes:

1. HARP2 Risk Assessment Standalone Tool v22118 was used for all cancer risk calculations.
2. Project emissions were modeled with AERMOD v21112 to identify annual average DPM concentrations at the receptor MER locations noted above.
3. Because on-site preschool students consist of the same pool of students at the Oak Ridge Elementary School campus, the maximum DPM concentration for all project phases is used for that receptor risk assessment.
4. The Daycare and On-site Preschool Student MERs represent the same location among all project phases.
5. HARP2 exposure durations provide limited selections. For Phase 1, construction would occur over 1.82 years; therefore, 2 years were selected in HARP. For Phases 2 and 3, construction would occur over 0.35 year; therefore, 0.5 year was selected in HARP.
7. These HARP2 risk calculations assume students are present on campus year round consistent with residential receptors to account for after school and summer programs.
8. At school and daycare receptor locations, student receptors represent maximum risk between student and worker receptors. Therefore, worker receptors are not shown at school or daycare locations.

Mitigated Construction DPM Health Risk

Phase 1 Construction												
GRP1	GRP2	POLID	POLABBREV	CONC	Hazard Index	RISK_SUM	Risk Per Million	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK
P1 Resident	R_895 (R)	9901	DieselExhPM	0.03241	0.006	6.73E-06	6.73	6.73E-06	0.00E+00	0.00E+00	0.00E+00
P2-3 Resident	R_2279 (R)	9901	DieselExhPM	0.00251	0.001	5.21E-07	0.52	5.21E-07	0.00E+00	0.00E+00	0.00E+00
P1 High School Student	CBHS_677 (HS)	9901	DieselExhPM	0.04139	0.008	1.00E-06	1.00	1.00E-06	0.00E+00	0.00E+00	0.00E+00
P2-3 High School Student	CBHS_225 (HS)	9901	DieselExhPM	0.00152	0.000	3.68E-08	0.04	3.68E-08	0.00E+00	0.00E+00	0.00E+00
Daycare	DC_001 (DC)	9901	DieselExhPM	0.00447	0.001	9.28E-07	0.93	9.28E-07	0.00E+00	0.00E+00	0.00E+00
On-Site Preschool Student	ORES_157 (PS)	9901	DieselExhPM	0.0141	0.003	4.20E-07	0.42	4.20E-07	0.00E+00	0.00E+00	0.00E+00
Off-Site Preschool Student	SHPS_001 (PS)	9901	DieselExhPM	0.00059	0.000	1.76E-08	0.02	1.76E-08	0.00E+00	0.00E+00	0.00E+00
P1 Worker	W_005 (W)	9901	DieselExhPM	0.00494	0.001	1.86E-08	0.02	1.86E-08	0.00E+00	0.00E+00	0.00E+00
P2-3 Worker	W_002 (W)	9901	DieselExhPM	0.00104	0.000	3.92E-09	0.00	3.92E-09	0.00E+00	0.00E+00	0.00E+00

Phases 2-3 Construction											
GRP1	GRP2	POLID	POLABBREV	CONC	Hazard Index	RISK_SUM	Risk Per Million	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK
P1 Resident	R_895 (R)	9901	DieselExhPM	0.00195	0.000	9.72E-08	0.10	9.72E-08	0.00E+00	0.00E+00	0.00E+00
P2-3 Resident	R_2279 (R)	9901	DieselExhPM	0.0182	0.004	9.07E-07	0.91	9.07E-07	0.00E+00	0.00E+00	0.00E+00
P1 High School Student	CBHS_677 (HS)	9901	DieselExhPM	0.0054	0.001	5.09E-09	0.01	5.09E-09	0.00E+00	0.00E+00	0.00E+00
P2-3 High School Student	CBHS_225 (HS)	9901	DieselExhPM	0.03773	0.008	3.56E-08	0.04	3.56E-08	0.00E+00	0.00E+00	0.00E+00
Daycare	DC_001 (DC)	9901	DieselExhPM	0.00296	0.001	1.48E-07	0.15	1.48E-07	0.00E+00	0.00E+00	0.00E+00
On-Site Preschool Student	ORES_006 (PS)	9901	DieselExhPM	0.02405	0.005	1.79E-07	0.18	1.79E-07	0.00E+00	0.00E+00	0.00E+00
Off-Site Preschool Student	SHPS_001 (PS)	9901	DieselExhPM	0.00102	0.000	7.59E-09	0.01	7.59E-09	0.00E+00	0.00E+00	0.00E+00
P1 Worker	W_005 (W)	9901	DieselExhPM	0.00288	0.001	2.72E-09	0.00	2.72E-09	0.00E+00	0.00E+00	0.00E+00
P2-3 Worker	W_002 (W)	9901	DieselExhPM	0.03344	0.007	3.15E-08	0.03	3.15E-08	0.00E+00	0.00E+00	0.00E+00

Combined Construction Risk											
GRP1	GRP2	POLID	POLABBREV	MAX CONC	Hazard Index	RISK_SUM	Risk Per Million	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK
P1 Resident	R_895 (R)	9901	DieselExhPM	0.03241	0.006	6.83E-06	6.83	6.83E-06	0.00E+00	0.00E+00	0.00E+00
P2-3 Resident	R_2279 (R)	9901	DieselExhPM	0.0182	0.004	1.43E-06	1.43	1.43E-06	0.00E+00	0.00E+00	0.00E+00
P1 High School Student	CBHS_677 (HS)	9901	DieselExhPM	0.04139	0.008	1.01E-06	1.01	1.01E-06	0.00E+00	0.00E+00	0.00E+00
P2-3 High School Student	CBHS_225 (HS)	9901	DieselExhPM	0.03773	0.008	7.23E-08	0.07	7.23E-08	0.00E+00	0.00E+00	0.00E+00
Daycare	DC_001 (DC)	9902	DieselExhPM	0.00447	0.001	1.08E-06	1.08	1.08E-06	0.00E+00	0.00E+00	0.00E+00
On-Site Preschool Student	-	9903	DieselExhPM	0.02405	0.005	5.99E-07	0.60	5.99E-07	0.00E+00	0.00E+00	0.00E+00
Off-Site Preschool Student	SHPS_001 (PS)	9904	DieselExhPM	0.00102	0.000	2.51E-08	0.03	2.51E-08	0.00E+00	0.00E+00	0.00E+00
P1 Worker	W_005 (W)	9905	DieselExhPM	0.00494	0.001	2.13E-08	0.02	2.13E-08	0.00E+00	0.00E+00	0.00E+00
P2-3 Worker	W_002 (W)	9901	DieselExhPM	0.03344	0.007	3.55E-08	0.04	3.55E-08	0.00E+00	0.00E+00	0.00E+00

Notes:

1. HARP2 Risk Assessment Standalone Tool v22118 was used for all cancer risk calculations.
2. Project emissions were modeled with AERMOD v21112 to identify annual average DPM concentrations at the receptor MER locations noted above.
3. Because on-site preschool students consist of the same pool of students at the Oak Ridge Elementary School campus, the maximum DPM concentration for all project phases is used for that receptor risk assessment.
4. The Daycare and On-site Preschool Student MERs represent the same location among all project phases.
5. HARP2 exposure durations provide limited selections. For Phase 1, construction would occur over 1.82 years; therefore, 2 years were selected in HARP. For Phases 2 and 3, construction would occur over 0.35 year; therefore, 0.5 year was selected in HARP.
7. These HARP2 risk calculations assume students are present on campus year round consistent with residential receptors to account for after school and summer programs.
8. At school and daycare receptor locations, student receptors represent maximum risk between student and worker receptors. Therefore, worker receptors are not shown at school or daycare locations.
9. Annual average concentrations are expressed in $\mu g/m^3$.

P1 High School Student MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:32:14 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 14
Total Exposure Duration: 2

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 2
16<30 Years Bin: 0
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P1
Emissions\P1_High School Student MER_CancerRisk.csv
HRA ran successfully
```

P1 Preschool Student MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:38:27 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 3
Total Exposure Duration: 2

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 2
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P1
Emissions\P1_Preschool Student MER_CancerRisk.csv
HRA ran successfully
```

P1 Residential and Daycare MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:34:29 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 2

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: LongTerm24HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: ON
16 years to 70 years: ON

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P1
Emissions\P1_Residential and Daycare MER_CancerRisk.csv
HRA ran successfully
```

P1 Worker MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:15:24 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 16
Total Exposure Duration: 2

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 2
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05\P1_Worker
MER_CancerRisk.csv
HRA ran successfully
```

P2-3 High School Student MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:42:01 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 16
Total Exposure Duration: 0.5

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0.5
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

*********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

*********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P2-3
Emissions\P2_High School Student MER_CancerRisk.csv
HRA ran successfully
```

P2-3 Preschool Student MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:40:46 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 5
Total Exposure Duration: 0.5

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0.5
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P2-3
Emissions\P2_Preschool Student MER_CancerRisk.csv
HRA ran successfully
```

P2-3 Residential and Daycare MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:43:40 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 1
Total Exposure Duration: 0.5

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0.5
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: ON
16 years to 70 years: ON

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P2-3
Emissions\P2_Residential and Daycare MER_CancerRisk.csv
HRA ran successfully
```

P2-3 Worker MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:45:03 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 18
Total Exposure Duration: 0.5

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0.5
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P2-3
Emissions\P2_Worker MER_CancerRisk.csv
HRA ran successfully
```

Control Pathway

Dispersion Options

Titles

Oak Ridge Elementary Construction HRA
Phase 1 Construction

Dispersion Options

☐ Regulatory Default ☑ Non-Default Options

☑ Flat & Elevated Terrain
☐ No Stack-Tip Downwash (NOSTD)
☐ Run in Screening Mode
☐ Conversion of NOx to NO2 (OLM or PVMRM)
☐ No Checks for Non-Sequential Met Data
☑ Fast All Sources (FASTALL)
☐ Fast Area Sources (FASTAREA)
☐ Optimized Area Source Plume Depletion
☐ Gas Deposition

BETA Options:
☐ Capped and Horizontal Stack Releases
☐ Adjusted Friction Velocity (u*) in AERMET (ADJ_U*)
☐ Low Wind Options

☐ SCIM (Sampled Chronological Input Model)
☐ Ignore Urban Night / Daytime Transition (NOURBTRAN)

Dispersion Coefficient

Urban
Population:
Name (Optional):
Roughness Length:

Output Type

☑ Concentration
☐ Total Deposition (Dry & Wet)
☐ Dry Deposition
☐ Wet Deposition

Plume Depletion

☐ Dry Removal
☐ Wet Removal

Output Warnings

☐ No Output Warnings
☐ Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

PM2.5

Averaging Time Options

Hours ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 ☐ 8 ☐ 12 ☐ 24

☐ Month ☑ Period ☐ Annual

Exponential Decay

☐ Yes ☑ No

Terrain Height Options

☐ Flat ☑ Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

☑ Yes ☐ No

Default Height = 1.80 m

Optional Files

☐ Re-Start File ☐ Init File ☐ Multi-Year Analyses ☐ Event Input File ☒ Error Listing File

Detailed Error Listing File

Filename: SCUS-05_P1_Project Emissions.err

Control Pathway

Dispersion Options

Titles

Oak Ridge Elementary Construction HRA
Phases 2 and 3 Construction

Dispersion Options

☐ Regulatory Default ☑ Non-Default Options

☑ Flat & Elevated Terrain
☐ No Stack-Tip Downwash (NOSTD)
☐ Run in Screening Mode
☐ Conversion of NOx to NO2 (OLM or PVMRM)
☐ No Checks for Non-Sequential Met Data
☑ Fast All Sources (FASTALL)
☐ Fast Area Sources (FASTAREA)
☐ Optimized Area Source Plume Depletion
☐ Gas Deposition

BETA Options:
☐ Capped and Horizontal Stack Releases
☐ Adjusted Friction Velocity (u*) in AERMET (ADJ_U*)
☐ Low Wind Options

☐ SCIM (Sampled Chronological Input Model)
☐ Ignore Urban Night / Daytime Transition (NOURBTRAN)

Dispersion Coefficient

Urban
Population:
Name (Optional):
Roughness Length:

Output Type

☑ Concentration
☐ Total Deposition (Dry & Wet)
☐ Dry Deposition
☐ Wet Deposition

Plume Depletion

☐ Dry Removal
☐ Wet Removal

Output Warnings

☐ No Output Warnings
☐ Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

PM2.5

Averaging Time Options

Hours	☑	☐	☐	☐	☐	☐	☐	☐
	1	2	3	4	6	8	12	24

☐ Month ☑ Period ☐ Annual

Exponential Decay

☐ Yes ☑ No

Terrain Height Options

☐ Flat ☑ Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

☑ Yes ☐ No

Default Height = 1.80 m

Control Pathway

AERMOD

Optional Files

☐ Re-Start File ☐ Init File ☐ Multi-Year Analyses ☐ Event Input File ☒ Error Listing File

Detailed Error Listing File

Filename: SCUS-05_P2_P3_Project Emissions.err

Meteorology Pathway

AERMOD

Met Input Data

Surface Met Data

Filename: Sac Executive Airport\14-18.SFC

Format Type: Default AERMET format

Profile Met Data

Filename: Sac Executive Airport\14-18.PFL

Format Type: Default AERMET format

Wind Speed

☐ Wind Speeds are Vector Mean (Not Scalar Means)

Wind Direction

Rotation Adjustment [deg]:

Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 7.00 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2014			SACRAMENTO/EXECUTIVE ARPT
Upper Air		2014			OAKLAND/WSO AP

Data Period

Data Period to Process

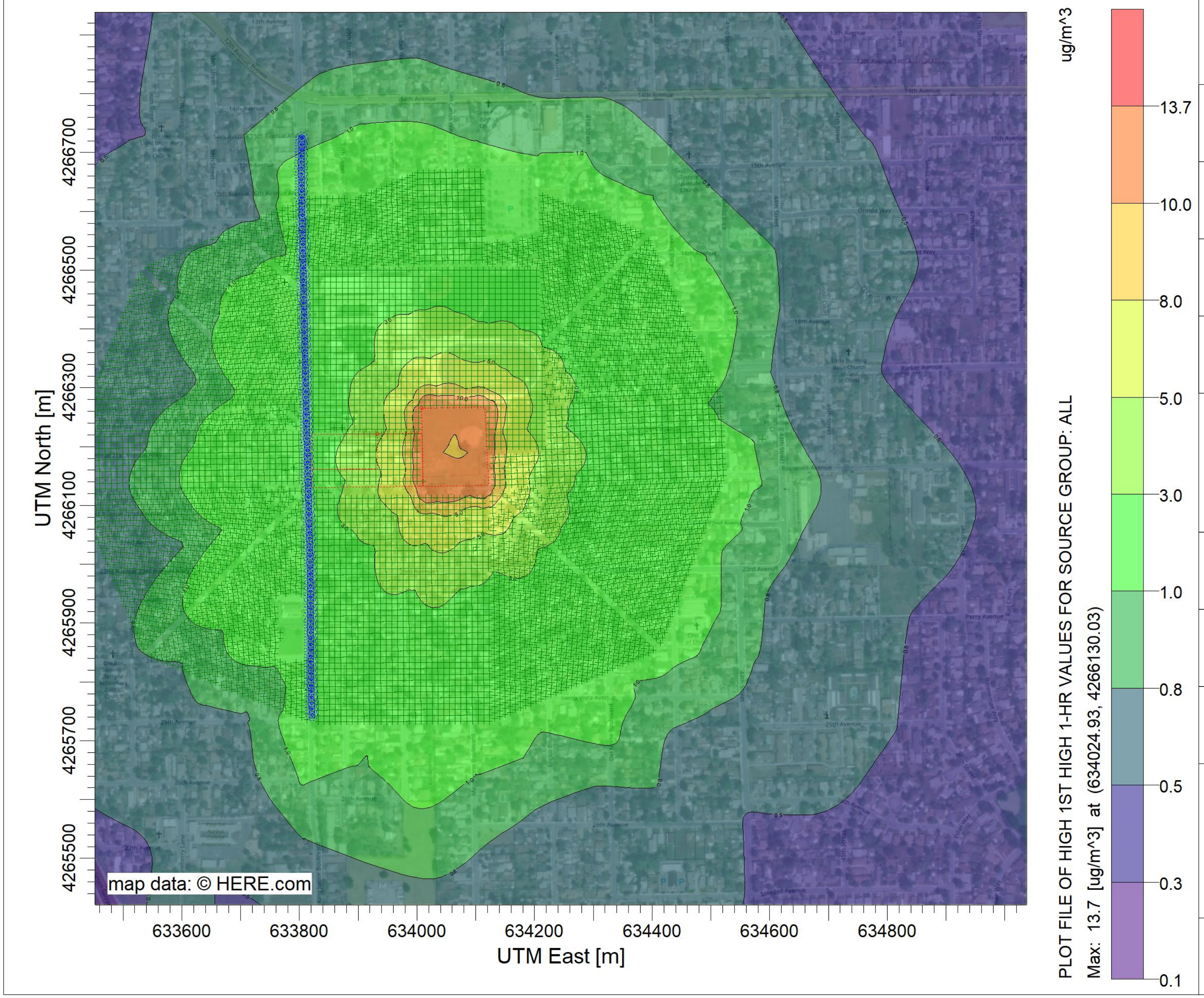
Start Date: 1/1/2014 Start Hour: 1 End Date: 12/25/2018 End Hour: 24

Wind Speed Categories

Stability Category	Wind Speed [m/s]	Stability Category	Wind Speed [m/s]
A	1.54	D	8.23
B	3.09	E	10.8
C	5.14	F	No Upper Bound

PROJECT TITLE:

Oak Ridge Elementary Construction HRA
Phase 1 Construction



COMMENTS:

SOURCES:

4

RECEPTORS:

8605

OUTPUT TYPE:

Concentration

MAX:

13.7 ug/m^3

COMPANY NAME:

MODELER:

DATE:

5/17/2023

SCALE: 1:10,333

0 0.3 km

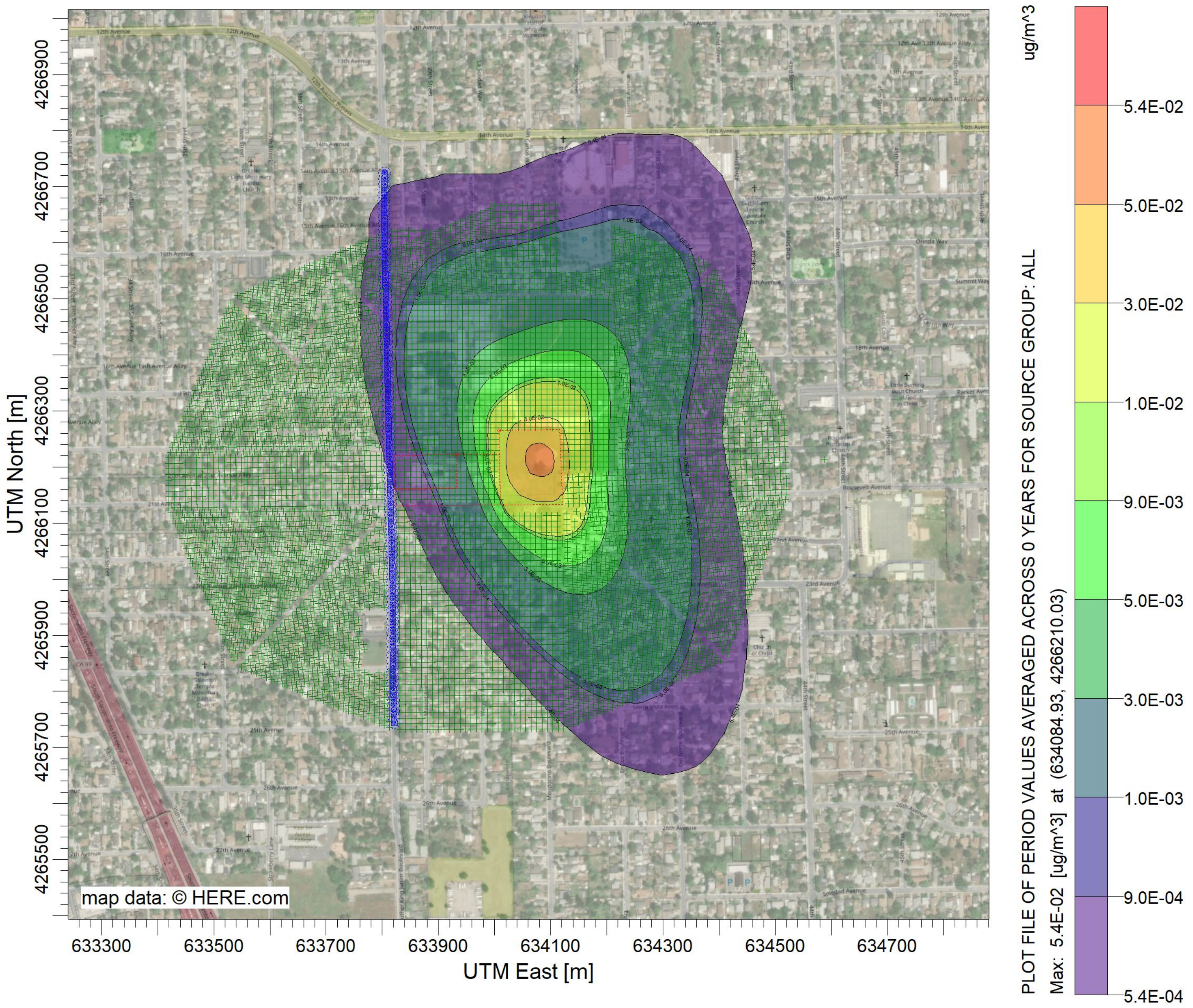
PROJECT NO.:

AERMOD View - Lakes Environmental Software

C:\Users\LPark\Documents\SCUS-05_P1_Project Emissions\SCUS-05_P1_Project Emissions.isc

PROJECT TITLE:

Oak Ridge Elementary Construction HRA
Phase 1 Construction



COMMENTS:

SOURCES:
4

RECEPTORS:
8605

OUTPUT TYPE:
Concentration

MAX:
5.4E-02 ug/m^3

COMPANY NAME:

MODELER:

DATE:
5/17/2023

SCALE: 1:11,044

0 0.3 km

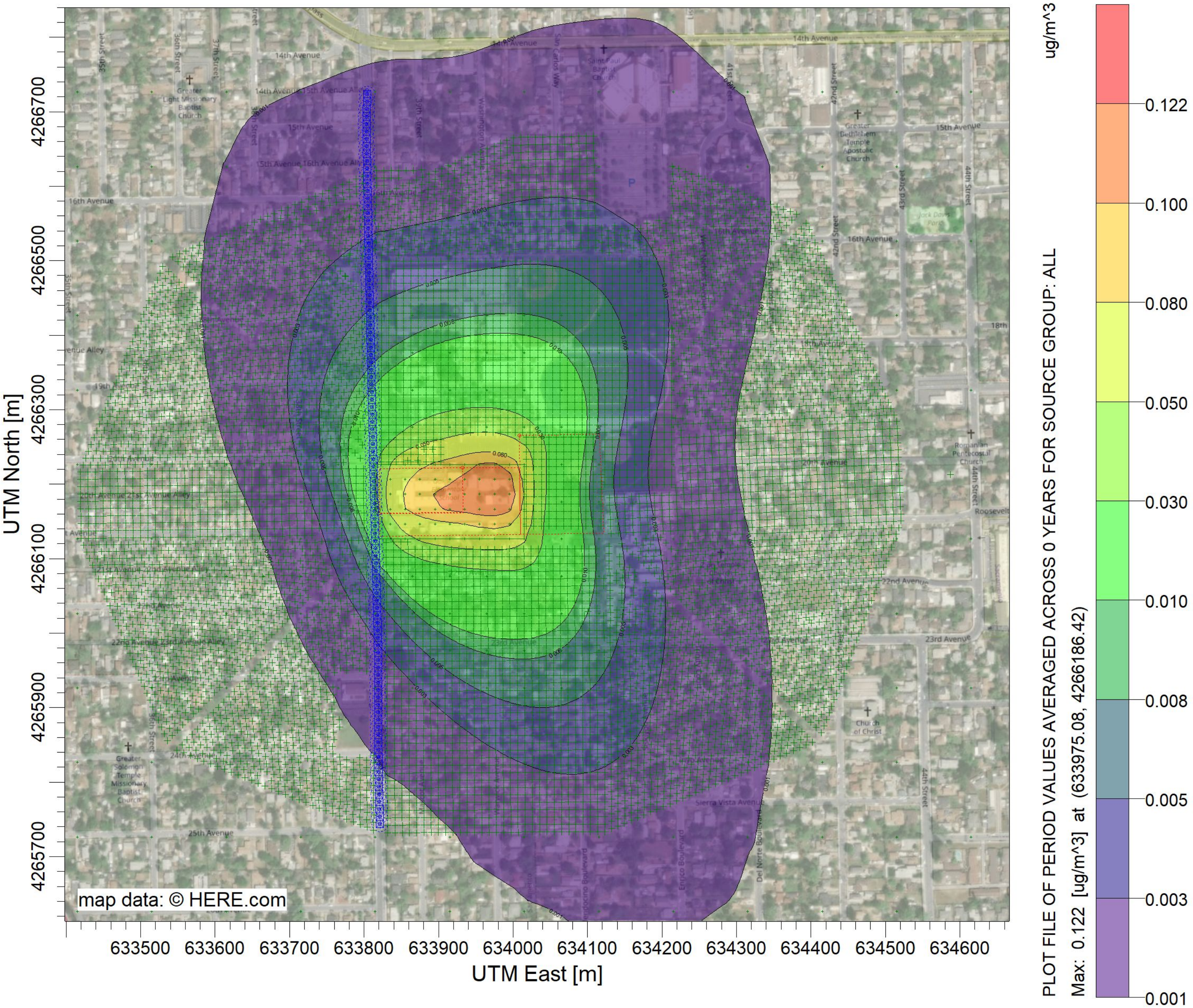
PROJECT NO.:

AERMOD View - Lakes Environmental Software

C:\Users\LPark\Documents\SCUS-05_P1_Mit\SCUS-05_P1_Mit.isc

PROJECT TITLE:

Oak Ridge Elementary Construction HRA
Phases 2 and 3 Construction



COMMENTS:

SOURCES:
4

RECEPTORS:
16194

OUTPUT TYPE:
Concentration

MAX:
0.122 ug/m^3

COMPANY NAME:

MODELER:

DATE:
5/17/2023

SCALE: 1:8,352

0 0.2 km

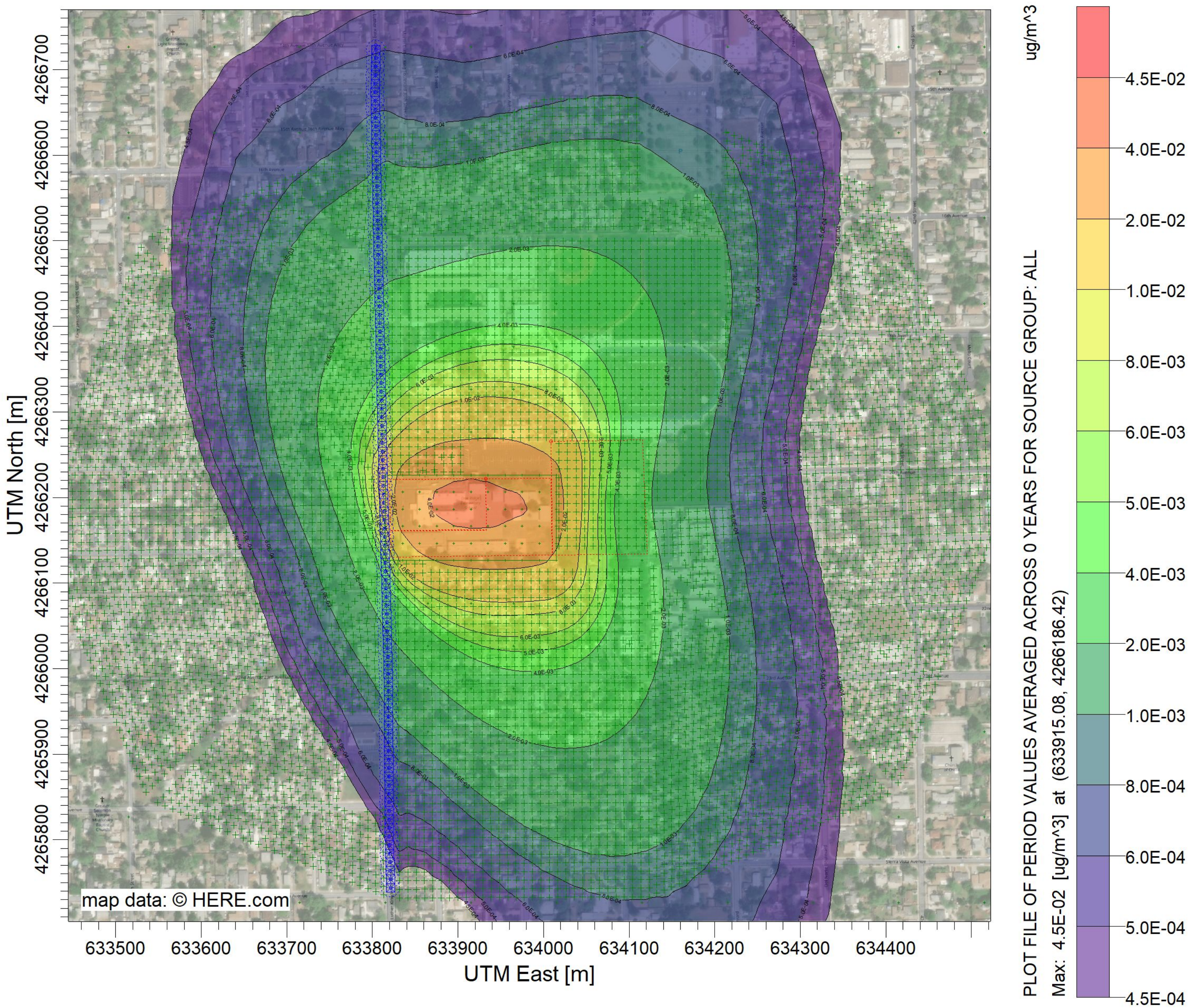
PROJECT NO.:

AERMOD View - Lakes Environmental Software

C:\Users\LPark\Documents\SCUS-05_P2_P3_Project Emissions\SCUS-05_P2_P3_Project Emissions.isc

PROJECT TITLE:

Oak Ridge Elementary Construction HRA
Phases 2 and 3 Construction



PLOT FILE OF PERIOD VALUES AVERAGED ACROSS 0 YEARS FOR SOURCE GROUP: ALL

Max: 4.5E-02 [ug/m^3] at (633915.08, 4266186.42)

COMMENTS:

SOURCES:
4

RECEPTORS:
16194

OUTPUT TYPE:
Concentration

MAX:
4.5E-02 ug/m^3

COMPANY NAME:

MODELER:

DATE:
5/17/2023

SCALE: 1:7,256

0 0.2 km

PROJECT NO.:

Appendix B Arborist Survey Report

Arborist Survey Report
for the
Oak Ridge Elementary School Rebuild Project

City of Sacramento, California

Prepared For:

Sacramento City Unified School District

Prepared By:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
2525 Warren Drive
Rockland, California 95677

February 10, 2023

CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

Term	**Description**
City Ordinance	Article 12.56.050 of the City of Sacramento Tree Ordinance
DSH	Diameter at standard height
Project	Oak Ridge Elementary School Rebuild Project

1.0 INTRODUCTION

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

2.0 SITE DESCRIPTION

The Study Area is located north of 22nd Avenue, east of Martin Luther King Jr. Boulevard, south of 17th Avenue, and west of West Nichols Avenue, in the City of Sacramento, California. The approximately 7.7-acre Study Area corresponds to a portion of Section 20, Township 8 North, Range 5 East (Mount Diablo Base and Meridian) of the "Sacramento East, California" 7.5-minute quadrangle (U.S. Geological Survey 1992). The approximate center of the Study Area is located at 38.534011° North and -121.462747° West within the Lower Sacramento Watershed (Hydrologic Unit Code #18020163; Natural Resources Conservation Service et al. 2019). The Study Area is a school; therefore, the grounds are primarily composed of asphalt, mowed grass, and maintained beds planted with ornamental and native trees. The surrounding land use is heavily residential, with a church and high school to the north.

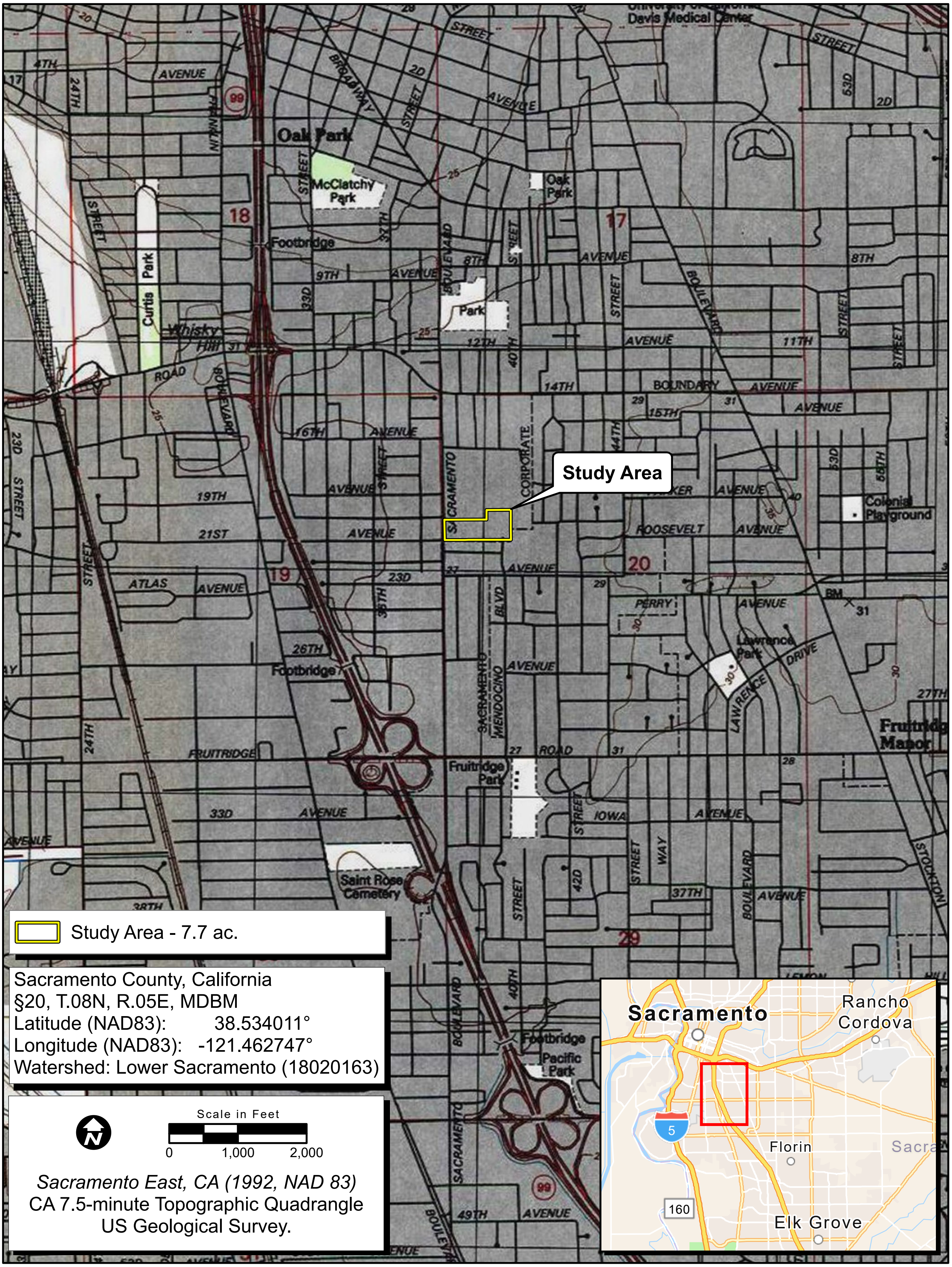
3.0 METHODS

ECORP arborist Krissy Walker-Berry (International Society of Arboriculture Certification #WE-11308A), with ECORP biologist Gabrielle Attisani, conducted the field survey on January 20, 2023. ECORP staff walked the Study Area during the field survey, and recorded data using a submeter capable Global Positioning System unit.

ECORP surveyed all trees with trunks or a portion of their dripline radius in the Study Area. Tree tags were not installed on trees that were inaccessible or too small to tag properly; they were assigned the numbers 1 to 62. The following terms are defined in the Tree Preservation Code (City of Sacramento 2022):

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

- **City Tree:** Any tree the trunk of which, when measured 4.5 feet above ground, is partially or completely located in a city park, on real property the city owns in fee, or on a public right-of-way, including any street, road, sidewalk, park strip, mow strip, or alley.



Study Area - 7.7 ac.

Sacramento County, California
§20, T.08N, R.05E, MDBM
Latitude (NAD83): 38.534011°
Longitude (NAD83): -121.462747°
Watershed: Lower Sacramento (18020163)

Scale in Feet
0 1,000 2,000

Sacramento East, CA (1992, NAD 83)
CA 7.5-minute Topographic Quadrangle
US Geological Survey.

Location: N:\2023\2023-001 Oak Ridge Elementary School Rebuild Project\MAPS\Location_Vicinity\ORESRP Location and Vicinity.aprx - ORESRP Location and Vicinity 20230130 (jwelsh - 1/30/2023)

Map Date: 1/30/2023
Sources: ESRI, USGS

Figure 1. Project Location and Vicinity

2023-001 Oak Ridge Elementary School Rebuild Project

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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

- **Private Protected Tree:**

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

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

  3. A tree that has a DSH of 24 inches or more located on private property that:

     i. is an undeveloped lot; or

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

     iii. a tree that has a DSH of 32 inches or more located on private property that includes any single unit or duplex dwellings.

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

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

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

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

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

4.0 RESULTS

ECORP inventoried a total of 120 trees in the Study Area. This includes 37 coast live oak (*Q. agrifolia*), ten holly oak (*Q. ilex*), eight crepe myrtle (*Lagerstroemia indica*), eight Chinese privet (*Ligustrum sinense*), five tree of heaven (*Ailanthus altissima*), four camellia (*Camellia* sp.*),* three common fig (F*icus carica*), three valley oak, two bay laurel (*Laurus nobilis),* two Carolina cherry (*Prunus caroliniana*), two London plane (*Platanus × acerifolia*), two orange (*Citrus* sp.), one Asian pear (*Pyrus pyrifolia*), one Meyer lemon (*Citrus × meyeri*), one California redwood (*Sequoia sempervirens*), one loquat (*Eriobotrya japonica*), one mock orange (*Pittosporum tobira*), one nectarine (*Prunus persica*), one olive (*Olea europaea),* one persimmon (*Diospyros virginiana*), one pine (*Pinus* sp.), one pineapple guava (*Acca sellowiana*), one plum (*Prunus* sp.), one pluot (*Prunus* sp.), one red oak (*Q. rubra*), and 21 trees that could not be identified due to visual barriers or winter leaf drop. Additionally, ECORP inventoried one dead tree. A map depicting the locations of the inventoried trees is included as Appendix A. Detailed tree survey data for each tree are included as Appendix B. Representative site photographs are included as Appendix C.

A separate arborist report was prepared for four oak trees (tag #s 132, 159, 160, and 161). This report provides detailed information regarding the recommended retention or removal of those trees and is included as Appendix D.

Seventeen trees are considered Private Protected Trees because they are located on private property and are either native oaks with a DSH of 12 or larger or are a non-oak with a DSH of 24 or larger.

5.0 IMPACTS AND CONCLUSIONS

Based on the Project plans provided by PlaceWorks, Inc., 62 of 120 living trees found during the inventory are proposed for removal. Eight additional trees have trunks located on private property and will have indirect impacts. Indirect impacts means that there will be impacts at the soil level within the Tree Protection Zone of the tree through some form of ground disturbance. The remaining 51 trees are located along the school's fence line, either growing against or through the fence. It is unclear whether these trees will need to be removed as part of the Project. However, it would be expected that all of those trees would require removal if the school fence needs to be removed.

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

6.0 TREE PRESERVATION RECOMMENDATIONS

6.1 Development Recommendations

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

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

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

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

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

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

6.2 Grading Beneath Tree Driplines

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

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

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

7.0 REFERENCES

City of Sacramento. 2022. Tree Planting, Maintenance, and Conservation- Chapter 12.56. Available online at: https://www.cityofsacramento.org/-/media/Corporate/Files/Public-Works/Maintenance-Services/SCC-1256.pdf?la=en. Accessed online January 18, 2023.

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

U.S. Geological Survey. 1992. "Sacramento East, California" 7.5-minute Quadrangle.

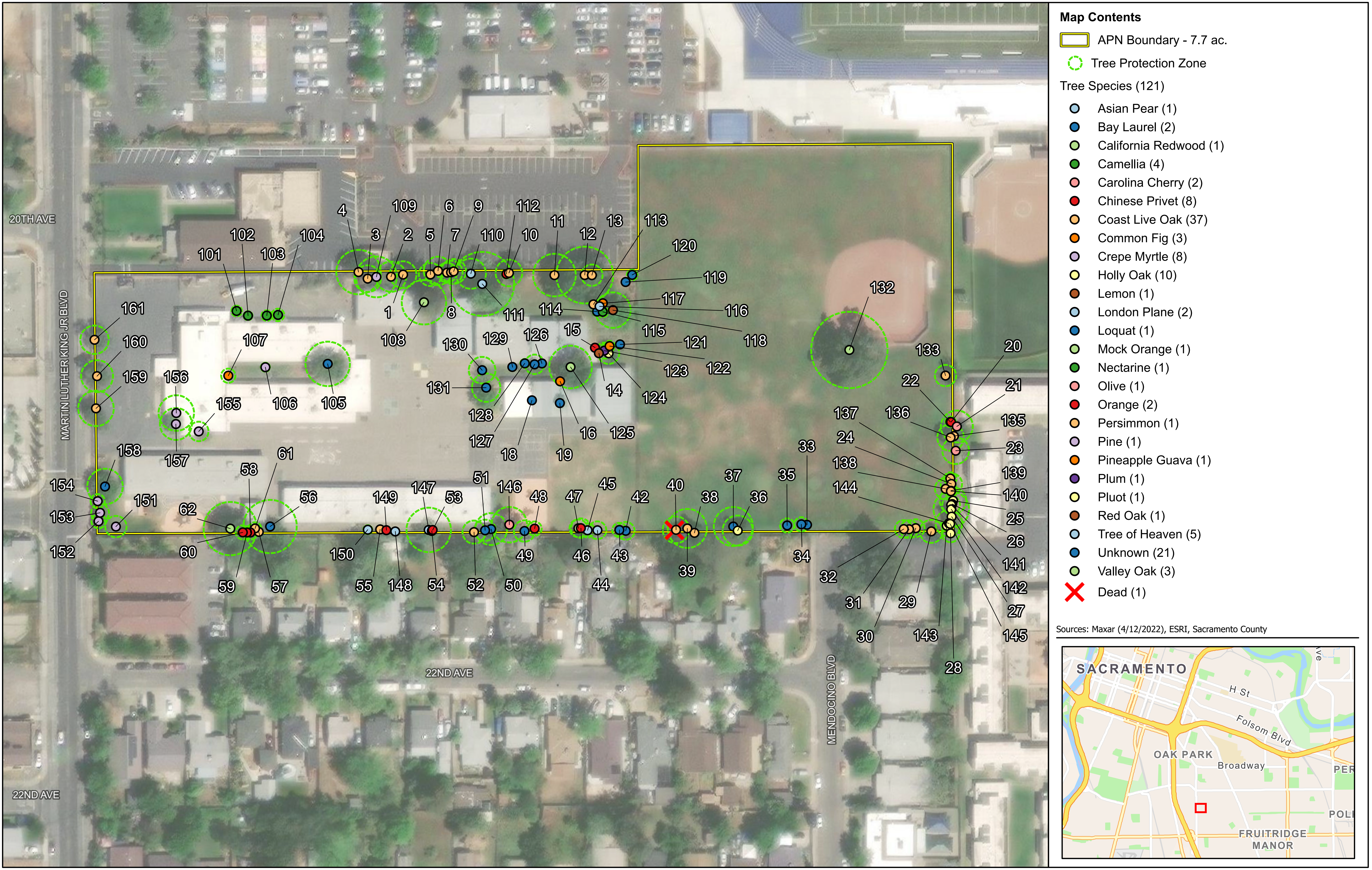
LIST OF APPENDICES

APPENDIX A

Arborist Survey Results

Appendix A. Arborist Survey Results

2023-001 Oak Ridge Elementary School Rebuild Project



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

Location: N:\2023\2023-001 Oak Ridge Elementary School Rebuild Project\MAPS\Biological_Resources\ORESRP Biological Resources.aprx - ORESRP Arborist 20230210 (jwelsh - 2/10/2023)

Map Date: 2/10/2023

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Scale in Feet
0 50 100

APPENDIX B

Tree Survey Data (January 20, 2023)

Oak Ridge Elementary School Rebuild Project
Tree Survey Data (January 20, 2023)

Tree Tag #	Common Name	Latin Name	DSH (inches)	Dripline (feet)	Structure	Health	Stem Description (if multiple)	Field Note	Impact	Private Protected Tree
1	Coast Live Oak	*Quercus agrifolia*	14.5	15	Fair	Fair to Good		Growing through fence	Unclear	**Yes**
2	Coast Live Oak	*Quercus agrifolia*	14	17	Fair to Good	Fair to Good		Growing against fence	Unclear	**Yes**
3	Coast Live Oak	*Quercus agrifolia*	13	15	Fair to Poor	Fair to Poor		Growing through fence, sucker sprouts	Unclear	**Yes**
4	Coast Live Oak	*Quercus agrifolia*	20	25	Fair to Poor	Fair to Poor		Sucker sprouts at old cuts, growing against fence	Unclear	**Yes**
5	Coast Live Oak	*Quercus agrifolia*	9	13	Fair to Good	Good		Growing against fence	Unclear	No
6	Coast Live Oak	*Quercus agrifolia*	10.5	16	Fair	Fair to Good		Growing through fence	Unclear	No
7	Coast Live Oak	*Quercus agrifolia*	11	11	Fair	Fair to Good		Growing against fence	Unclear	No
8	Coast Live Oak	*Quercus agrifolia*	6	13	Fair	Fair to Good		Growing against fence	Unclear	No
9	Coast Live Oak	*Quercus agrifolia*	7	14	Fair to Good	Fair		Growing against fence	Unclear	No
10	Coast Live Oak	*Quercus agrifolia*	15	15	Fair	Fair to Good		Growing through fence	Unclear	**Yes**
11	Coast Live Oak	*Quercus agrifolia*	25	24	Fair	Fair to Good		Growing through fence	Unclear	**Yes**
12	Coast Live Oak	*Quercus agrifolia*	31	32	Fair to Good	Fair		Sprouts at cut limbs	**Removal**	**Yes**
13	Coast Live Oak	*Quercus agrifolia*	6	12	Fair	Fair to Good		Growing under adjacent tree	**Removal**	No
14	Meyer Lemon	*Citrus × meyeri*	2.5	3	Good	Good			**Removal**	No
15	Orange	*Citrus* sp.	4.5	4	Good	Good			**Removal**	No
16	Common fig	*Ficus carica*	−	−	−	−		Small, growing between trailers, unable to see DSH	**Removal**	No
18	Unknown	−	−	−	−	−		Between trailers, unable to see	**Removal**	No
19	Unknown	−	−	−	−	−		Between trailers, unable to see	**Removal**	No
20	Chinese Privet	*Ligustrum sinense*	7.1	5	Fair to Poor	Fair	2.6,1,3.5	Growing through fence, 1st stem 4" above grade, other stems 1" above grade	Unclear	No
21	Carolina Cherry	*Prunus caroliniana*	11	18	Fair	Fair			Indirect Impact	No
22	Coast Live Oak	*Quercus agrifolia*	4.3	6	Fair to Poor	Good		Growing through fence, 2.8' above grade	Unclear	No
23	Carolina Cherry	*Prunus caroliniana*	14	15	Fair to Poor	Fair to Poor		Crown dieback, trunk rot, 9" above grade	**Removal**	No
24	Coast Live Oak	*Quercus agrifolia*	4.5	12	Fair to Poor	Fair		Growing through fence, 1" above grade	Unclear	No
25	Holly Oak	*Quercus ilex*	3	15	Fair to Poor	Fair to Poor		1" above grade	**Removal**	No
26	Holly Oak	*Quercus ilex*	2	2	Fair to Poor	Fair to Poor		Growing through fence, 2" above grade	Unclear	No
27	Holly Oak	*Quercus ilex*	7	3	Poor	Fair to Poor	2,1,3,1	Growing through fence, topped, 1" above grade	Unclear	No
28	Holly Oak	*Quercus ilex*	3.5	10	Fair	Fair to Good		Growing through fence	Unclear	No
29	Coast Live Oak	*Quercus agrifolia*	9	13	Fair to Poor	Fair		Growing through fence	Unclear	No
30	Coast Live Oak	*Quercus agrifolia*	7	10	Fair	Fair		Growing through fence, 1" above grade	Unclear	No
31	Coast Live Oak	*Quercus agrifolia*	2	10	Fair to Poor	Fair		Growing through fence	Unclear	No
32	Coast Live Oak	*Quercus agrifolia*	7	10	Fair to Poor	Fair to Poor		Growing through fence , 1" above grade	Unclear	No
33	Unknown	−	7					On other side of fence, unable to see DSH	Indirect Impact	No
34	Unknown	−	−	8	−	−		On other side of fence, unable to see DSH	Indirect Impact	No
35	Unknown	−	−	8	−	−		On other side of fence, unable to see DSH	Indirect Impact	No
36	Holly Oak	*Quercus ilex*	23	17	Fair	Fair	6,9,8	On other side of fence	Indirect Impact	No
37	Unknown	−	12	22	Fair	Fair		Behind fence, 3' above grade	Indirect Impact	No
38	Coast Live Oak	*Quercus agrifolia*	2	4	Fair	Fair to Good		Growing through fence, 3" above grade	Unclear	No
39	Coast Live Oak	*Quercus agrifolia*	15	22	Fair to Good	Fair to Good		Growing against fence	Unclear	**Yes**
40	Coast Live Oak	*Quercus agrifolia*	9	15	Fair to Poor	Fair		Growing through fence	Unclear	No
41	−	−	−	−	−	Dead			**Removal**	No
42	Bay Laurel	*Laurus nobilis*	15	10	Fair to Poor	Fair to Good	4,1,1,1,1,4,2,1	Growing through fence	Unclear	No
43	Bay Laurel	*Laurus nobilis*	4	8	Fair to Poor	Fair		Growing through fence, 2" above grade	Unclear	No
44	Tree of Heaven	*Ailanthus altissima*	6	10	Fair to Poor	Fair to Poor		Growing through fence, 2.5' above grade	Unclear	No
45	Tree of Heaven	*Ailanthus altissima*	−	8	Fair	Fair		Growing through fence, unable to see DSH	Unclear	No
46	Chinese Privet	*Ligustrum sinense*	−	11	Fair	Fair to Good		On other side of fence, unable to see DSH	Indirect Impact	No

Oak Ridge Elementary School Rebuild Project
Tree Survey Data (January 20, 2023)

Tree Tag #	**Common Name**	**Latin Name**	**DSH (inches)**	**Dripline (feet)**	**Structure**	**Health**	**Stem Description (if multiple)**	**Field Note**	**Impact**	**Private Protected Tree**
47	Mock Orange	*Pittosporum tobira*	–	10	Good	Good		Unable to see DSH	Indirect Impact	No
48	Chinese Privet	*Ligustrum sinense*	7	8	Fair to Poor	Fair		Growing through fence , 5" above grade	Unclear	No
49	Unknown	–	5	12	Fair to Poor	Fair		Growing through fence, 2' above grade	Unclear	No
50	Unknown	–	22	18	Fair to Poor	Fair		Growing through fence, 8" above grade	Unclear	No
51	Unknown	–	15	12	Fair to Poor	Poor		Sloughing bark	**Removal**	No
52	Coast Live Oak	*Quercus agrifolia*	2	13	Fair to Poor	Fair		2' above grade	**Removal**	No
53	Chinese Privet	*Ligustrum sinense*	18	3	Poor	Fair to Poor		Cut at 2.5' with stump sprouts	**Removal**	No
54	Coast Live Oak	*Quercus agrifolia*	0.9	4	Fair to Poor	Fair to Poor			**Removal**	No
55	Coast Live Oak	*Quercus agrifolia*	0.4	3	Fair to Poor	Fair			**Removal**	No
56	Unknown	–	22	30	Fair to Good	Fair to Good		2' above grade	**Removal**	No
57	Coast Live Oak	*Quercus agrifolia*	2	3	Fair to Poor	Fair to Poor		Growing through fence, 2" above grade	Unclear	No
58	Chinese Privet	*Ligustrum sinense*	3.5	8	Fair to Good	Fair to Good		Growing against fence	Unclear	No
59	Chinese Privet	*Ligustrum sinense*	3.5	7	Fair to Good	Fair to Good		Growing against fence, 3" above grade	Unclear	No
60	Chinese Privet	*Ligustrum sinense*	4	8	Fair	Fair		Growing against fence, 1" above grade	Unclear	No
61	Coast Live Oak	*Quercus agrifolia*	2	7	Fair	Fair to Good		1" above grade	**Removal**	No
62	Valley Oak	*Quercus lobata*	–	30	Fair	Fair		Unable to see DSH	**Removal**	No
101	Camellia	*Camellia* sp.	7.9	6	Good	Good		4" above grade	**Removal**	No
102	Camellia	*Camellia* sp.	7.7	5	Good	Good		3" above grade	**Removal**	No
103	Camellia	*Camellia* sp.	5.8	6	Good	Good		5" above grade	**Removal**	No
104	Camellia	*Camellia* sp.	7	7	Good	Good		7" above grade	**Removal**	No
105	Unknown	–	16.7	25	Good	Good			**Removal**	No
106	Crepe Myrtle	*Lagerstroemia indica*	2.2	5	Fair	Good		Lawn mower damage at base	**Removal**	No
107	Common fig	*Ficus carica*	4.4	8	Fair to Poor	Fair to Good		Trunk damage, stump sprouts	**Removal**	No
108	California Redwood	*Sequoia sempervirens*	44.7	25	Fair to Good	Good		Sprouts at base	**Removal**	**Yes**
109	Pine	*Pinus* sp.	25.3	23	Fair to Poor	Fair to Poor		Multiple previous branch cuts with oozing sap, 45 degree lean	**Removal**	**Yes**
110	London Plane	*Platanus × acerifolia*	16.2	17	Fair	Fair		Topped to stay under power line	**Removal**	No
111	London Plane	*Platanus × acerifolia*	28	36	Good	Good			**Removal**	**Yes**
112	Orange	*Citrus* sp.	18.6	5	Poor	Fair to Poor	10.2,4.4,4	Growing through fence, sucker sprouts, main trunk half missing, 2 small stem 15" above grade	Unclear	No
113	Persimmon	*Diospyros virginiana*	2.7	4	Fair	Fair		2" above grade	**Removal**	No
114	Unknown	–	3.3	5	Good	Good		In garden, 12" above grade	**Removal**	No
115	Nectarine	*Prunus persica*	3.7	6	Good	Good		In garden, 1.9' above grade	**Removal**	No
116	Asian Pear	*Pyrus pyrifolia*	2.2	3	Fair to Good	Good		In garden, 9" above grade	**Removal**	No
117	Pineapple Guava	*Acca sellowiana*	1.9	3	Good	Good		In garden, 5" above grade	**Removal**	No
118	Red Oak	*Quercus rubra*	12.6	20	Good	Good			**Removal**	No
119	Unknown	–	0.9	2	Fair	Good		Growing through compost bin, 1.5' above grade	**Removal**	No
120	Unknown	–	2.9	6	Good	Good			**Removal**	No
121	Loquat	*Eriobotrya japonica*	2.9	3	Fair to Poor	Poor		1" above grade	**Removal**	No
122	Common fig	*Ficus carica*	4.2	6	Good	Good		9" above grade	**Removal**	No
123	Plum	*Prunus* sp.	5.7	9	Fair	Good		9" above grade	**Removal**	No
124	Pluot	*Prunus* sp.	6.8	12	Fair	Fair to Good		12" above grade	**Removal**	No
125	Valley Oak	*Quercus lobata*	21	24	Fair	Fair		Codominant branching	**Removal**	**Yes**
126	Unknown	–	5	4	Fair	Fair to Good		1" above grade	**Removal**	No
127	Unknown	–	6.2	11	Fair	Fair to Good		18" above grade	**Removal**	No

Oak Ridge Elementary School Rebuild Project

Tree Survey Data (January 20, 2023)

Tree Tag #	Common Name	Latin Name	DSH (inches)	Dripline (feet)	Structure	Health	Stem Description (if multiple)	Field Note	Impact	Private Protected Tree
128	Unknown	–	6.2	5	Fair	Fair to Good		2' above grade	**Removal**	No
129	Unknown	–	2.4	4	Fair to Poor	Fair to Poor			**Removal**	No
130	Unknown	–	7	15	Fair to Poor	Fair to Good		Girdling roots	**Removal**	No
131	Unknown	–	11.7	16	Fair to Good	Good			**Removal**	No
132	Valley Oak	*Quercus lobata*	45.8	43	Fair	Fair		Refer to previous arborist report for detailed data	**Removal**	**Yes**
133	Coast Live Oak	*Quercus agrifolia*	–	12	Fair to Poor	Fair to Good		Growing through fence, Unable to see DSH	Unclear	No
135	Coast Live Oak	*Quercus agrifolia*	3	4	Fair to Poor	Fair to Poor		Growing through fence, 1" above grade	Unclear	No
136	Coast Live Oak	*Quercus agrifolia*	16	15	Fair to Poor	Fair	15,1	Growing through fence, 1st stem 21" above grade, 2nd stem 5" above grade	Unclear	**Yes**
137	Coast Live Oak	*Quercus agrifolia*	3.5	7	Fair	Good		Growing through fence, 1" above grade	Unclear	No
138	Coast Live Oak	*Quercus agrifolia*	8	12	Fair to Poor	Fair		Growing through fence, 3" above grade	Unclear	No
139	Coast Live Oak	*Quercus agrifolia*	5	7	Fair	Fair		Growing through fence, 1" above grade	Unclear	No
140	Coast Live Oak	*Quercus agrifolia*	3	6	Fair to Poor	Fair		Growing through fence, 1" above grade	Unclear	No
141	Holly Oak	*Quercus ilex*	10	10	Fair to Poor	Fair to Good	8,2	Growing through fence, both 2" above grade	Unclear	No
142	Holly Oak	*Quercus ilex*	11	20	Fair	Fair		Growing through fence, 16" above grade	Unclear	No
143	Holly Oak	*Quercus ilex*	11	6	Poor	Fair to Poor	6,3,1,1	Growing through fence, topped, 2" above grade	Unclear	No
144	Holly Oak	*Quercus ilex*	8.2	15	Fair	Fair		Growing through fence	Unclear	No
145	Holly Oak	*Quercus ilex*	2.1	5	Fair to Poor	Fair	2.1	Growing through fence	Unclear	No
146	Olive	*Olea europaea*	22.3	20	Fair	Fair		2.5' above grade	**Removal**	No
147	Tree of Heaven	*Ailanthus altissima*	12.1	25	Poor	Fair		Growing through fence and girdling trunk	Unclear	No
148	Tree of Heaven	*Ailanthus altissima*	2	4	Fair	Fair		Growing through fence, 1" above grade	Unclear	No
149	Chinese Privet	*Ligustrum sinense*	4	4	Poor	Fair to Poor		1" above grade	**Removal**	No
150	Tree of Heaven	*Ailanthus altissima*	9	5	Poor	Fair to Poor		Growing through fence, 6" above grade	Unclear	No
151	Crepe Myrtle	*Lagerstroemia indica*	5.5	12	Fair to Good	Good			**Removal**	No
152	Crepe Myrtle	*Lagerstroemia indica*	5.3	8	Fair to Good	Good		4' above grade	**Removal**	No
153	Crepe Myrtle	*Lagerstroemia indica*	5	10	Fair to Good	Good		4' above grade	**Removal**	No
154	Crepe Myrtle	*Lagerstroemia indica*	4.1	8	Fair to Good	Good			**Removal**	No
155	Crepe Myrtle	*Lagerstroemia indica*	6.9	11	Good	Good			**Removal**	No
156	Crepe Myrtle	*Lagerstroemia indica*	7.5	20	Fair to Good	Good			**Removal**	No
157	Crepe Myrtle	*Lagerstroemia indica*	6.9	18	Fair to Good	Fair to Poor		4' above grade	**Removal**	No
158	Unknown	–	20.2	20	Fair	Fair to Good		2' above grade	**Removal**	No
159	Coast Live Oak	*Quercus agrifolia*	25.9	20	Poor	Poor		9" above grade. Refer to previous arborist report for detailed data	**Removal**	**Yes**
160	Coast Live Oak	*Quercus agrifolia*	22	18	Poor	Poor		Refer to previous arborist report for detailed data	**Removal**	**Yes**
161	Coast Live Oak	*Quercus agrifolia*	29	16	Poor	Poor		12" above grade. Refer to previous arborist report for detailed data	**Removal**	**Yes**

APPENDIX C

Representative Site Photographs

Photo 1. Overview of trees within western classroom cluster, looking east. Photo taken January 20, 2023.

Photo 2. Holly Oak along eastern boundary, looking east. Photo taken January 20, 2023.

APPENDIX D

CalTLC Arborist Report

CalTLC
TENDER LOVING CARE FOR YOUR TREES
California Tree and Landscape Consulting, Inc.

December 21, 2022

Ms. Meredith Collins, Program Manager
Innovative Construction Services
5433 El Camino Ave #2
Carmichael, CA 95608
meredith@icscm.com
916.870.3754

SUBJECT: ARBORIST REPORT FOR 4 OAK TREES GROWING ON THE PROPERTY AT 4501 MARTIN LUTHER KING JR, OAK RIDGE ELEMENTARY SCHOOL, SACRAMENTO, CA

Dear Ms. Collins,

Thank you for the opportunity to provide Arborist Consulting Services. This report includes the observations and assessment of the four oak trees growing on the school property at 4501 Martin Luther King Jr Blvd, Sacramento, CA. Three trees are growing in the parking lot planting space along Martin Luther King Jr. Blvd. One tree is growing in the sports field on the east side of the campus. The site is being renovated and a new school building is being built on the sports field and the existing building area will be the playground and sports area. You were asking if the trees should be removed or retained based on condition and growing site.

Report Summary: The site was inspected on Wednesday, December 14, 2022, at approximately 12:00 pm. The property is an elementary school campus. The property has a few trees growing on it, and this inspection was only to learn about the 4 trees for the project design.

Three trees are Coast Live Oak, growing in a planting space between the parking lot and the fence behind the sidewalk along Martin Luther King Jr. Blvd. The three trees were found to be in poor condition with a small soil area to grow in, some dieback in branches. All native oak trees are protected by the City of Sacramento. The trees can be retained with careful asphalt repair work. If the fence and pavement are being replaced, the fate of the trees will need to be considered. If the three trees are removed, they are protected and will have to be mitigated.

The fourth tree is a large Valley Oak growing in the sports field area The large Valley Oak in the sports field was found to be in fair condition with burls on the trunk, long heavy branches, and minimal trunk and branch decay for a tree this large. The tree could be pruned to reduce the overall crown size from approximately 85 feet to possibly 60 feet by removing end weights and long branches. Construction around the base should be kept up to 10 feet away for patio or walkways and 30 feet for the buildings outside of the reduced canopy. If this tree is to be removed it will need to be mitigated.

The risk of the trees are the common risks on a school site including people and any improvements on the property such as the sports field dugout, and the vehicles in the parking lot and parked along the street. The likelihood of failure for the 3 parking lot trees is possible tree is a large branch or main leader to the homes. The likelihood of failure for the large Oak is probable. The likelihood of impact is medium for all 4 trees, the 3 trees impacting vehicles or people and the large oak impacting people. The site users under the large oak are likely to not be around the tree during a storm event, or very high wind. If the tree is not pruned, the likelihood of failure is due to end weight leverage, and Valley Oaks ma be common to have branch failures on long branches during hot weather. The likelihood of failure and impact is unlikely for the three oaks and somewhat likely for the large oak. The consequences to the vehicles or people would be significant for the 3 oaks. The consequences would be severe for the large oak. The risk associated with the 3 oak trees is low. The risk associated with the large oak tree is moderate.

If the site design allows for the retention of the trees, the most reasonable mitigation for all 4 trees would be pruning. The dead branches and long weight branches on the 3 oaks can be removed and the trees will continue to grow. The large oak tree will require significant pruning to reduce the size of the crown. If the timing allows, the pruning should be done in two phases, the first removing the heaviest weights some branches receiving up to 20% leverage weight removal, and the remainder 10 to 15% leverage weight removal. The second phase after the tree grows would be to achieve the crown reduction for the space allowed by the new building.

If the new design requires changes to the parking or does not allow space for the large tree to grow, the trees should be removed and mitigation will be required, in the amount of 123 diameter inches. A permit will likely be required by the City for the tree removal and significant reduction pruning on the large oak.

Assignment: Ms. Collins contacted our office on October 4, 2022 requesting an inspection and findings on 4 trees growing on the school campus that may be impacted by the proposed campus re-design and reconstruction. We offered a proposal and we agreed to an appointment.

All site information and history were provided by Mr. Isaac White. The assignment requires the following activities: visit the site, verify the trees, assess the trees, provide a report for the team to make a decision on the fate of the trees.

The City of Sacramento defines a private protected tree as *(highlighted as appropriate)*:

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

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

C. A tree that has a DSH of 24 inches or more located on private property that:

   1. is an undeveloped lot; or

2. does not include any single unit or duplex dwellings; or

D. A tree that has a DSH of 32 inches or more located on private property that includes any single unit or duplex dwellings.

Definition B defines the 4 subject trees as private protected trees.

The process for determining approval of a permit application includes:

a. The health and structural condition of the tree;
b. Whether the proposed regulated work conforms to current best management practices for the tree care industry;
c. The above and below ground space available for root and crown growth;
d. The desirability of the species;
e. Whether the proposed work would improve growing conditions of neighboring trees;
f. The approximate age of the tree compared with the average life span for the species;
g. Whether or not the tree is acting as a host for an organism that is pathogenic to other trees;
h. The need for the proposed work in order to develop property; and
i. Whether there are reasonable means of accomplishing the applicant's goal with less impact to the tree.

The Tree Replacement Standard is:

2. Any other tree replacement plan must provide for the replacement of trees at a ratio of one inch DSH of tree replaced for each inch DSH of tree removed (1:1 ratio).

The results of the inspection are included in this report.

Observations: The site was visited on Wednesday, December 14, 2022 at about 12:00 pm. Three trees are Coast Live Oak (*Quercus agrifolia*) growing in the fenced parking lot behind the sidewalk along the street frontage on the west side of the campus. The fourth tree is a Valley Oak (*Quercus lobata*) growing in the sports field on the east side of the campus. The trees were measured with a diameter tape at the appropriate height to determine the diameter. The Valley Oak was measured at 60 inches due to several burls that obscured the true diameter of the lower trunk. The Coast Live Oaks were measured one at 42 inches and 2 at 12 inches due to the co-dominant leaders on all 3 trees.

The tools used were a diameter tape, 12" probe, hand mattocks, tape measure, mallet, tree tags, hammer, nails, and camera. The trees were numbered and tree tags were nailed to the trees approximately 6 feet above grade on the north side of the stems.

The trees were assessed and rated for health and structure, and overall condition considering: leaf quality, size, color and density; vitality; dieback; root impacts; branch structure, branch attachment, crotch structure, trunk flare, surface roots, decay, insects and diseases, growth habit, any physical damages, lean, and other issues that affect the condition of the trees. The trees were also considered for impacts from the proposed construction.

The rating system used for both health, structure, and overall condition is:

(0) 0%	dead or stumps;
(1) 1-20%	very poor/severe decline;
(2) 21-40%	poor/declining;
(3) 41-60%	fair;
(4) 61-80%	good; and
(5) 81-100%	excellent.

For tree risk assessment, the targets for the tree are the vehicles in the parking lot and on the street for the three trees and people on the site for all 4 trees. The fenced dugout under the oak was not considered an important target.

The highest risk is the likelihood of failure of a large branch on the large Valley Oak. The likelihood of a large branch failure is probable. The likelihood of a trunk failure is possible. The likelihood of impact is medium for either failure. The likelihood of failure and impact from a large branch is somewhat likely. The consequences to the people would be severe. The risk is moderate.

The highest risk is the likelihood of failure of smaller branches on the three Coast Live Oaks. The likelihood of a smaller branch failure is possible. The likelihood of a trunk failure is possible. The likelihood of impact is medium for either failure. The likelihood of failure and impact from smaller branches is unlikely. The consequences to vehicles or people would be significant. The risk is low.

The data from the inspection is included in the Tree Inspection at Oak Ridge Elementary School 4501 Martin Luther King Jr. Blvd Tree List.

Other testing or examination: No other testing or examination was requested at the time of the site inspection or recommended as a result of the inspection.

Discussion: The inspection was for the purpose of the campus design planning. The very large Valley Oak is a concern for pruning as a preventative maintenance treatment to an asset. Other than the needs to prune the tree, the considerations are for the construction. How much space is needed to design and construct the campus buildings, and what will the needs be for space around the tree. If the buildings require more space than a 60 feet wide opening for the tree, or if the area around the base of the tree cannot keep clear of permanent concrete for 20 feet, the tree should be considered for removal. If the tree can be designed around with: space around the buildings; modular pavement products that will reduce compaction and allow changes to the surface without significant impact to the roots; and the tree can be properly pruned, maintained, and protected during the construction; the large Valley Oak should be able to continue to grow and be an asset on the campus property. If the tree is going to be retained, it will need tree protection fencing with a 4" deep mulch layer over the soil and branch pruning. The pruning should be performed in 2 phases, the first to reduce branch failure now, and the second to size the crown for the space between the buildings.

The 3 Coast Live Oaks by the parking lot also are a consideration for the new design. Will the parking lot be a play area without pavement, or will the pavement and parking remain. Will the existing fence and gate need to be moved or removed, and what will that impact to the root systems on the trees. If the trees can be designed and constructed around, the trees can be pruned and should continue to grow on the site. If the fence is being renovated, the farthest south tree is growing over the angle iron track for the gate, and that will need to be carefully removed. The three trees are growing in a relatively small soil area and asphalt will need to be removed and replaced in a careful manner. If the trees are going to remain, retaining the asphalt around the trees for as long as possible is the best tree protection for these trees. The construction protection fencing will need to be outside the edge of the soil, or far enough out to protect any low branches that are not going to be pruned from construction equipment that could cause a branch impact. Then the final asphalt replacement will need to be performed with care removing the asphalt with minimal root impact, and consideration of a geotextile layer of the roots to reduce soil compaction for the new paving.

The report is intended to provide the current conditions of the trees and what design space and protection is needed for the trees to be constructed around. If all that care and space is acceptable to the design, the trees can be retained. If not, the trees may need to be removed and inch for inch diameter mitigation up to 123 diameter inches may be required.

It may be possible to move the large Valley Oak tree, as the area around the tree is open and the root ball could be captured for the move. Also, moving it on site would be a possibility as the same site for a move requires little road or transport needs. Moving the 3 Coast Live Oak would be more difficult due to the fence and other restrictions in capturing the root ball needed for the moves.

Conclusion: There are 4 existing oak trees on the school campus. The trees are in a reasonable condition to retain on the site with maintenance options provided. If the new design for the campus will not accommodate the space and care the trees need, the trees will need to be removed, and likely mitigated, or the large Valley Oak may be able to be moved.

Please contact me at 650-740-3461, or gordon@mannandtrees.com, if you have any questions about this report.

Respectfully submitted,

Gordon Mann
Consulting Arborist and Urban Forester
Registered Consulting Arborist #480
ISA Certified Arborist and Municipal Specialist #WE-0151AM
CaUFC Certified Urban Forester #127
ISA Qualified Tree Risk Assessor #1005

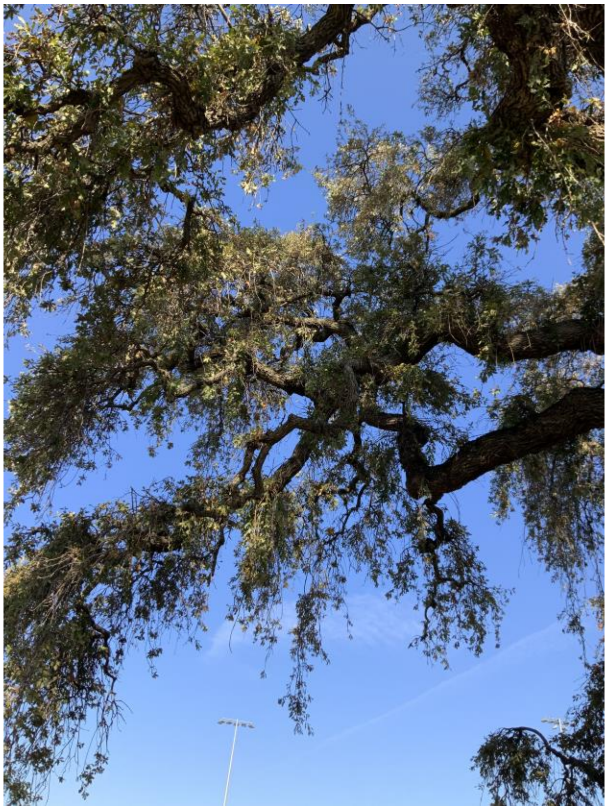
Images

Aerial view of the 4 trees included in the inspection

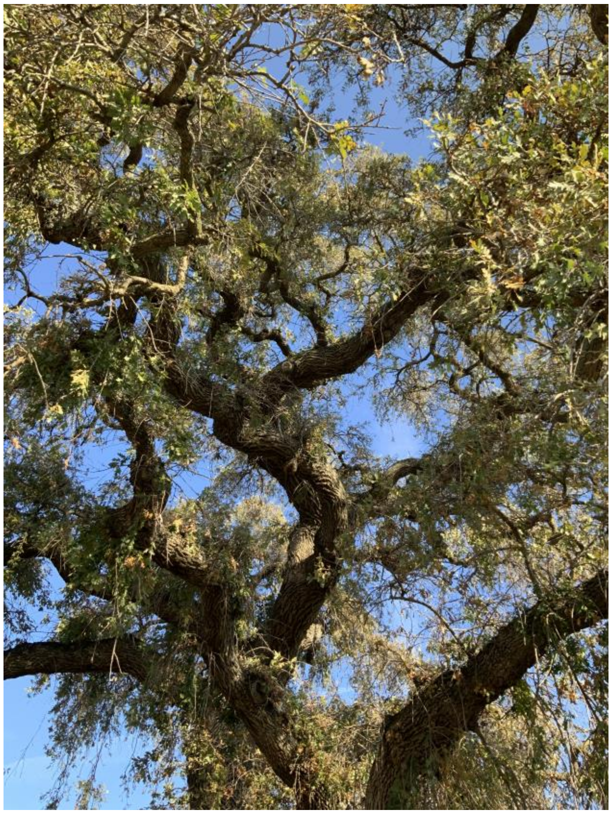
Valley Oak

Upper crotch attachments in Valley Oak

Base of Valley Oak with burls on lower trunk, and location near dugout



Large long leveraged branches to prune



Large long leveraged branches to prune

Large long leveraged branches to prune

Target pruning for the large oak from the E

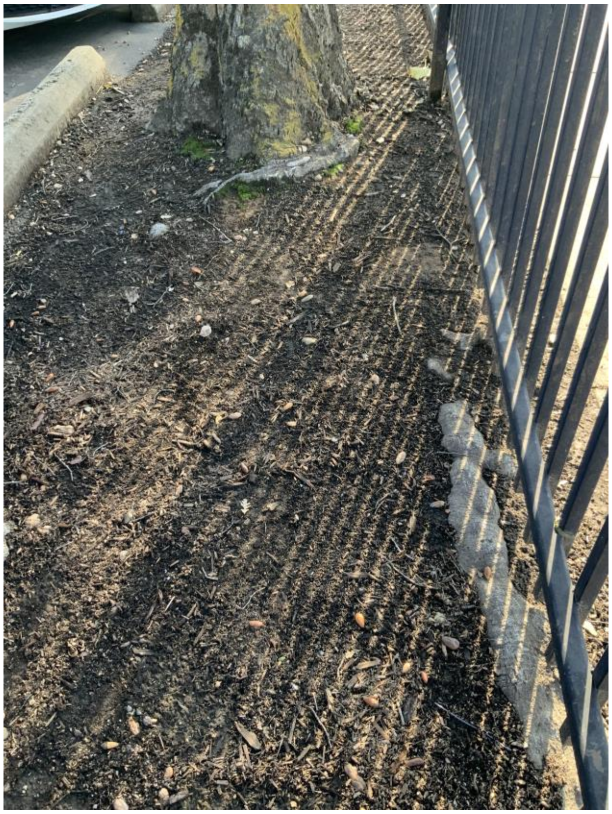
Target pruning for the large oak from the N

Tree 3255

Tree 3256

Tree 3267

Base of 3255



Base of 3256

Base of 3257

Pruning Specifications

Location: There are 4 trees to be pruned on the campus, identified on the aerial image above, 3 Coast Live Oak in the parking and 1 Valley Oak in the playing field.

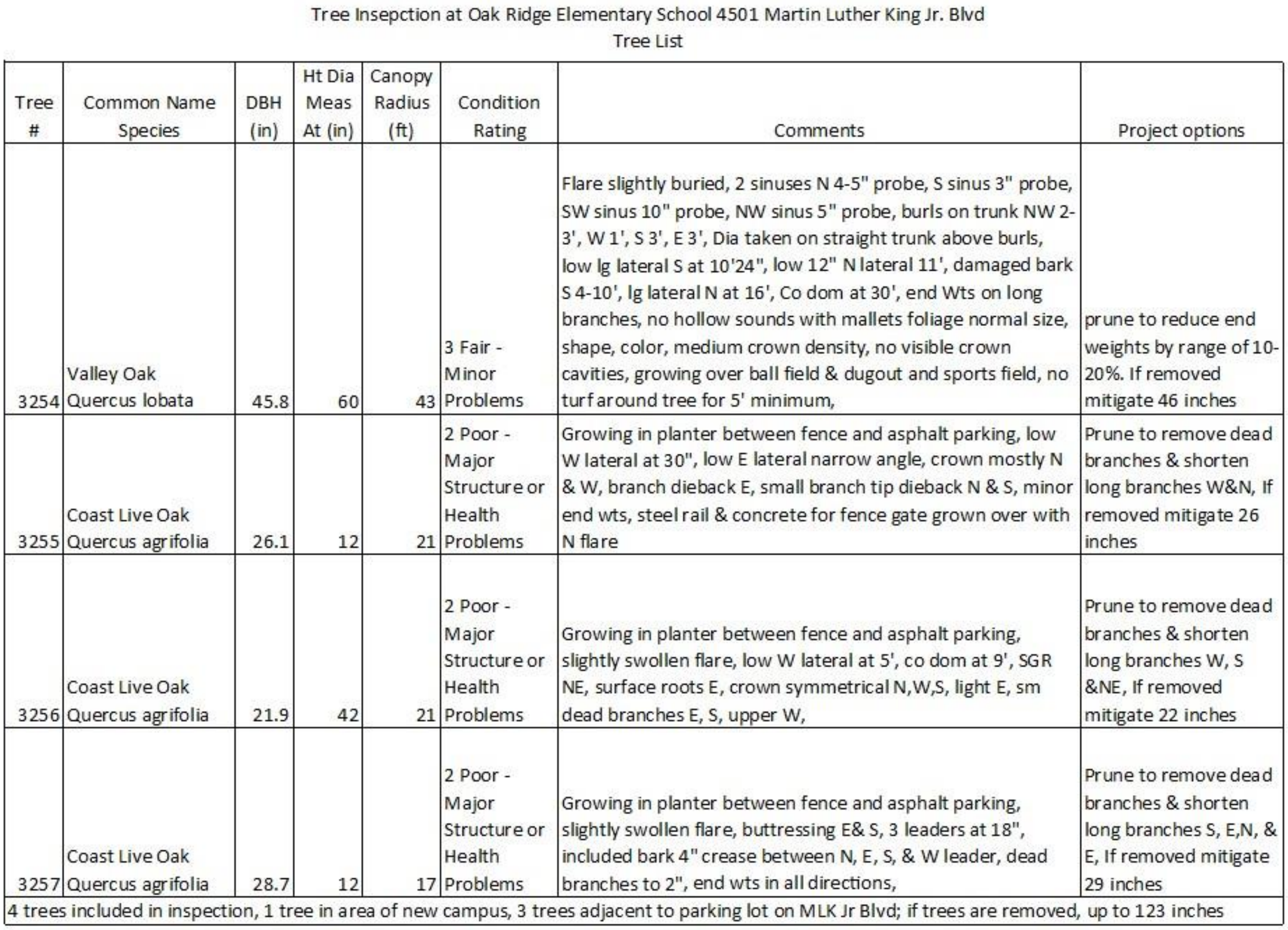
Objective: The trees to be pruned are to reduce the risk of branch failure, and manage the size of the trees on the school campus while retaining as large a crown as possible.

The pruning will be performed in the outer quarter to third of the crown on live branches and anywhere in the crown to remove dead branches. The smallest possible cuts to reduce the end weight leverage and shorten long branches as possible will be made. On the 3 Cost Live Oaks the largest pruning cut will be 4 inches diameter. On the large Valley Oak the pruning cuts will usually be two to four inches diameter and some large lateral branch reduction cuts will be 6, 8, 10, and 12 inches diameter to reduce the crown. A rare heading cut may be needed.

The total amount of live foliage to be removed from the Coast Live Oaks will be 10% or 15%

The total amount of live foliage to be removed from the Valley Oak will be 15% or 10%. If removed in two phases, the first phase will be 10% to 15% of the foliage, and the second phase will be 10% of the foliage.

Tree List



Tree Insepction at Oak Ridge Elementary School 4501 Martin Luther King Jr. Blvd
Tree List

Tree #	Common Name Species	DBH (in)	Ht Dia Meas At (in)	Canopy Radius (ft)	Condition Rating	Comments	Project options
3254	Valley Oak Quercus lobata	45.8	60	43	3 Fair - Minor Problems	Flare slightly buried, 2 sinuses N 4-5" probe, S sinus 3" probe, SW sinus 10" probe, NW sinus 5" probe, burls on trunk NW 2-3', W 1', S 3', E 3', Dia taken on straight trunk above burls, low lg lateral S at 10'24", low 12" N lateral 11', damaged bark S 4-10', lg lateral N at 16', Co dom at 30', end Wts on long branches, no hollow sounds with mallets foliage normal size, shape, color, medium crown density, no visible crown cavities, growing over ball field & dugout and sports field, no turf around tree for 5' minimum,	prune to reduce end weights by range of 10-20%. If removed mitigate 46 inches
3255	Coast Live Oak Quercus agrifolia	26.1	12	21	2 Poor - Major Structure or Health Problems	Growing in planter between fence and asphalt parking, low W lateral at 30", low E lateral narrow angle, crown mostly N & W, branch dieback E, small branch tip dieback N & S, minor end wts, steel rail & concrete for fence gate grown over with N flare	Prune to remove dead branches & shorten long branches W&N, If removed mitigate 26 inches
3256	Coast Live Oak Quercus agrifolia	21.9	42	21	2 Poor - Major Structure or Health Problems	Growing in planter between fence and asphalt parking, slightly swollen flare, low W lateral at 5', co dom at 9', SGR NE, surface roots E, crown symmetrical N,W,S, light E, sm dead branches E, S, upper W,	Prune to remove dead branches & shorten long branches W, S &NE, If removed mitigate 22 inches
3257	Coast Live Oak Quercus agrifolia	28.7	12	17	2 Poor - Major Structure or Health Problems	Growing in planter between fence and asphalt parking, slightly swollen flare, buttressing E& S, 3 leaders at 18", included bark 4" crease between N, E, S, & W leader, dead branches to 2", end wts in all directions,	Prune to remove dead branches & shorten long branches S, E,N, & E, If removed mitigate 29 inches
4 trees included in inspection, 1 tree in area of new campus, 3 trees adjacent to parking lot on MLK Jr Blvd; if trees are removed, up to 123 inches							

Assignment Assumptions and Limiting Conditions

1. Consultant assumes that any legal description provided to Consultant is correct and that title to property is good and marketable. Consultant assumes no responsibility for legal matters. Consultant assumes all property appraised or evaluated is free and clear, and is under responsible ownership and competent management.
2. Consultant assumes that the property and its use do not violate applicable codes, ordinances, statutes or regulations.
3. Although Consultant has taken care to obtain all information from reliable sources and to verify the data insofar as possible, Consultant does not guarantee and is not responsible for the accuracy of information provided by others.
4. Client may not require Consultant to testify or attend court by reason of any report unless mutually satisfactory contractual arrangements are made, including payment of an additional fee for such Services as described in the Consulting Arborist Agreement.
5. Unless otherwise required by law, possession of this report does not imply right of publication or use for any purpose by any person other than the person to whom it is addressed, without the prior express written consent of the Consultant.
6. Unless otherwise required by law, no part of this report shall be conveyed by any person, including the Client, the public through advertising, public relations, news, sales or other media without the Consultant‘s prior express written consent.
7. This report and any values expressed herein represent the opinion of the Consultant, and the Consultant’s fee is in no way contingent upon the reporting of a specific value, a stipulated result, the occurrence of a subsequent event or upon any finding to be reported.
8. Sketches, drawings and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys. The reproduction of any information generated by architects, engineers or other consultants and any sketches, drawings or photographs is for the express purpose of coordination and ease of reference only. Inclusion of such information on any drawings or other documents does not constitute a representation by Consultant as to the sufficiency or accuracy of the information.
9. Unless otherwise agreed, (1) information contained in this report covers only the items examined and reflects the condition of those items at the time of inspection; and (2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing or coring. Consultant makes no warranty or guarantee, express or implied that the problems or deficiencies of the plans or property in question may not arise in the future.
10. Loss or alteration of any part of this Agreement invalidates the entire report.

Report Assumptions and Limitations:

This report provides information about the subject trees at the times of the inspection. Trees and conditions may change over time. This report is only valid for the trees with the conditions present at the times of the inspections. All observations were made while standing on the ground. The inspection consisted of visual observations, using a probe to gain additional information about decay and hollow portions of the tree, and if needed, light excavation was performed to observe shallow depth areas below grade at the base of the trees. No further examinations were requested or performed.

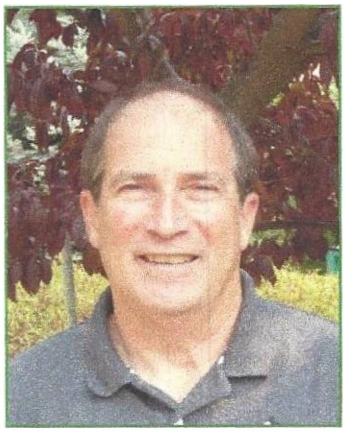
Sincere attempts were made to accurately locate the trees and show the trees on the pan. All tree locations were attempted to be shown as observed in the field.

Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist or seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that can fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed.

Treatments, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, landlord-tenant matters, etc. Arborists cannot take such issues into account unless complete and accurate information is given to the arborist. The person hiring the arborist accepts full responsibility for authorizing the recommended treatment or remedial measures.

Trees can be managed, but they cannot be controlled. To live near a tree is to accept some degree of risk. The only way to eliminate all risks is to eliminate all trees. Our company goal is to help clients enjoy life with trees, and grow better trees.



GORDON MANN

EDUCATION AND QUALIFICATIONS

1977	Bachelor of Science, Forestry, University of Illinois, Champaign.
1982 - 1985	Horticulture Courses, College of San Mateo, San Mateo.
1984	Certified as an Arborist, WE-0151A, by the International Society of Arboriculture (ISA).
2004	Certified as a Municipal Specialist, WE-0151AM, by the ISA.
2011	Registered Consulting Arborist, #480, by the American Society of Consulting Arborists (ASCA).
2003	Graduate of the ASCA Consulting Academy.
2006	Certified as an Urban Forester, #127, by the California Urban Forests Council (CaUFC).
2011	TRACE Tree Risk Assessment Certified, continued as an ISA Qualified Tree Risk Assessor (T.R.A.Q.).

PROFESSIONAL EXPERIENCE

2016 – Present CALIFORNIA TREE AND LANDSCAPE CONSULTING, INC (CalTLC). Vice President and Consulting Arborist. Auburn. Mr. Mann provides consultation to private and public clients in health and structure analysis, inventories, management pianning for the care of trees, tree appraisal, risk assessment and management, and urban forest management plans.

1986 - Present MANN MADE RESOURCES. Owner and Consulting Arborist. Auburn. Mr. Mann provides consultation in municipal tree and risk management, public administration, and developing and marketing tree conservation products.

2015 – 2017 CITY OF RANCHO CORDOVA, CA. Contract CityArborist. Mr. Mann serves as the City's first arborist, developing the tree planting and tree maintenance programs, performing tree inspections, updating ordinances, providing public education, and creating a management plan,

1984 - 2007 CITY OF REDWOOD CITY, CA. City Arborist, Arborist, and Public Works Superintendent.

Mr. Mann developed the Tree Preservation and Sidewalk Repair Program, supervised and managed the tree maintenance program, performed inspections and administered the Tree Preservation Ordinance. Additionally, he oversaw the following Public Works programs: Streets, Sidewalk, Traffic

Signals and Streetlights, Parking Meters, Signs and Markings, and Trees.

1982 - 1984CITY OF SAN MATEO, CA. Tree Maintenance Supervisor.

For the City of San Mateo, Mr. Mann provided supervision and management of the tree maintenance program, and inspection and administration of the Heritage Tree Ordinance.

1977 - 1982VILLAGE OF BROOKFIELD, IL. Village Forester.

Mr. Mann provided inspection of tree contractors, tree inspections, managed the response to Dutch Elm Disease. He developed an in-house urban forestry program with leadworker, supervision, and management duties to complement the contract program.

1979 INTERNATIONAL SOCIETY OF ARBORICULTURE. Member.

- Board of Directors (2015 - Present)
- True Professional ofArboriculture Award (2011) o In recognition of material and substantial contribution to the progress of arboriculture and having given unselfishly to support arboriculture.

1982 - Present WESTERN CHAPTER ISA (WCISA). Member.

- Chairman of the Student Committee (2014 - Present)
- Member of the Certification Committee (2007 - Present)
- Member of the Municipal Committee (2009 - 2014) • Award of Merit (2016) In recognition of outstanding meritorious service in advancing the principles, ideals and practices of arboriculture.
- Annual Conference Chair (2012)
- President (1992 - 1993)
- Award of Achievement and President's Award (1990)
- 1985 - Present CALIFORNIA URBAN FORESTS COUNCIL (CaUFC). Member; Board Member (2010 - Present)

1985 - Present SOCIETY OF MUNICIPAL ARBORISTS (SMA). Member. e Legacy Project of the Year (2015) o In recognition of outstanding meritorious service in advancing the principles, ideals and practices of arboriculture.

• Board Member (2005 - 2007)

2001 - Present AMERICAN SOCIETY OF CONSULTING ARBORISTS. Member. e Board of Directors (2006 - 2013)

• President (2012)

2001 - Present CAL FIRE. Advisory Position.

• Chairman of the California Urban Forestry Advisory Committee (2014 - Present)

2007 – Present AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI): A300 TREE MAINTENANCE STANDARDS COMMITTEE. SMA Representative and Alternate.

- Alternative Representative for SMA (2004 - 2007; 2012 - Present)
- Representative for SMA (2007 - 2012)

2007 - Present SACRAMENTO TREE FOUNDATION. Member and Employee.

- Co-chairman of the Technical Advisory Committee (2012 - 2018), member 2018- present
- Urban Forest Services Director (2007 - 2009)
- Facilitator of the Regional Ordinance Committee (2007 - 2009)

1988 - 1994 TREE CLIMBING COMPETITION. Chairman.

- Chairman for Northern California (1988 - 1992)
- Chairperson for International (1991 - 1994)

PUBLICATIONS AND LECTURES

Mr. Mann has authored numerous articles in newsletters and magazines such as Western Arborist, Arborist News, City Trees, Tree Care Industry Association, Utility Arborists Association, CityTrees, and Arborists Online, covering a range of topics on Urban Forestry, Tree Care, and Tree Management. He has developed and led the training for several programs with the California Arborist Association. Additionally, Mr. Mann regularly presents at numerous professional association meetings on urban tree management topics.

Certificate of Performance

I, Gordon Mann, certify that:

> I have personally inspected the trees and site referred to in this report, and have stated my findings accurately. The extent of the inspection is stated in the attached report under Assignment;
>
> I have no current or prospective interest in the vegetation, or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved;
>
> The analysis, opinions and conclusions stated herein are my own and are based on current scientific procedures and facts;
>
> My analysis, opinions, and conclusions were developed, and this report has been prepared according to commonly accepted arboricultural practices;
>
> No one provided significant professional assistance to me, except as indicated within the report;
>
> My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client, or any other party, nor upon the results of the assignment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of the International Society of Arboriculture (ISA) and an ISA Certified Arborist and Municipal Specialist. I am also a Registered Consulting Arborist member in good standing of the American Society of Consulting Arborists. I have been involved in the practice of arboriculture and the care and study of trees for over 43 years.

Signed:

Gordon Mann
Date: December 21, 2022

Appendix C Noise Analysis

Fundamentals of Noise

NOISE

Noise is most often defined as unwanted sound; whether it is loud, unpleasant, unexpected, or otherwise undesirable. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

Noise Descriptors

The following are brief definitions of terminology used in this chapter:

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A unitless measure of sound, expressed on a logarithmic scale and with respect to a defined reference sound pressure. The standard reference pressure is 20 micropascals (20 μPa).
- **Vibration Decibel (VdB).** A unitless measure of vibration, expressed on a logarithmic scale and with respect to a defined reference vibration velocity. In the U.S., the standard reference velocity is 1 micro-inch per second ($1x10^{-6}$ in/sec).
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent Continuous Noise Level (L_{eq}); also called the Energy-Equivalent Noise Level.** The value of an equivalent, steady sound level which, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the L_{eq} metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.
- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

- **Maximum Sound Level (L_{max}).** The highest RMS sound level measured during the measurement period.
- **Root Mean Square Sound Level (RMS).** The square root of the average of the square of the sound pressure over the measurement period.
- **Day-Night Sound Level (L_{dn} or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.
- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added from 7:00 PM to 10:00 PM and 10 dB from 10:00 PM to 7:00 AM. NOTE: For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dB (with the CNEL being only slightly more restrictive – that is, higher than the L_{dn} value). As a matter of practice, L_{dn} and CNEL values are interchangeable and are treated as equivalent in this assessment.
- **Peak Particle Velocity (PPV).** The peak rate of speed at which soil particles move (e.g., inches per second) due to ground vibration.
- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

Characteristics of Sound

When an object vibrates, it radiates part of its energy in the form of a pressure wave. Sound is that pressure wave transmitted through the air. Technically, airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure that creates sound waves.

Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). Loudness or amplitude is measured in dB, frequency or pitch is measured in Hertz [Hz] or cycles per second, and duration or time variations is measured in seconds or minutes.

Amplitude

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale. Because of the physical characteristics of noise transmission and perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 1 presents the subjective effect of changes in sound pressure levels. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud). Changes of 1 to 3 dB are detectable under quiet, controlled conditions, and changes of less than 1 dB are usually not discernible (even under ideal conditions). A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernible to most people in an exterior environment, and a 10 dB change is perceived as a doubling (or halving) of the sound.

Table 1 Noise Perceptibility

Change in dB	Noise Level
± 3 dB	Barely perceptible increase
± 5 dB	Readily perceptible increase
± 10 dB	Twice or half as loud
± 20 dB	Four times or one-quarter as loud

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Frequency

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all, but are "felt" more as a vibration. Similarly, though people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz.

When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to approximate the response of the human ear. The A-weighted noise level has been found to correlate well with people's judgments of the "noisiness" of different sounds and has been used for many years as a measure of community and industrial noise. Although the A-weighted scale and the energy-equivalent metric are commonly used to quantify the range of human response to individual events or general community sound levels, the degree of annoyance or other response also depends on several other perceptibility factors, including:

- Ambient (background) sound level
- General nature of the existing conditions (e.g., quiet rural or busy urban)
- Difference between the magnitude of the sound event level and the ambient condition
- Duration of the sound event
- Number of event occurrences and their repetitiveness
- Time of day that the event occurs

Duration

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time; half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_2, L_8 and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour, respectively. These "n" values are typically used to demonstrate compliance for stationary noise sources with many cities' noise ordinances. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period, respectively.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law and many local jurisdictions use an adjusted 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}). The CNEL descriptor requires that an artificial increment (or "penalty") of 5 dBA be added to the actual noise level for the hours from 7:00 PM to 10:00

PM and 10 dBA for the hours from 10:00 PM to 7:00 AM. The L_{dn} descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 PM and 10:00 PM. Both descriptors give roughly the same 24-hour level, with the CNEL being only slightly more restrictive (i.e., higher). The CNEL or L_{dn} metrics are commonly applied to the assessment of roadway and airport-related noise sources.

Sound Propagation

Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a single-point source, sound levels decrease by approximately 6 dB for each doubling of distance from the source (conservatively neglecting ground attenuation effects, air absorption factors, and barrier shielding). For example, if a backhoe at 50 feet generates 84 dBA, at 100 feet the noise level would be 79 dBA, and at 200 feet it would be 73 dBA. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dB for each doubling of distance over a reflective ("hard site") surface such as concrete or asphalt. Line source noise in a relatively flat environment with ground-level absorptive vegetation decreases by an additional 1.5 dB for each doubling of distance.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA results in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. For community environments, the ambient or background noise problem is widespread, through generally worse in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level number means. To help relate noise level values to common experience, Table 2 shows typical noise levels from familiar sources.

Table 2 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Onset of physical discomfort	120+	
	110	Rock Band (near amplification system)
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities stemming from operations of railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. As with noise, vibration can be described by both its amplitude and frequency. Vibration displacement is the distance that a point on a surface moves away from its original static position; velocity is the instantaneous speed that a point on a surface moves; and acceleration is the rate of change of the speed. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal and RMS is the square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage and RMS is typically more suitable for evaluating human response.

As with airborne sound, annoyance with vibrational energy is a subjective measure, depending on the level of activity and the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Persons accustomed to elevated ambient vibration levels, such as in an urban environment, may tolerate higher vibration levels. Table 3 displays the human response and the effects on buildings resulting from continuous vibration (in terms of various levels of PPV).

Table 3 Human Reaction to Typical Vibration Levels

Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e. not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: California Department of Transportation (Caltrans). 2020, April. *Transportation and Construction Vibration Guidance Manual.* Prepared by ICF International.

LOCAL REGULATIONS AND STANDARDS

Noise

Policies in this section protect residents, businesses, and visitors from noise hazards by establishing exterior and interior noise standards. Higher exterior noise standards are allowed for residential infill projects and mixed-use developments, as long as the interior noise standard is maintained. Mixed-use projects will be required to mitigate for on-site noise sources to ensure compatibility of uses. These policies also require construction noise impacts to be mitigated and require the reduction of noise from vehicles and aircrafts to protect residents, businesses, and visitors.

Existing noise contours for major sources in Sacramento, which include motor vehicles on roadways, aircraft at Sacramento International Airport and Executive Airport, light rail and heavy rail are shown in Appendix D. Future noise contours for roadways, based on projected development under the 2030 General Plan, are also shown in Appendix D.

Photograph courtesy of Michael Zwahlen

GOAL EC 3.1

Noise Reduction. Minimize noise impacts on human activity to ensure the health and safety of the community.

Policies

EC 3.1.1 **Exterior Noise Standards.** The City shall require noise mitigation for all development where the projected exterior noise levels exceed those shown in Table EC 1, to the extent feasible. *(RDR)*

Table EC 1 Exterior Noise Compatibility Standards for Various Land Uses

Land Use Type	*Highest Level of Noise Exposure That Is Regarded as "Normally Acceptable"[a] (L_{dn}[b] or CNEL[c])*
Residential—Low Density Single Family, Duplex, Mobile Homes	60 dBA[d,e]
Residential—Multi-family	65 dBA
Urban Residential Infill[f] and Mixed-Use Projects[g]	70 dBA
Transient Lodging—Motels, Hotels	65 dBA
Schools, Libraries, Churches, Hospitals, Nursing Homes	70 dBA
Auditoriums, Concert Halls, Amphitheaters	Mitigation based on site-specific study
Sports Arena, Outdoor Spectator Sports	Mitigation based on site-specific study
Playgrounds, Neighborhood Parks	70 dBA
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75 dBA
Office Buildings—Business, Commercial and Professional	70 dBA
Industrial, Manufacturing, Utilities, Agriculture	75 dBA

SOURCE: Governor's Office of Planning and Research, *State of California General Plan Guidelines 2003*, October 2003

a. As defined in the *Guidelines*, "Normally Acceptable" means that the "specified land use is satisfactory, based upon the assumption that any building involved is of normal conventional construction, without any special noise insulation requirements."

b. L_{dn} or Day Night Average Level is an average 24-hour noise measurement that factors in day and night noise levels.

c. CNEL or Community Noise Equivalent Level measurements are a weighted average of sound levels gathered throughout a 24-hour period.

d. dBA or A-weighted decibel scale is a measurement of noise levels.

e. The exterior noise standard for the residential area west of McClellan Airport known as McClellan Heights/Parker Homes is 65 dBA.

f. With land use designations of Central Business District, Urban Neighborhood (Low, Medium, or High) Urban Center (Low or High), Urban Corridor (Low or High).

g. All mixed-use projects located anywhere in the City of Sacramento.

EC 3.1.2 **Exterior Incremental Noise Standards.** The City shall require noise mitigation for all development that increases existing noise levels by more than the allowable increment shown in Table EC 2, to the extent feasible. *(RDR)*

Table EC 2 Exterior Incremental Noise Impact Standards for Noise-Sensitive Uses (dBA)

Residences and buildings where people normally sleep[a]		*Institutional land uses with primarily daytime and evening uses*[b]	
Existing L_{dn}	*Allowable Noise Increment*	*Existing Peak Hour L_{eq}*	*Allowable Noise Increment*
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	3
75	0	75	1
80	0	80	0

SOURCE: Federal Transit Administration, *Transit Noise Impact and Vibration Assessment*, May 2006

a. This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.

b. This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.

EC 3.1.3 **Interior Noise Standards.** The City shall require new development to include noise mitigation to assure acceptable interior noise levels appropriate to the land use type: 45 dBA L_{dn} for residential, transient lodgings, hospitals, nursing homes and other uses where people normally sleep; and 45 dBA L_{eq} (peak hour) for office buildings and similar uses. *(RDR)*

EC 3.1.4 **Interior Noise Review for Multiple, Loud Short-Term Events.** In cases where new development is proposed in areas subject to frequent, high-noise events (such as aircraft over-flights, or train and truck pass-bys), the City shall evaluate noise impacts on any sensitive receptors from such events when considering whether to approve the development proposal, taking into account potential for sleep disturbance, undue annoyance, and interruption in conversation, to ensure that the proposed development is compatible within the context of its surroundings. *(RDR)*

NOISE TERMINOLOGY

Community Noise Equivalent Level (CNEL). *An L_{dn} with an additional 5 dBA "penalty" for the evening hours between 7:00 P.M. and 10:00 P.M. This is essentially a measure of ambient noise.*

Day-Night Average Noise Level (L_{dn}). *A 24-hour average L_{eq} with a 10 dBA "penalty" added to noise levels during the hours of 10:00 P.M. to 7:00 A.M. to account for increased sensitivity that people tend to have to nighttime noise. Because of this penalty, the L_{dn} would always be higher than its corresponding 24-hour L_{eq} (e.g., a constant 60 dBA noise over 24 hours would have a 60 dBA L_{eq}, but a 66.4 dBA L_{dn}).*

dBA. *Measurement unit for "a-weighted decibels," which are commonly used for measuring environmental and industrial noise and the potential hearing damage associated noise health effects.*

Equivalent Energy Noise Level (L_{eq}). *Constant noise level that would deliver the same acoustic energy to the ear of a listener as the actual time-varying noise would deliver over the same exposure time. No "penalties" are added to any noise levels during the exposure time; L_{eq} would be the same regardless of the time of day during which the noise occurs.*

Sound Exposure Level or Single Event Level (SEL). *A descriptor used to characterize the severity of short-duration sound events. SEL is the time-averaged, constant intensity, A-weighted sound level over a one-second reference time that would produce the same sound exposure as the actual time-varying sound over the actual exposure time. In practice, SEL is usually applied in situations were there are multiple sound events, each one having its own characteristic SEL.*

EC 3.1.5 **Interior Vibration Standards.** The City shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby residential and commercial uses based on the current City or Federal Transit Administration (FTA) criteria. *(RDR)*

See ERC 2, Parks and Recreation, for additional policies on parks and recreation.

EC 3.1.6 **Vibration Screening Distances.** The City shall require new residential and commercial projects located adjacent to major freeways, hard rail lines, or light rail lines to follow the FTA screening distance criteria. *(RDR)*

EC 3.1.7 **Vibration.** The City shall require an assessment of the damage potential of vibration-induced construction activities, highways, and rail lines in close proximity to historic buildings and archaeological sites and require all feasible mitigation measures be implemented to ensure no damage would occur. *(RDR)*

EC 3.1.8 **Operational Noise.** The City shall require mixed-use, commercial, and industrial projects to mitigate operational noise impacts to adjoining sensitive uses when operational noise thresholds are exceeded. *(RDR)*

See LU 4, Neighborhoods, and M 4, Roadways, for additional policies on residential streets, connectivity, and roadways.

EC 3.1.9 **Compatibility with Park and Recreation Uses.** The City shall limit the hours of operation for parks and active recreation areas in residential areas to minimize disturbance to residences. *(RDR/SO)*

EC 3.1.10 **Construction Noise.** The City shall require development projects subject to discretionary approval to assess potential construction noise impacts on nearby sensitive uses and to minimize impacts on these uses, to the extent feasible. *(RDR)*

EC 3.1.11 **Alternatives to Sound Walls.** The City shall encourage the use of design strategies and other noise reduction methods along transportation corridors in lieu of sound walls to mitigate noise impacts and enhance aesthetics. *(RDR)*

EC 3.1.12 **Residential Streets.** The City shall discourage widening streets or converting streets to one-way in residential areas where the resulting increased traffic volumes would raise ambient noise levels. *(MPSP/SO)*

EC 3.1.13 **Vehicle Purchase.** The City shall purchase vehicles and equipment with low noise generation and maintain them to minimize noise. *(SO)*

GOAL EC 3.2

Airport Noise. Minimize exposure to high noise levels in areas of the city affected by Mather, Executive, McClellan, and Sacramento International Airports.

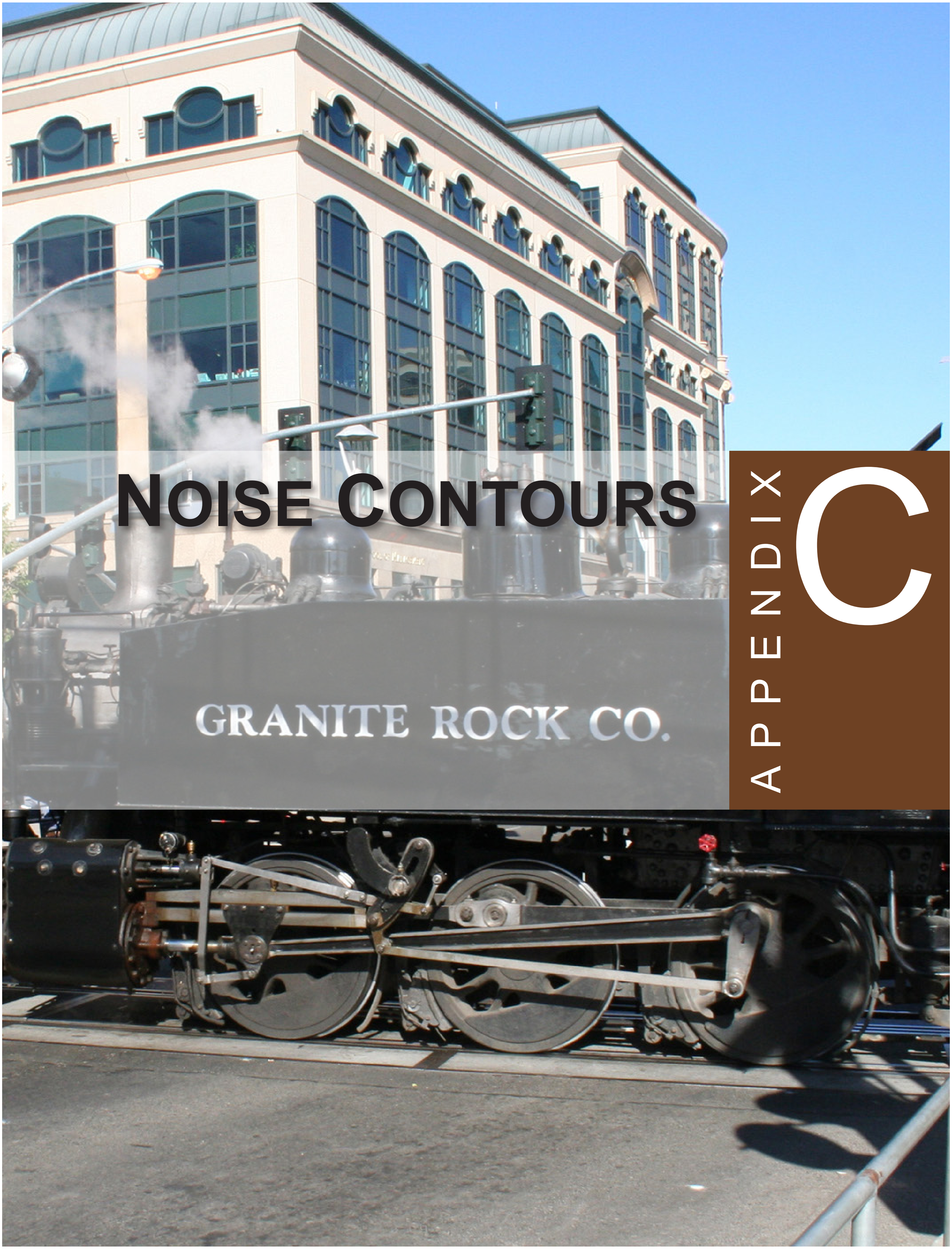
See LU 8, Public/Quasi-Public and Special Uses and M 8, Aviation, for additional policies related to airports and aviation.

Policies

EC 3.2.1 **Land Use Compatibility.** The City shall limit residential development within the 65 dBA CNEL airport noise contour, or in accordance with plans prepared by the Airport Land Use Commission, and shall only approve noise-compatible land uses. *(RDR)*

EC 3.2.2 **Hazardous Noise Protection.** The City shall discourage outdoor activities or uses in areas outside the 70 dBA CNEL airport noise contour where people could be exposed to hazardous noise levels. *(RDR)*

EC 3.2.3 **Cooperative Noise Reduction.** The City shall work with the Sacramento County Airport Systems (SCAS) to monitor aircraft noise, implement noise-reducing operation measures (i.e., Fly Quiet, Fly Neighborly programs), and promote pilot awareness of noise sensitive land uses. *(IGC)* page left intentionally blank



NOISE CONTOURS

APPENDIX C

Table 4.8-4 2035 General Plan Noise Levels and Contours

			CNEL dBA @ 50’		dBA	Distance to Contour from Centerline (feet)			
Roadway	From	To	Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
El Centro Rd	Hankview Rd	Radio Rd	64.9	65.5	0.6	18	56	178	563
El Centro Rd/W El Camino Rd	Radio Rd	I-80	61.4	64.6	3.2	14	45	144	454
W Elkhorn Blvd	E Commerce Way	Natomas Blvd	68.5	70.6	2.1	57	181	571	1805
Del Paso Rd	Power Line Rd	I-5	68.4	69.3	0.9	43	135	428	1354
Del Paso Rd	I-5	Natomas Blvd	73	73	0	99	314	992	3138
Del Paso Rd	Natomas Blvd	Gateway Park Blvd	69.7	72.2	2.5	83	262	830	2624
San Juan Rd	El Centro Rd	Duckhorn Dr	61.1	62.6	1.5	9	28	90	285
Del Paso Rd	Gateway Park Blvd	Northgate Blvd	68.3	71	2.7	63	198	625	1977
Northgate Blvd	Main Ave	North Market Blvd	67	68.3	1.4	34	108	341	1077
Northgate Blvd	North Market Blvd	I-80	69.6	70.7	1.1	59	187	593	1874
Natomas Blvd	W Elkhorn Blvd	Del Paso Rd	68.4	69.8	1.4	48	153	483	1527
Truxel Rd	Arena Blvd	I-80	71.1	72.5	1.4	90	284	897	2836
Truxel Rd	Del Paso Rd	Arena Blvd	67.5	68.2	0.8	33	105	333	1053
North Market Blvd	Truxel Rd	Northgate Blvd	65.8	67.1	1.3	26	81	257	813
Arena Blvd	I-5	Truxel Rd	65.8	66.7	0.9	23	73	232	735
Arena Blvd	El Centro Rd	I-5	67.6	67.6	0	29	91	289	912
E Commerce Way	W Elkhorn Blvd	N Park Dr	61.9	65.8	3.9	19	59	188	594
E Commerce Way	N Park Dr	Del Paso Rd	68	70.5	2.5	56	177	559	1768
E Commerce Way	Del Paso Rd	Arena Blvd	65.1	69.5	4.4	44	140	444	1404
Del Paso Blvd	Globe Ave	El Camino Ave	57.4	60.5	3.1	6	18	57	179
Del Paso Blvd	El Camino Ave	Marysville Blvd	62.6	63.3	0.7	11	34	106	335
Del Paso Blvd	Marysville Blvd	Arcade Blvd	57	59.1	2.1	4	13	40	128
Rio Linda Blvd	Marysville Blvd	Norwood Ave	62.8	64.5	1.7	14	44	140	442
Rio Linda Blvd	Norwood Ave	Arcade Blvd	61.8	62.5	0.7	9	28	89	283
Rio Linda Blvd	Arcade Blvd	Lampasas Ave	63	63.6	0.7	12	37	116	366
Marysville Blvd	Rio Linda Blvd	Bell Ave	57.7	57.8	0.1	3	9	30	95
Marysville Blvd	I-80	Arcade Blvd	63.5	64	0.5	13	40	126	399
Marysville Blvd	Arcade Blvd	Del Paso Blvd	60	60.3	0.3	5	17	54	171
Norwood Ave	Main Ave	I-80	66.6	68	1.4	32	100	317	1003
Norwood Ave	Silver Eagle Rd	El Camino Ave	63.1	63.9	0.8	12	39	123	388

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50’		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
El Camino Ave	Grove Ave	Del Paso Blvd	63.6	65	1.4	16	50	160	504
El Camino Ave	Del Paso Blvd	I-80 Business	68.5	68.9	0.3	39	122	385	1218
Arden Way	Del Paso Blvd	Royal Oaks Dr	64.1	64.6	0.5	14	46	144	456
Arden Way	Royal Oaks Dr	I-80 Business	65.7	66.6	0.9	23	72	229	723
Grand Ave	Norwood Ave	Rio Linda Blvd	58.2	58.4	0.2	3	11	35	109
Silver Eagle Rd	Northgate Blvd	Norwood Ave	64.7	65.4	0.7	17	55	174	549
Main Ave	Northgate Blvd	Norwood Ave	67.2	69.4	2.1	43	137	432	1366
Main Ave	Norwood Ave	Rio Linda Blvd	64.4	69	4.6	40	126	398	1258
Main Ave	Marysville Blvd	Raley Blvd	52.4	59.6	7.2	5	14	46	144
W Elkhorn Blvd	Natomas Blvd	Rio Linda Blvd	68.2	69.9	1.7	49	156	494	1561
Arcade Blvd	Marysville Blvd	Roseville Rd	68	68.3	0.3	34	107	337	1067
RALEY BL	Ascot Ave	Bell Ave	67.2	70.9	3.7	61	192	608	1923
Bell Ave	Norwood Ave	Winters St	61.2	61.2	0	7	21	66	209
Roseville Rd	Arcade Blvd	Watt Ave	67.3	70.7	3.4	59	188	593	1875
Winters St	Bell Ave	I-80	60.2	61.6	1.4	7	23	72	228
Royal Oaks Dr	Arden Way	SR-160	58.8	59.5	0.7	4	14	45	141
Dry Creek Rd	Marysville Blvd	Grand Ave	54.7	54.7	0	1	5	15	46
Arden Garden Connector	Northgate Blvd	Del Paso Blvd	67.3	68	0.6	31	99	313	991
San Juan Rd	Truxel Rd	Northgate Blvd	66.4	67.6	1.2	28	90	285	900
W El Camino Ave	I-80	I-5	66.1	67.7	1.6	30	94	296	937
W El Camino Ave	I-5	Truxel Rd	67.7	67.7	0	29	93	294	929
W El Camino Ave	Truxel Rd	Northgate Blvd	66	67.3	1.3	27	85	270	855
W El Camino Ave	Northgate Blvd	Grove Ave	61.8	63.8	2	12	38	120	380
Garden Hwy	I-80	Orchard Ln	57.3	57.3	0	3	8	27	84
Garden Hwy	Gateway Oaks Dr	I-5	68.9	69	0.1	39	125	395	1248
Northgate Blvd	I-80	San Juan Rd	68.3	69.2	1	42	133	419	1325
Northgate Blvd	Silver Eagle Rd	Arden Garden Connector	69.3	70.2	0.8	52	164	519	1642
Truxel Rd	W El Camino Ave	Garden Hwy	65	68.5	3.5	36	113	356	1127
Truxel Rd	San Juan Rd	W El Camino Ave	67.6	68.7	1.1	37	117	369	1168
Truxel Rd	I-80	San Juan Rd	69.4	69.6	0.2	45	143	452	1428
I St	5th St	12th St	62.9	63.8	0.9	12	38	120	378
I St	21st St	29th St	55.7	56.8	1.1	2	8	24	76
L St	5th St	15th St	59.9	60.8	0.9	6	19	60	191

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50'		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
L St	15th St	29th St	59.3	59.3	0	4	14	43	135
P St	16th St	29th St	59.9	59.9	0	5	16	49	156
J St	3rd St	7th St	63.5	63.5	0	11	36	113	358
J St	21st St	29th St	62.2	64.2	2	13	41	131	413
Q St	3rd St	10th St	61.6	61.9	0.3	8	24	77	243
7th St	P St	J St	55.1	58.8	3.7	4	12	38	121
12th St	D St	I St	57.7	57.7	0	3	9	30	93
12th St	N St	P St	49.7	50	0.3	1	2	5	16
15th St	X St	Broadway	58.6	59.3	0.8	4	14	43	136
15th St	J St	P St	60.8	60.8	0	6	19	60	191
16th St	P St	W St	61.9	61.9	0	8	25	78	247
29th St	J St	P St	60.7	63.6	2.9	11	36	115	362
30th St	P St	J St	58.7	61.4	2.7	7	22	68	216
Alhambra Blvd	Stockton Blvd	Broadway	61.7	61.7	0	7	23	74	234
Broadway	3rd St	5th St	59.4	59.5	0.1	4	14	45	141
Broadway	Riverside Blvd	Franklin Blvd	61.7	63.3	1.6	11	34	107	337
Richards Blvd	Bercut Dr	N 7th St	65.7	65.8	0	19	60	188	596
Exposition Blvd	SR-160	I-80 Business	67.1	67.6	0.5	28	90	285	900
Exposition Blvd	I-80 Business	Arden Way	72.2	73.4	1.1	109	344	1088	3442
Arden Way	I-80 Business	Exposition Blvd	71.3	72	0.8	80	253	802	2535
El Camino Ave	I-80 Business	Howe Ave	70.9	71.3	0.4	67	212	671	2121
Marconi Ave	I-80 Business	Bell St	68.8	68.8	0	38	119	375	1186
Auburn Blvd	Howe Ave	Watt Ave	62.7	64.2	1.5	13	41	131	413
Auburn Blvd	Watt Ave	SR-244	68.5	68.9	0.4	39	122	387	1222
Auburn Blvd	El Camino Ave	Arcade Blvd	60.9	63	2.2	10	32	101	319
American River Dr	Howe Ave	Watt Ave	63.8	64.9	1.1	15	49	154	487
Heritage Ln	Arden Way	Exposition Blvd	59.8	61	1.2	6	20	63	200
Howe Ave	US-50	Fair Oaks Blvd	69.3	70.1	0.9	52	163	516	1632
Howe Ave	Fair Oaks Blvd	Hurley Way	69.3	70.5	1.2	56	177	558	1766
Howe Ave	Hurley Way	El Camino Ave	68.7	70	1.3	50	159	503	1589
Howe Ave	El Camino Ave	Auburn Blvd	67.2	70	2.8	50	159	502	1588
Alta Arden Ex	Howe Ave	Fulton Ave	67.3	68.3	1	34	107	339	1073
Fair Oaks Blvd	Howe Ave	Munroe St	69.9	69.9	0	49	154	488	1544
Fair Oaks Blvd	Munroe St	Watt Ave	71.3	71.6	0.4	73	230	728	2301
Fair Oaks Blvd	Watt Ave	Eastern Ave	73	73.6	0.6	115	364	1150	3636

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50’		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
Watt Ave	Fair Oaks Blvd	US-50	74.3	75	0.7	160	504	1595	5045
Elvas Ave/56th St	52nd St	H St	63	65.8	2.8	19	60	191	603
Elvas Ave	J ST	Folsom Blvd	66.4	66.9	0.5	25	78	247	780
H St	Alhambra Blvd	45th St	64.2	64.2	0	13	42	132	419
H St	45th St	Carlson Dr	64.4	65.7	1.3	19	59	188	593
J St	Alhambra Blvd	56th St	64.1	64.3	0.3	14	43	136	430
Folsom Blvd	47th St	65th St	68.3	69.3	1	43	135	428	1354
Folsom Blvd	Howe Ave	Jackson Hwy	69.6	70.5	0.9	57	179	565	1788
Howe Ave	US 50	14th Ave	71.1	72.1	1	82	259	819	2588
Stockton Blvd	Alhambra Blvd	US-50	60.5	63.1	2.6	10	32	101	320
Jackson Hwy	Folsom Blvd	S Watt Ave	66.9	69.3	2.4	43	135	428	1354
Hornet Dr	US-50 WB Ramps	Folsom Blvd	64	65.4	1.4	17	55	174	551
La Rivera Dr	Watt Ave	Folsom Blvd	66.7	66.8	0	24	75	238	751
Carlson Dr	Moddison Ave	H St	59.6	60.4	0.8	5	17	55	172
College Town Dr	Hornet Dr	La Rivera Dr	63.5	65.1	1.6	16	52	164	517
39th St	Folsom Blvd	J St	55.7	57.4	1.7	3	9	27	87
59th St	Folsom Blvd	Broadway	62.4	62.4	0	9	27	87	274
C St	33rd St	McKinley Blvd	61.2	64.3	3.2	14	43	136	429
Sutterville Rd	Riverside Blvd	Freeport Blvd	62.8	62.9	0.1	10	31	97	306
Sutterville Rd	24th St	Franklin Blvd	65.1	65.6	0.5	18	57	180	569
Seamas Ave	I-5	S Land Park Dr	64.3	64.8	0.6	15	48	152	479
Fruitridge Rd	S Land Park Dr	Freeport Blvd	64.3	64.3	0	13	42	133	421
Fruitridge Rd	Freeport Blvd	Franklin Blvd	66.2	66.5	0.3	22	71	223	707
Fruitridge Rd	Franklin Blvd	SR-99	65.8	65.9	0.1	19	61	193	612
Franklin Blvd	Broadway	5th Ave	61.8	65.1	3.3	16	52	163	516
Franklin Blvd	Sutterville Rd	Fruitridge Rd	67.9	68.7	0.8	37	118	373	1180
Freeport Blvd	Sutterville Rd (S)	Fruitridge Rd	68.3	68.7	0.4	37	117	369	1168
Riverside Blvd	Broadway	2nd Ave	59.6	60.2	0.6	5	16	52	165
Riverside Blvd	Sutterville Rd	Seamas Ave	58.5	58.5	0.1	4	11	36	113
Land Park Dr	Broadway	Vallejo Way	60.8	61.1	0.3	6	20	64	204
S Land Park Dr	Sutterville Rd	Seamas Ave	56.9	57	0.1	3	8	25	80
24th St	Sutterville Rd	Fruitridge Rd	62.2	63	0.8	10	32	100	316
Stockton Blvd	US-50	Broadway	66.3	66.9	0.6	25	78	247	782

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50'		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
Stockton Blvd	Broadway	Fruitridge Rd	67.6	67.9	0.2	31	97	305	966
Broadway	Alhambra Blvd	Stockton Blvd	66.3	67.2	0.9	27	84	265	838
Broadway	Stockton Blvd	65th St	66.1	66.5	0.5	22	71	225	710
65th St	Elvas Ave	14th Ave	68.5	69.4	0.9	43	137	433	1371
Power Inn Rd	14th Ave	Fruitridge Rd	70.8	71.6	0.8	73	229	726	2295
12th Ave	Martin Luther King Jr Blvd	SR-99	62.8	62.9	0.1	10	31	98	311
14th Ave	65th St	Power Inn Rd	64.4	66	1.6	20	63	198	627
Florin Perkins Rd	Folsom Blvd	Fruitridge Rd	66.9	66.9	0	25	78	247	780
Fruitridge Rd	SR-99	44th St	65.4	66.3	0.9	21	67	213	675
Fruitridge Rd	44th St	Stockton Blvd	70.5	70.9	0.4	61	193	610	1929
Fruitridge Rd	Stockton Blvd	65th St	65.6	66.2	0.6	21	66	208	657
Fruitridge Rd	65th St	Florin Perkins Rd	67.6	68.2	0.6	33	104	330	1043
Fruitridge Rd	Florin Perkins Rd	S Watt Ave	67.6	68.5	0.9	35	112	355	1122
Martin Luther King Jr Blvd	Broadway	Fruitridge Rd	60.3	61.1	0.9	7	21	65	206
T St	Stockton Blvd	59th St	53.5	54	0.5	1	4	12	40
33rd St	4th Ave	12th Ave	57.9	58.3	0.4	3	11	34	108
Raley Blvd	Bell Ave	I-80	68.4	70	1.6	50	157	497	1573
S Watt Ave	US-50	Kiefer Blvd	72.1	74.3	2.2	135	426	1347	4260
Florin Rd	Riverside Blvd	Havenside Dr	63.1	63.4	0.3	11	35	110	347
Florin Rd	Havenside Dr	I-5	67.9	68.6	0.7	36	114	361	1142
Riverside Blvd/ Pocket Rd	Florin Rd	Greenhaven dr	63.9	64	0	13	40	125	396
Pocket Rd	Greenhaven dr	Freeport Blvd	66.3	67.1	0.8	26	81	258	815
43rd Ave	Gloria Dr	13th St	58.8	58.8	0	4	12	38	120
S Land Park Dr	Windbridge Dr	Florin Rd	58.2	58.5	0.2	4	11	35	111
Gloria Dr	Florin Rd	43rd Ave	56.6	56.6	0	2	7	23	72
Greenhaven Dr	Gloria Dr	Florin Rd	60.6	60.7	0.1	6	19	59	186
Freeport Blvd	Pocket Rd	South City Limits	66.1	70.2	4	52	164	518	1638
Freeport Blvd	Florin Rd	Pocket Rd	68.2	68.7	0.6	37	118	373	1181
24th St	Fruitridge Rd	Florin Rd	67.2	67.9	0.7	31	98	309	977
24th St	Florin Rd	Meadowview Rd	63.8	65.4	1.5	17	55	173	546
Meadowview Rd	Freeport Blvd	Brookfield Dr	69.8	69.8	0	48	152	479	1516
Florin Rd	Freeport Blvd	Franklin Blvd	69.5	70	0.5	50	157	496	1569

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50'		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
43rd Ave/Blair Ave	13th St	Freeport Blvd	59.6	59.6	0.1	5	14	46	145
47th Ave	24th St	Franklin Blvd	69.3	70.1	0.8	51	162	512	1618
Franklin Blvd	Fruitridge Rd	47th Ave	67.3	68.1	0.8	33	103	326	1031
Stockon Blvd	Florin Rd	Mack Rd	70	71.2	1.2	66	209	659	2085
65th St	14th Ave	Fruitridge Rd	68	68.7	0.6	37	116	368	1164
65th Ex	Elder Creek Rd	Stockton Blvd	68.2	68.7	0.5	37	117	371	1174
Power Inn Rd	Fruitridge Rd	Florin Rd	69.8	70.4	0.6	55	173	546	1726
S Watt Ave	Kiefer Blvd	Jackson Hwy	70.8	73.9	3.2	124	392	1239	3919
Florin Rd	Franklin Blvd	SR-99	71.9	72.4	0.5	87	276	872	2756
Florin Rd	SR-99	65th St	73.2	73.9	0.7	122	385	1216	3847
Florin Rd	65th St	Stockton Blvd	70.5	71.7	1.2	74	234	741	2343
Florin Rd	Stockton Blvd	Power Inn Rd	69.5	70.3	0.8	53	168	531	1678
Florin Rd	Power Inn Rd	Florin Perkins Rd	69	70.1	1.1	51	162	513	1624
Elder Creek Rd	Stockton Blvd	Florin Perkins Rd	69.5	70.2	0.7	52	164	519	1642
Elder Creek Rd	Florin Perkins Rd	Hedge Ave	65.1	68.9	3.8	39	122	387	1223
Florin Perkins Rd	Fruitridge Rd	Elder Creek Rd	68.8	69.2	0.5	42	132	419	1324
Florin Perkins Rd	Elder Creek Rd	Florin Rd	68.6	68.6	0	36	115	364	1150
Mack Rd	Meadowview Rd	Franklin Blvd	69.6	69.6	0	46	144	457	1444
Mack Rd	Franklin Blvd	Center Pkwy	70.5	70.9	0.4	62	195	618	1953
Mack Rd	Center Pkwy	Stockton Blvd	69.9	70.4	0.5	55	174	551	1744
Center Pkwy	Tangerine Ave	Mack Rd	60.4	60.7	0.3	6	19	59	186
Center Pkwy	Mack Rd	Bruceville Rd	60.9	60.9	0	6	19	61	194
Valley Hi Dr	Franklin Blvd	Center Pkwy	64.1	64.8	0.7	15	48	151	479
Valley Hi Dr	Center Pkwy	Mack Rd	67.2	67.2	0	27	84	265	838
Bruceville Rd	Valley Hi Dr	Consumnes River Blvd	64.7	66.7	2	23	73	232	734
Bruceville Rd	Consumnes River Blvd	Calvine Rd	70.9	70.9	0	61	194	614	1941
Franklin Blvd	Village Wood Dr	Big Horn Blvd	66.9	66.9	0	25	78	247	780
Franklin Blvd	Mack Rd	Turnbridge Dr	69.3	69.7	0.4	47	147	466	1474
Franklin Blvd	47th Ave	Turnbridge Dr	70.1	70.5	0.4	56	176	557	1762
Stockton Blvd	Fruitridge Rd	Florin Rd	69.8	70.2	0.4	52	165	521	1648
65th Ex	Stockton Blvd	Florin Rd	68.5	69	0.5	40	126	398	1258
Power Inn Rd	Florin Rd	Elsie Ave	70.7	71	0.4	64	201	637	2013

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50’		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
47th Ave	Franklin Blvd	SR-99	71.1	71.7	0.6	74	233	737	2331
47th Ave	SR-99	Stockton Blvd	71.1	71.4	0.3	69	217	686	2169
Franklin Blvd	Mack Rd	Village Wood Dr	69.3	69.5	0.2	44	140	441	1396
Elkhorn Blvd	SR-99	E Commerce Way	69.1	70.1	1	51	163	515	1628
Freeport Blvd	Sutterville Rd (N)	Sutterville Rd (S)	65.4	65.7	0.2	18	58	184	582
Folsom Blvd	US-50	Howe Ave	69.3	70.5	1.2	56	177	559	1768
Cosumnes River Blvd	Franklin Blvd	Center Pkwy	67.9	70.5	2.6	56	179	565	1786
Freeport Blvd	21st St	Sutterville Rd (N)	64.9	65.9	1	19	62	195	615
Freeport Blvd	Broadway	21st St	60.6	62.5	1.9	9	28	89	280
Land Park Dr	Vallejo Way	13th Ave (S)	61.4	61.4	0.1	7	22	69	219
Land Park Dr	13th Ave (S)	Sutterville Rd	59.2	59.4	0.2	4	14	44	139
Riverside Blvd	7th Ave	Sutterville Rd	63.9	65.2	1.3	17	52	166	524
Riverside Blvd	2nd Ave	7th Ave	61.1	61.6	0.5	7	23	72	228
24th St	Donner Way	Sutterville Rd	52.2	54.9	2.7	2	5	15	49
Sutterville Rd	Freeport Blvd	Sutterville Bypass	64.6	64.7	0	15	46	146	462
5th St	Broadway	Vallejo Way	55.4	56.4	1	2	7	22	70
Broadway	5th St	Riverside Blvd	60.6	60.6	0	6	18	57	182
Elder Creek Rd	Florin Perkins Rd	S Watt Ave	65.9	68.4	2.4	34	108	343	1084
Richards Blvd	N 7th St	N 12th St	63	66.5	3.6	23	71	226	714
12th St	Richards Blvd	D St	65.2	66.7	1.5	23	74	235	743
16th St	Richards Blvd	I St	69.6	70.2	0.6	52	165	523	1654
N 7th St	Richards Blvd	B St	60	63.9	3.9	12	39	124	391
Florin Rd	I-5	Freeport Blvd	69.4	69.8	0.4	48	150	475	1503
Cosumnes River Blvd	Center Pkwy	SR-99	66.3	68	1.7	32	100	316	999
Garden Hwy	Orchard Ln	Gateway Oaks Dr	69.4	69.4	0	44	138	437	1383
J St	7th St	10th St	62.9	62.9	0	10	31	98	310
J St	10th St	16th St	63.2	63.3	0	11	34	106	335
P St	16th St	9th St	59.7	59.7	0	5	15	46	146
P St	9th St	2nd St	59.8	59.8	0	5	15	48	152
Franklin Blvd	5th Ave	Sutterville Rd	65.2	67	1.8	25	80	252	797
J St/Fair Oaks Blvd	H St	Howe Ave	61.2	63.9	2.7	12	39	124	392
Folsom Blvd	Jackson Hwy	S Watt Ave	63.9	64.6	0.7	14	45	144	455

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50’		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
Riverside Blvd/43rd Ave	Florin Rd	Gloria Dr	67.9	68	0.1	31	99	315	995
Freeport Blvd	Fruitridge Rd	Florin Rd	67.9	68.7	0.8	37	117	369	1168
Garden Hwy	I-5	Truxel Rd	72.2	72.8	0.6	95	301	952	3012
Garden Hwy	Truxel Rd	Northgate Blvd	73.4	73.7	0.3	118	375	1184	3745
Norwood Ave	I-80	Silver Eagle Rd	66.2	67	0.8	25	80	252	797
SR-99	W Elkhorn Blvd	I-5/SR-99 Interchange	79.2	81.1	1.9	644	2035	6436	20352
I-5	I-5/SR-99 Interchange	Arena Blvd	83.3	84.3	1	1345	4255	13455	42547
I-5	Arena Blvd	I-5/I-80 Interchange	83.8	85	1.2	1595	5043	15948	50432
I-5	I-5/I-80 Interchange	W El Camino Ave	82.2	83.3	1	1064	3364	10637	33638
I-5	W El Camino Ave	Richards Blvd	84.6	85.2	0.5	1640	5187	16401	51866
I-5	Richards Blvd	J St	84.6	84.8	0.2	1518	4800	15179	48000
I-5	J St	I-5/I-80 Business & US 50 Interchange	84.5	84.4	-0.1	1384	4375	13835	43750
I-5	I-5/I-80 Business & US-50 Interchange	Sutterville Rd	82.5	82.6	0.1	912	2883	9115	28826
I-5	Sutterville Rd	43rd Ave	83.4	83.7	0.3	1173	3709	11730	37094
I-5	43rd Ave	Florin Rd	81.6	82.1	0.4	807	2552	8071	25523
I-5	Florin Rd	City Limits	80.9	81.6	0.7	716	2263	7156	22630
SR-99	SR-99/I-80 Business/US-50 Interchange	Fruitridge Rd	85.3	86.1	0.8	2027	6410	20271	64102
SR-99	Fruitridge Rd	47th Ave	83.9	85.2	1.4	1670	5281	16701	52813
SR-99	47th Ave	Mack Rd	84.4	85.7	1.2	1842	5824	18417	58240
SR-99	Mack Rd	Sheldon Rd	82	83.4	1.5	1103	3487	11026	34867
I-80	Garden Hwy	I-5/I-80 Interchange	81.2	81.6	0.5	731	2312	7310	23117
I-80	I-5/I-80 Interchange	Northgate Blvd	83.5	83.7	0.2	1167	3689	11666	36890
I-80	Northgate Blvd	Watt Ave	83.6	83.8	0.1	1187	3753	11868	37530
US-50/I-80 Business	I-5/US-50 & I-80 Business Interchange	SR-99/US-50/I-80 Business Interchange	86.1	86.6	0.5	2288	7235	22878	72346

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50'		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
US-50	SR-99/ US-50/I-80 Business Interchange	65th St	85.7	86	0.3	1974	6241	19737	62413
US-50	65th St	S Watt Ave	84.5	84.7	0.2	1464	4628	14637	46285
I-80 Business	SR-99/ US-50/I-80 Business Interchange	J St	82.7	83.4	0.7	1102	3484	11018	34842
I-80 Business	J St	SR-160 Interchange	84.3	84.1	-0.2	1286	4068	12864	40678
I-80 Business	SR-160 Interchange	El Camino Ave	84.1	84.7	0.6	1488	4705	14879	47053
I-80 Business	El Camino Ave	Marconi Ave	83.8	84.5	0.6	1402	4434	14021	44339
I-80 Business	Marconi Ave	Fulton Ave	83.3	83.6	0.3	1156	3656	11560	36557
I-80 Business	Fulton Ave	City Limits	83.5	83.7	0.2	1173	3709	11730	37094
SR-160	Richards Blvd	Business 80 Interchange	77.6	78.7	1.1	372	1175	3716	11750

Note: The yellow highlighted roadways would experience incremental noise increases that exceed standards shown in Table EC-2 in the proposed policies

Source: Modeled by Ascent Environmental 2014

Sacramento, California City Code

Title 8 HEALTH AND SAFETY

Chapter 8.68 NOISE CONTROL

Article I. General Provisions

Article II. Noise Standards

Article I. General Provisions

8.68.010 Legislative findings.

A. Excessive, unnecessary or offensive noise within the city is detrimental to the public health, safety, welfare and the peace and quiet of the inhabitants of the city and therefore is declared a public nuisance; and

B. Every person in the city is entitled to live in an environment free from excessive, unnecessary or offensive noise levels; and

C. The establishment of maximum permissible noise levels will further the public health, safety, welfare and peace and quiet of county inhabitants. (Prior code § 66.01.101)

8.68.020 Declaration of policy.

It is declared to be the policy and purpose of this chapter to assess complaints of noises alleged to exceed the ambient noise levels. Further, it is declared to be the policy to contain sound levels in the city at their present levels with the ultimate goal of reducing such levels, when and where feasible and without causing undue burdens, to meet the noise standards set forth in this chapter. (Prior code § 66.01.102)

8.68.030 Liberal construction.

This chapter shall be liberally construed so as to effectuate its purposes. (Prior code § 66.01.103)

8.68.040 Definitions.

The following words, phrases and terms as used in this chapter shall have the following meanings:

"Agricultural property" means a parcel of property used in part or whole for agricultural purposes.

"Ambient noise level" means the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

"Cumulative period" means an additive period of time composed of individual time segments which may be continuous or interrupted.

"Decibel" or "dB" means a unit which denotes the ratio between two quantities which are proportional to power; the number of decibels corresponding to the ratio of two amounts of power is ten (10) times the logarithm to the base of ten (10) of this ratio.

"Emergency work" means the use of any machinery, equipment, vehicle, manpower or other activity in an effort to protect, maintain, provide or restore safe conditions in the community or for citizenry, or work by private or public utilities when restoring utility service.

"Hertz" means a unit of measurement of frequency, numerically equal to cycles per second.

"Impulsive noise" means a noise characterized by brief excursions of sound pressures whose peak levels are very much greater than the ambient noise level, such as might be produced by the impact of a pile driver, punch press or a drop hammer, typically with one second or less duration.

"Noise level" means the "A" weighed sound pressure level in decibels obtained by using a sound level meter at slow response with a reference pressure of twenty (20) microPascals. The unit of measurement shall be designated as dBA.

"Person" means a person, firm, association, copartnership, joint venture, corporation or any entity, public or private in nature.

"Portable gasoline-powered blower" means any portable power equipment that is powered by a gasoline engine and commonly used in landscape or property maintenance to blow, disperse, or redistribute dust, dirt, leaves, grass clippings, cuttings, and trimmings from trees and shrubs or other debris on sidewalks, driveways, lawns, or other surfaces.

"Residential property" means a parcel of real property which is developed and used either in part or in whole for residential purposes other than transient uses such as hotels and motels, and other than nonconforming residential uses within C-4, M-1, M-2, M-1-S, and M-2-S zones.

"Simple tone noise" or "pure tone noise" means a noise characterized by the presence of a predominant frequency or frequencies such as might be produced by whistle or hum.

"Sound level meter" means an instrument that meets or exceeds American National Standard Institute's Standard S1.4-1971 for Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

"Sound pressure level" means a sound pressure level of a sound, in decibels, as defined in ANSI Standards 51.2-1962 and 51.13-1921; that is, twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound to a reference pressure, which reference pressure shall be 0.0002 dynes per square centimeter. (Prior code § 66.01.105)

8.68.050 Sound level measurement (general).

A. Any noise level measurements made pursuant to the provisions of this chapter shall be performed using a sound level meter as defined in Section 8.68.040 of this chapter.

B. The location selected for measuring exterior noise levels shall be at any point on the receiver's affected property. In the case of interior noise measurements, the windows shall be in normal seasonal configuration and the measurement shall be made at a point at least four feet from the wall, ceiling or floor nearest the affected occupied area. (Prior code § 66.01.106)

Article II. Noise Standards

8.68.060 Exterior noise standards.

A. The following noise standards unless otherwise specifically indicated in this article shall apply to all agricultural and residential properties.

1. From seven a.m. to ten p.m. the exterior noise standard shall be fifty-five (55) dBA.

2. From ten p.m. to seven a.m. the exterior noise standard shall be fifty (50) dBA.

B. It is unlawful for any person at any location to create any noise which causes the noise levels when measured on agricultural or residential property to exceed for the duration of time set forth following, the specified exterior noise standards in any one hour by:

	Cumulative Duration of the Intrusive Sound	**Allowance Decibels**
1.	Cumulative period of 30 minutes per hour	0
2.	Cumulative period of 15 minutes per hour	+5
3.	Cumulative period of 5 minutes per hour	+10

	Cumulative Duration of the Intrusive Sound	Allowance Decibels
4.	Cumulative period of 1 minute per hour	+15
5.	Level not to be exceeded for any time per hour	+20

C. Each of the noise limits specified in subsection B of this section shall be reduced by five dBA for impulsive or simple tone noises, or for noises consisting of speech or music.

D. If the ambient noise level exceeds that permitted by any of the first four noise limit categories specified in subsection B of this section, the allowable noise limit shall be increased in five dBA increments in each category to encompass the ambient noise level. If the ambient noise level exceeds the fifth noise level category, the maximum ambient noise level shall be the noise limit for that category. (Prior code § 66.02.201)

8.68.070 Interior noise standards.

A. In any apartment, condominium, townhouse, duplex or multiple dwelling unit it is unlawful for any person to create any noise from inside his or her unit that causes the noise level when measured in a neighboring unit during the periods ten p.m. to seven a.m. to exceed:

1. Forty-five (45) dBA for a cumulative period of more than five minutes in any hour;
2. Fifty (50) dBA for a cumulative period of more than one minute in any hour;
3. Fifty-five (55) dBA for any period of time.

B. If the ambient noise level exceeds that permitted by any of the noise level categories specified in subsection A of this section, the allowable noise limit shall be increased in five dBA increments in each category to encompass the ambient noise level. (Prior code § 66.02.202)

8.68.080 Exemptions.

The following activities shall be exempted from the provisions of this chapter:

A. School bands, school athletic and school entertainment events. School entertainment events shall not include events sponsored by student organizations;

B. Activities conducted on parks and public playgrounds, provided such parks and public playgrounds are owned and operated by a public entity;

C. Any mechanical device, apparatus or equipment related to or connected with emergency activities or emergency work;

D. Noise sources due to the erection (including excavation), demolition, alteration or repair of any building or structure between the hours of seven a.m. and six p.m., on Monday, Tuesday, Wednesday, Thursday, Friday and Saturday, and between nine a.m. and six p.m. on Sunday; provided, however, that the operation of an internal combustion engine shall not be exempt pursuant to this subsection if such engine is not equipped with suitable exhaust and intake silencers which are in good working order. The director of building inspections, may permit work to be done during the hours not exempt by this subsection in the case of urgent necessity and in the interest of public health and welfare for a period not to exceed three days. Application for this exemption may be made in conjunction with the application for the work permit or during progress of the work;

E. Noise sources associated with agricultural operations provided such operations take place between the hours of six a.m. and eight p.m.; provided, however, that the operation of an internal combustion engine shall not be exempt pursuant to this subsection if such engine is not equipped with suitable exhaust and intake silencers which are in good working order;

F. Any mechanical device, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during period of adverse weather conditions or when the use of mobile noise sources is necessary for pest control; provided, however, that the operation of an internal combustion engine shall not be exempt pursuant to this subsection if such engine is not equipped with suitable exhaust and intake silencers which are in good working order;

G. Noise sources associated with maintenance of street trees and residential area property provided said activities take place between the hours of seven a.m. and six p.m.;

H. Tree and park maintenance activities conducted by the city department of parks and community services; provided, however, that use of portable gasoline-powered blowers within two hundred (200) feet of residential property shall comply with the requirements of Section 8.68.150 of this chapter;

I. Any activity to the extent provisions of Chapter 65 of Title 42 of the United States Code, and Articles 3 and 3.5 of Chapter 4 of Division 9 of the Public Utilities Code of the state of California preempt local control of noise regulations and land use regulations related to noise control of airports and their surrounding geographical areas, any noise source associated with the construction, development, manufacture, maintenance, testing or operation of any aircraft engine, or of any weapons system or subsystems which are owned, operated or under the jurisdiction of the United States, any other activity to the extent regulation thereof has been preempted by state or federal law or regulation;

J. Any noise sources associated with the maintenance and operation of aircraft or airports which are owned or operated by the United States. (Ord. 2010-021 § 10; prior code § 66.02.203)

8.68.090 Pre-existing industrial or commercial facilities—Transition period.

A. Any industrial or commercial facility in existence prior to the effective date of this chapter shall be allowed a one year period commencing on said date within which to comply with this chapter.

B. During said one year period all such facilities shall make reasonable efforts to be in compliance and to reduce noise which exceeds the standards specified in this chapter. Commencing at the end of one year after the effective date of this chapter, any such facility shall be subject to all applicable requirements of this chapter.

C. If any facility which is not in compliance by the end of said one year period applies for a variance pursuant to Section 8.68.260 of this chapter, in deciding whether to grant a variance the hearing board shall take into account the extent to which the applicant has endeavored to reduce noise during said one year period to meet the standards specified in this chapter.

D. This section applies only to a commercial or industrial facility already in existence or for which the work of improvement had commenced prior to the effective date of this chapter.

E. As used in this section "industrial facility" means any building, structure, factory, plant, premises or portion thereof used for manufacturing or industrial purposes and "commercial facility" means any building, structure, premise or portion thereof used for wholesale or retail commercial purposes. (Prior code § 66.02.204)

8.68.100 Schools, hospitals and churches.

It is unlawful for any person to create any noise which causes the noise level at any school, hospital or church while the same is in use to exceed the noise standards specified in Section 8.68.060 of this chapter or to create any noise which unreasonably interferes with the use of such institution or unreasonably disturbs or annoys patients in the hospital. In any disputed case, interfering noise which is ten (10) dBA or more, greater than the ambient noise level at the building, shall be deemed excessive and unlawful. (Prior code § 66.02.205)

8.68.110 Residential pumps, fans and air conditioners.

A. It is unlawful for any person to operate any residential fans, air conditioners, stationary pumps, stationary cooling towers, stationary compressors, similar mechanical device or any combination thereof installed after the effective date of this chapter in any manner so as to create any noise which would cause the maximum noise level to exceed:

1. Sixty (60) dBA at any point at least one foot inside the property line of the affected residential or agricultural property and three to five feet above ground level;

2. Fifty-five (55) dBA in the center of a neighboring patio three to five feet above ground level;

3. Fifty-five (55) dBA outside of the neighboring living area window nearest the equipment location, measurements shall be taken with the microphone not more than three feet from the window opening but at least three feet from any other surface.

B. Equipment installed five years after the effective date of this chapter must comply with a maximum limit of fifty-five (55) dBA at any point at least one foot inside the property line of the affected residential or agricultural property and three to five feet above ground level.

C. Equipment installed before the effective date of this chapter must comply with a limit of sixty-five (65) dBA maximum sound level, at any point at least one foot inside the property line of the affected agricultural or residential property and three to five feet above ground level after the effective date of this chapter. (Prior code § 66.02.206)

8.68.120 Off-road vehicles.

It is unlawful for any person to operate any motorcycle or recreational off-road vehicle on or off a public road in such a manner that the noise level exceeds the exterior noise standards specified in Section 8.68.060 of this chapter. (Prior code § 66.02.207)

8.68.130 Waste disposal vehicles.

It is unlawful for any person authorized to engage in waste disposal service or garbage collection to operate any truck-mounted waste or garbage loading and/or composting equipment or similar mechanical device in any manner so as to create any noise exceeding the following level, when measured at a distance of fifty (50) feet from the equipment or any agricultural or residential property.

A. New equipment purchased or leased on or after a date six months from the effective date of this chapter shall not exceed a noise level of eighty (80) dBA.

B. New equipment purchased or leased on or after forty-two (42) months from the effective date of this chapter shall not exceed a noise level of seventy-five (75) dBA.

C. Present equipment shall not exceed a noise level of eighty (80) dBA on or after five years from the effective date of this chapter.

The provisions of this section shall not abridge or conflict with the powers of the state over motor vehicle control. (Prior code § 66.02.208)

8.68.140 Recovery of police officer cost for multiple responses to large parties or gatherings.

A. When a large party or gathering occurs at a premises and a police officer at the scene determines that there is a threat to the public peace, health, safety or general welfare, the person(s) in charge of the premises and the person(s) responsible for the event, or if any of those persons are minors, then the parent(s) or guardian(s) of those minors will be held jointly and severally liable for the cost of providing police personnel on special security assignment over and above the services normally provided by the department to respond to such events. The police personnel utilized during a second response after the first warning to control the threat to the public peace, health, safety or general welfare shall be deemed to be on special security assignment over and above the services normally provided. The costs of such special security assignment may include minor damages to city property and/or injuries to city personnel.

B. The fee charged will not be in excess of five hundred dollars ($500.00) for a single incident. No fee shall be assessed unless a written warning has been issued by police personnel during the first response. The city reserves its legal options to elect any other legal remedies when said costs or damage exceed five hundred dollars ($500.00).

C. The expense of services provided by special security assignment officers shall be charged against the person liable for the expenses under this section. The charge constitutes a debt of that person to the city, and is collectible by said city in the same manner as in the case of an obligation under a contract, express or implied. (Prior code § 66.02.209)

8.68.150 Findings.

A. Outdoor recreational activities involving amplified sound, including, but not limited to, athletic events, sporting events, entertainment events and concerts, may create excessive noise which is detrimental to the public health, safety, welfare and the peace and quiet of the inhabitants of the city and its environs.

B. Prevailing weather conditions within the city, including temperature inversions, cause the sounds of outdoor activities to bounce in varying directions and reach varying residential locations at different times, sometimes close to the source of sound and sometimes farther away, sometimes in one direction from the sound source and sometimes in another direction. These conditions are particularly acute during the months of September and October.

C. The city's existing noise regulations, which require extended off-site measurements of the sound rather than measurements at its source, are very cumbersome and expensive to enforce, especially in connection with outdoor recreational activities.

D. Studies by the environmental health division of the Sacramento County environmental management department conclude that imposing a volume limit of ninety-six (96) dba l_{eq} measured at the sound booth or other reasonable location within one hundred fifty (150) feet of the source of amplified sound at an outdoor activity is generally equivalent to the limits already imposed by the city's noise regulations which measure sound levels off-site, in that it is substantially likely that sound levels in excess of ninety-six (96) dba l_{eq} will result in many violations of provisions of this chapter, while sound levels of ninety-six (96) dba leq or lower are likely to result in few such violations.

E. Limiting sound levels of outdoor activities to ninety-six (96) dba l_{eq} and requiring amplified sound not to be used at outdoor activities after ten p.m. on Sunday through Thursday, and after eleven p.m. at other times, is necessary to protect the public health, safety, welfare and the peace and quiet of the inhabitants of the city and its environs.

F. A sound level of ninety-six (96) dba is as loud as or louder than a refuse truck three feet from the listener, a jet plane taking off one thousand (1000) feet from the listener, or a train horn one hundred (100) feet from the listener.

G. Limiting sound levels at the source is content neutral. It helps to avoid the problem of complaints being received, and therefore measurements being made and enforcement undertaken, only in connection with certain kinds of activities, or certain kinds of music, which some people may consider objectionable and not other kinds of activities or music which may be just as loud.

H. A variance procedure can be devised to raise the sound limit or modify the time restrictions upon a showing that a facility, because of its design, location or other characteristics, is capable of handling higher sound levels or later activities without substantially increasing the likelihood that violations of the other provisions of this chapter will occur. (Prior code § 66.02.210)

8.68.160 Outdoor recreational activities.

A. It is unlawful for any person to conduct, or permit to be conducted on its property, any outdoor recreational activity, including, but not limited to, athletic events, sporting events, entertainment events and concerts at which amplified noise, amplified music, or amplified sound exceeding the following levels is created: ninety-six (96) dba leq during the months of September and October; ninety-eight (98) dba leq during the months of November through August. The noise, music or sound shall be measured at the sound booth or other reasonable location which is not more than one hundred fifty (150) feet from the source. Every person conducting, or permitting to be conducted, on its property, any outdoor recreational activity shall, upon request, permit the chief of the environmental health division, Sacramento environmental management department, or the chief's designee, to place a sound level monitor (with or without an accompanying staff member) at a location described in this subsection to monitor sound levels.

B. Time Limits.

1. Sunday through Thursday. Except as provided in subsection (B)(2) of this section, the amplified sound associated with the outdoor activities described in subsection A of this section shall commence not earlier than nine a.m. and shall be terminated no later than ten p.m. on Sunday, Monday, Tuesday, Wednesday and Thursday.

2. Friday, Saturday and the Day Before Specified Holidays. The amplified sound associated with the outdoor activities described in subsection A of this section shall commence not earlier than nine a.m. and shall be terminated no later than eleven p.m. on Friday, Saturday and the day before the specified holidays listed below. For purposes of this provision, the specified holidays are the holidays specified in Government Code Sections 6700 and 6701, as those sections may be amended from time to time. (Prior code § 66.02.211)

8.68.170 Deviation from the sound limits, time limits and place of sound measurement requirements of Section 8.68.160—Planning and design commission approval.

In addition to the special condition permits authorized by section 8.68.250 and the variances authorized by section 8.68.260 of this chapter, the operator of any outdoor activity may seek approval to deviate from any or all of the following: (a) the maximum sound limits, (b) the time limits, or (c) the requirement for the place of sound measurement as set forth in section 8.68.160, on the grounds that due to the nature or design of the operator's facility or its location, it is capable of handling a higher sound level or amplified sound ending at a later time without substantially increasing the likelihood that violations of any other standards set forth in this chapter will occur. As part of the application, the applicant shall submit a report of the sound-related characteristics of the facility prepared by an acoustical engineer, and shall pay an application fee set by resolution of the city council.

A. Applications Filed after July 1, 1995. Applications filed after July 1, 1995 shall be heard and decided pursuant to the following procedures:

1. Applications. An application to deviate from the foregoing requirements of section 8.68.160 which is filed after July 1, 1995 shall be heard and decided by the planning and design commission, and shall be subject to the general requirements applicable to applications for planning and design commission conditional use permits as set forth in chapter 17.808.

2. Hearing Procedure. A public hearing shall be held by the planning and design commission. Notice of the public hearing shall be given in the same manner as notice is given of a hearing on a planning and design commission conditional use permit. Notice of the hearing shall also be given by publication in at least one newspaper of general circulation at least ten days prior to the date of the hearing.

3. Approval. The planning and design commission may approve an application to deviate from the maximum sound limit, time limits, or place of sound measurement requirements if it finds that, due to the nature, design or location of the operator's facility, it is capable of handling a higher sound level or an amplified sound ending at a later time or having the sound measured at a different location without substantially increasing the likelihood that violations of any other standards set forth in this chapter will occur and that approval of the application will not be detrimental to the public health, safety or welfare as it relates to noise. The planning and design commission may impose such conditions as may be necessary to carry out the intent and purpose of this chapter and to protect the public health, safety or welfare as it relates to noise. The planning and design commission shall adopt findings and render its decision in the same manner that it decides applications for conditional use permits.

4. Appeal. Any person dissatisfied with the decision of the planning and design commission on an application to deviate from the maximum sound limit, time limits or place of sound measurement requirements of section 8.68.160 may appeal that decision to the city council by filing a notice of appeal with the city clerk pursuant to section 1.24.010. Any appeal shall be filed within ten days of the date of the planning and design commission decision. The city clerk shall thereafter notice the matter for hearing before the city council by publishing notice of the hearing on the appeal in at least one newspaper of general circulation at least seven days prior to the hearing and by sending written notice by mail to appellant(s) and the applicant at least seven days prior to the date of the hearing of the appeal.

5. Modification or Revocation of Approval of Deviation. An approval to deviate from the requirements of section 8.68.160 shall be subject to modification or revocation by the planning and design commission in the same manner as a conditional use permit pursuant to the provisions of chapter 17.808.

B. Applications Filed on or Before July 1, 1995. An application to deviate from the requirements of section 8.68.160 filed on or before July 1, 1995 shall be heard and decided by the city manager pursuant to the following procedures:

1. Procedure. No public hearing by the city manager shall be required. The city manager may approve an application to deviate from the maximum sound limit, time limits, or place of sound measurement requirements if the manager finds that, due to the nature, design or location of the operator's facility, it is capable of handling a higher sound level or an amplified sound ending at a later time or having the sound measured at a different location without substantially increasing the likelihood that violations of any other standards set forth in this chapter will occur and that approval of the application will not be detrimental to the public health, safety or welfare as it relates to noise. The city manager may impose such conditions as may be necessary to carry out the intent and purpose of this chapter and to protect the public health, safety or welfare as it relates to noise.

2. Notice. After the city manager's decision on the application, the city manager shall provide written notice by mail to all owners of real property shown on the latest equalized assessment roll within a radius of 300 feet of the real property which is the subject of the application. In lieu of the assessment roll, the city manager may utilize records of the county assessor or tax collector which contains more recent information than the assessment roll. The notice shall advise the owners of the nature of the deviation sought and the decision of the city manager and of the owner's right to appeal the decision of the city manager to the city council within ten days of the date of the notice. The city manager shall also publish notice of the decision in at least one newspaper of general circulation.

3. Appeal. Any person dissatisfied with the decision of the city manager on an application to deviate from the maximum sound limit, time limits or place of sound measurement requirements of section 8.68.160 may appeal that decision to the city council by filing a notice of appeal with the city clerk pursuant to section 1.24.010. Any appeal shall be filed within ten days of the date of the city manager's decision. The city clerk shall thereafter notice the matter for hearing before the city council by publishing notice of the hearing on the appeal in at least one newspaper of general circulation at least seven days prior to the hearing and by sending written notice by mail to appellant(s) and the applicant at least seven days prior to the date of the hearing of the appeal.

4. Modification or Revocation of Approval of Deviation. An approval to deviate from the requirements of section 8.68.160 shall be subject to modification or revocation by the planning and design commission in the same manner as a conditional use permit pursuant to the provisions of chapter 17.808. (Ord. 2013-0021 § 19; Ord. 2012-004 § 23; prior code § 66.02.212)

8.68.180 Portable gasoline-powered blowers.

A. It is unlawful for any person to operate any portable gasoline-powered blower on residential property or within two hundred (200) feet of residential property, except between the hours of nine a.m. and six p.m. Monday through Saturday and between the hours of ten a.m. and four p.m. on Sunday.

B. It is unlawful for any person to operate any portable gasoline-powered blower on residential property or within two hundred (200) feet of residential property during the hours permitted by subsection A of this section if the blower creates noise exceeding the following specified levels measured at a distance of fifty (50) feet from the blower:

1. Blowers purchased or otherwise acquired between May 15, 1992, and November 15, 1995, shall not exceed seventy (70) dba.

2. Blowers purchased or otherwise acquired after November 15, 1995, shall not exceed sixty-five (65) dba.

3. Blowers in use on or before the effective date of the ordinance codified in this chapter or purchased or otherwise acquired before May 15, 1992, shall not exceed seventy (70) dba after November 15, 1993. (Prior code § 66.02.213)

Article III. General Noise Regulations

8.68.190 General noise regulations.

Notwithstanding any other provisions of this chapter and in addition thereto, it is unlawful for any person to make or continue or cause to be made or continued any loud, unnecessary or unusual noise which disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area.

The standards which may be considered in determining whether a violation of the provisions of this section exists shall include, but not be limited to, the following:

A. The sound level of the objectionable noise;

B. The sound level of the ambient noise;

C. The proximity of the noise to residential sleeping facilities;

D. The nature and zoning of the area within which the noise emanates;

E. The density of the inhabitation of the area within which the noise emanates;

F. The time of day or night the noise occurs;

G. The duration of the noise and its tonal informational or musical content;

H. Whether the noise is continuous, recurrent or intermittent;

I. Whether the noise is produced by a commercial or noncommercial activity. (Prior code § 66.03.301)

8.68.200 Specific unlawful noises.

Notwithstanding any other provision of the chapter to the contrary, the following acts, among others, are declared to be loud, disturbing, and unnecessary noises in violation of this chapter, but such enumeration shall not be deemed to be exclusive, namely:

A. Motor Noises. Any noise made by the motor of any automobile, truck, tractor, motorcycle, not reasonably required in the operation thereof under the circumstances and shall include but not be limited to backfiring and motor racing.

B. Horns and Signaling Devices. The sounding of any horn or signaling device on any automobile, motorcycle, trolley coach or other vehicle on any street or public place of the city, except as a danger warning; the creation by means of any such signaling device of any unreasonably loud or harsh sound; and the sounding of any such device for an unnecessary and unreasonable period of time. The use of any signaling device except one operated by hand or electricity; the use of any horn, whistle or any other device operated by engine exhaust; and the use of any such signaling device when traffic is for any reason held up.

C. Yelling and Shouting. Yelling, shouting, hooting, whistling, singing or blowing of horns on the public streets, particularly between the hours of ten p.m. and seven a.m. or at any time or place so as to annoy or disturb the quiet, comfort, or repose of persons in any office, or in any dwelling, hotel, motel, apartment or other type of residence, or of any persons in the vicinity.

D. Pile Drivers, Hammers, Etc. The operation between the hours of ten p.m. and seven a.m. of any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist or other appliance, the use of which is attended by loud or unusual noise.

E. Tools. The use or operation between the hours of ten p.m. and seven a.m. of any power saw, power planer, or other powered tool or appliance or saw or hammer, or other tool, so as to disturb the quiet, comfort, or repose of persons in any dwelling, hotel, motel, apartment, or other type of residence, or of any person in the vicinity.

F. Blowers. The operating of any noise-creating blower or power fan or any internal combustion engine the operation of which causes noise due to the explosion of operating gases or fluids, unless the noise from such blower or fan is muffled and such engine is equipped with a muffler device sufficient to deaden such noise.

G. Exhausts. The discharge into the open air of the exhaust of any steam engine, stationary internal combustion engine, motor boat, or motor vehicle except through a muffler or other device which will effectively prevent loud or explosive noises therefrom.

H. Loading, Unloading—Opening Boxes. The creation of a loud and excessive noise in connection with loading or unloading any vehicle or the opening and destruction of bales, boxes, crates, and containers.

I. Hawkers, Peddlers and Vendors. The shouting and crying of peddlers, hawkers and vendors which disturbs the peace and quiet of persons in the neighborhood.

J. Drums. The use of any drum or other instrument or device for the purpose of attracting attention by creation of noise to any performance, show or sale.

K. Transportation of Metal Rails, Pillars and Columns. The transportation of rails, pillars or columns of iron, steel or other material, over and along streets and other public places upon carts, drays, cars, trucks in any manner so as to cause loud noises or to disturb the peace and quiet of persons in the vicinity thereof.

L. Animals, Birds, Fowls. The keeping of any animal, fowl, or bird which by causing frequent or long continued noise shall disturb the comfort or repose of persons in the vicinity.

M. Any noise emitted from a radio, tape player, tape recorder, record player, compact disc player or any other audible audio equipment, or television outdoors on or in any publicly owned property or place, including, but not limited to, public parks, when such noise is audible to a person of normal hearing sensitivity one hundred (100) feet from said radio, tape player, tape recorder, record player, compact disc player or any other audible audio equipment, or television.

1. Notwithstanding any other provision of this chapter, no notice to appear shall be issued or criminal complaint shall be filed for a violation of this subsection M unless the offending party is first given a verbal or written notification of violation by any peace officer or other person charged with enforcing this subsection M and a reasonable opportunity to correct said violation.

2. Notwithstanding any other provision of this code, any person violating this subsection M shall be guilty of an infraction and upon conviction thereof, shall be fined in accordance with the provisions of Section 36900 (b) of the California Government Code.

This subsection M shall not apply to any act prohibited by Section 10.12.090 of this code or to broadcasting from any vehicle as defined and regulated by Sections 10.60.010 through 10.60.090 of this code, to the use of radios, tape players, tape recorders, record players, compact disc players or any other audible audio equipment, or televisions in the course of an assembly for which a permit has been issued pursuant to Sections 12.72.160 through 12.72.180 of this code or to a parade as defined and regulated by Sections 12.48.010 through 12.48.080 of this code, or to the use of radios, tape players, tape recorders, record players, compact disc players or any other audible audio equipment, or televisions regulated by Section 12.44.210 of this code. This subsection M shall apply notwithstanding the provisions of subsection B of Section 8.68.080 of this chapter.

As used in this subsection M, “person of normal hearing sensitivity” means a person who has a hearing threshold level of between zero and twenty-five (25) decibels HL averaged over the frequencies five hundred (500), one thousand (1000) and two thousand (2000) hertz. (Ord. 2003-011 § 1; prior code § 66.03.302)

8.68.210 Railroad locomotive whistles.

Except in cases of emergency or imminent danger, no person shall blow any railroad locomotive whistle within the city. (Prior code § 66.03.303)

Article IV. Administrative Procedures

8.68.220 Administration.

Except for the enforcement of Section 8.68.200 of this chapter which shall be the responsibility of the chief of police, and except for the enforcement of Section 8.68.060 of this chapter which shall be the responsibility of the director of public works and the director of utilities in addition to any other person authorized to enforce that section, the administration of this chapter is vested in the Sacramento City/county health officer. The health officer shall be responsible for:

A. Employing individuals trained in acoustical engineering or an equivalent field to assist the health officer in the administration of this chapter;

B. Training field inspectors;

C. Procuring measuring instruments and training inspectors in their calibration and operation;

D. Conducting a public education program in all aspects of noise control;

E. Coordinating the noise control program with other governmental agencies. (Ord. 2002-004 § 9, 2002; prior code § 66.04.401)

8.68.230 Noise control program—Recommendations.

At least every third year following the effective date of this chapter, the health officer shall evaluate the effectiveness of the noise control program and shall make recommendations to the city council for its improvement. (Prior code § 66.04.402)

8.68.240 Rules and standards.

Within one year after the effective date of this chapter, the health officer with the advice and assistance of other appropriate governmental agencies, shall investigate and recommend to the city council the following:

A. Rules and procedures to be used in measuring noise;

B. Noise standards for motor vehicle operation within the city. However, nothing within this chapter shall be deemed to abridge or conflict with the powers of the state over motor vehicle control;

C. Noise standards governing the construction, repair or demolition of a structure including streets and other thoroughfares;

D. Recommendations, if appropriate, for the establishment of sound levels standards for nonresidentially zoned areas within the city. (Prior code § 66.04.403)

8.68.250 Special condition permits.

Notwithstanding any provision of this chapter, the zoning administrator may grant special condition permits for a period not exceeding three days when the general purpose and intent of this chapter can be carried out by the granting of the special condition permit, provided, however, that no permit shall be issued for any activity which violates a provision of Section 8.68.080(E) of this chapter. Said special condition permits may be renewed for periods not exceeding three days at the discretion of the zoning administrator. (Prior code § 66.04.404)

8.68.260 Variance procedure.

A. The owner or operator of a noise source that violates any of the provisions of this chapter may file an application for a variance from the provisions of this chapter. The application shall set forth all actions taken to comply with this chapter, the reasons why immediate compliance cannot be achieved, a proposed method for achieving compliance, and a proposed time schedule for its accomplishment. If the applicant determines that compliance cannot be feasibly achieved at all, the application shall also set forth the reasons for such determination, the actions that have been taken to comply with this chapter, a proposed method for complying as nearly as is feasible, and a proposed time schedule for its accomplishment. The application shall be accompanied by a fee in the amount established by resolution of the city council. A separate application shall be filed for each noise source; provided, however, that several mobile sources under common ownership or several fixed sources on a single property may be combined into one application.

B. Except as provided in subsections C and D of this section, relating to required findings, terms and conditions of granting a variance, and factors to take into consideration, the application for a variance under this section shall be accepted and processed and a decision on the application shall be made in the same manner and subject to the same procedures and requirements as a zoning administrator variance under section 17.808.210 of this code.

C. After the public hearing, the decision-maker may grant a variance if it finds, after full consideration of all of the facts, that strict compliance with the requirements of this chapter will cause practical difficulties, unnecessary hardship, or unreasonable expense. A variance may be for a limited period and may be subject to any terms, conditions, and requirements as the decision-maker deems reasonable to achieve maximum compliance with the provisions of this chapter. The terms, conditions and requirements may include, but shall not be limited to, limitations on noise levels and operating hours.

D. Each variance shall set forth the approved method of achieving maximum compliance and a time schedule for its accomplishment. The decision-maker shall consider the magnitude of nuisance caused by the offensive noise, the uses of property within the area of impingement by the noise, the time factors related to study, design, financing and construction of remedial work, the economic factors related to age and useful life of equipment and the general public interest and welfare. (Ord. 2013-0021 § 20; Ord. 2009-042 § 1; prior code § 66.04.405)

8.68.270 Appeals.

The decision of the zoning administrator on a variance under this chapter shall be subject to appeal as provided in chapter 17.812. (Ord. 2013-0021 § 21; Ord. 2011-044 § 18; prior code § 66.04.407)

8.68.280 Violations.

A. Upon the receipt of a complaint from any person, the chief of police, the health officer or their duly authorized representatives may investigate and assess whether the alleged noise levels exceed the noise standards set forth in this chapter. If such officers have reason to believe that any provision(s) of this chapter has been violated, they may cause written notice to be served upon the alleged violator. Such notice shall specify the provision(s) of this chapter alleged to have been violated and the facts alleged to constitute a violation, including dBA readings noted and the time and place of their detection and may include an order that corrective action be taken within a specified time. If corrective action is not taken within such specified time or any extension thereof approved by the health officer, upon conviction the violation shall constitute a misdemeanor. Each such violation committed or permitted to continue shall constitute a separate offense and shall be punishable as such.

B. Notwithstanding any contrary provision of this code, each fifteen (15) minute period that a violation of Section 8.68.060 occurs shall constitute a separate violation. The administrative penalty for each violation of Section 8.68.060 shall be one thousand dollars ($1,000.00). (Ord. 2005-083 § 1; Ord. 2002-004 § 10; prior code § 66.04.408)

8.68.290 Other remedies.

A. Provisions of this chapter are to be construed as an added remedy of abatement of the public nuisance declared and not in conflict or derogation of any other action, proceedings or remedies provided by law.

B. Any violation of the provisions of this chapter shall be, and the same is declared to be unlawful and a public nuisance, and the duly constituted authorities of the city shall, upon order of the city council, immediately commence actions or proceedings for the abatement or enjoinment thereof in the manner provided by law and shall take such steps and shall apply to such court or courts as may have jurisdiction to grant such relief as will abate such nuisance. (Prior code § 66.04.409)

Contact:

City Clerk: 916-808-7200

CONSTRUCTION NOISE MODELING

```
                    Roadway Construction Noise Model (RCNM),Version 1.1

Report date:           04/25/2023
Case Description:       SCUS-05:Phase 1

                         **** Receptor #1 ****

                                Baselines (dBA)
Description              Land Use       Daytime    Evening    Night
-----------              --------       -------    -------    -----
Architectural Coating    Residential       60.0       55.0     50.0

                            Equipment
                            ---------
                            Spec    Actual    Receptor    Estimated
                Impact  Usage    Lmax    Lmax      Distance    Shielding
Description       Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------       ------  -----    -----   -----     --------    ---------
Compressor (air)       No     40            77.7         50.0          0.0

                            Results
                            -------
                                          Noise Limits (dBA)                     Noise Limit Exceedance (dBA)
                                --------------------------------------------    --------------------------------------------
                   Calculated (dBA)        Day         Evening        Night            Day         Evening         Night
                   ----------------   --------------   -------------  --------------    --------------  --------------  --------------
Equipment              Lmax    Leq       Lmax    Leq     Lmax    Leq     Lmax    Leq      Lmax    Leq     Lmax    Leq
Lmax    Leq
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Compressor (air)         77.7    73.7       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
          Total      77.7    73.7       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          04/25/2023
Case Description:       SCUS-05:Phase 1

                         **** Receptor #1 ****

                                Baselines (dBA)
Description       Land Use        Daytime    Evening    Night
-----------       --------        -------    -------    -----
Asphalt Paving    Residential       60.0       55.0     50.0

                            Equipment
                            ---------
                               Spec    Actual    Receptor    Estimated
                Impact  Usage    Lmax    Lmax      Distance    Shielding
Description          Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------            ------  -----    -----   -----     --------     ---------
Concrete Mixer Truck       No     40            78.8        50.0         0.0
Tractor                 No     40    84.0                 50.0         0.0
Pavement Scarafier         No     20            89.5        50.0         0.0

                            Results
                            -------
                                          Noise Limits (dBA)                   Noise Limit Exceedance (dBA)
                                ------------------------------------------    ------------------------------------------
                Calculated (dBA)        Day          Evening        Night            Day          Evening        Night
                ----------------   --------------   -------------  --------------    --------------  --------------  --------------
Equipment              Lmax    Leq       Lmax    Leq     Lmax    Leq     Lmax    Leq      Lmax    Leq    Lmax    Leq
Lmax    Leq
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Concrete Mixer Truck      78.8    74.8       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A
N/A     N/A
Tractor                84.0    80.0       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
Pavement Scarafier        89.5    82.5       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
          Total      89.5    84.9       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          04/25/2023
Case Description:       SCUS-05:Phase 1

                      **** Receptor #1 ****

                           Baselines (dBA)
Description             Land Use       Daytime   Evening   Night
-----------             --------       -------   -------   -----
Building Construction    Residential       60.0      55.0     50.0

                        Equipment
                        ---------
                        Spec    Actual    Receptor    Estimated
               Impact  Usage    Lmax    Lmax      Distance    Shielding
Description        Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------        ------  -----    -----   -----     --------    ---------
Front End Loader       No     40           79.1        50.0         0.0
Front End Loader       No     40           79.1        50.0         0.0
Front End Loader       No     40           79.1        50.0         0.0

                        Results
                        -------
                                      Noise Limits (dBA)                    Noise Limit Exceedance (dBA)
                            -------------------------------------------   -------------------------------------------
                Calculated (dBA)        Day         Evening        Night           Day         Evening        Night
                ----------------   --------------   -------------  --------------    --------------  --------------  --------------
Equipment              Lmax    Leq      Lmax    Leq     Lmax    Leq     Lmax    Leq      Lmax    Leq     Lmax    Leq
Lmax    Leq
---------------------  ------  ------    ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Front End Loader        79.1    75.1      N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
Front End Loader        79.1    75.1      N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
Front End Loader        79.1    75.1      N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
         Total      79.1    79.9      N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          04/25/2023
Case Description:       SCUS-05:Phase 1

                      **** Receptor #1 ****

                            Baselines (dBA)
Description   Land Use       Daytime    Evening    Night
-----------   --------       -------    -------    -----
Demolition    Residential       60.0       55.0     50.0

                        Equipment
                        ---------
                      Spec    Actual    Receptor    Estimated
           Impact  Usage    Lmax    Lmax      Distance    Shielding
Description    Device   (%)     (dBA)   (dBA)     (feet)       (dBA)
-----------     ------  -----    -----   -----     --------    ---------
Concrete Saw       No     20            89.6        50.0         0.0
Dozer           No     40            81.7        50.0         0.0
Excavator        No     40            80.7        50.0         0.0

                        Results
                        -------
                                  Noise Limits (dBA)                    Noise Limit Exceedance (dBA)
                            ---------------------------------------------    ---------------------------------------------
                Calculated (dBA)       Day         Evening        Night            Day         Evening        Night
                ----------------   --------------   -------------  --------------    --------------  --------------  --------------
Equipment               Lmax    Leq       Lmax    Leq     Lmax    Leq     Lmax    Leq      Lmax    Leq     Lmax    Leq
Lmax    Leq
---------------------  ------  ------     ------  ------  ------  ------  ------  ------     ------  ------  ------  ------  ------  ------
Concrete Saw           89.6    82.6       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
Dozer               81.7    77.7       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
Excavator            80.7    76.7       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
          Total     89.6    84.6       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:         04/25/2023
Case Description:       SCUS-05:Phase 1

                     **** Receptor #1 ****

                           Baselines (dBA)
Description      Land Use       Daytime    Evening    Night
-----------      --------       -------    -------    -----
Rough Grading    Residential       60.0       55.0     50.0

                        Equipment
                        ---------
                        Spec    Actual    Receptor    Estimated
              Impact  Usage    Lmax    Lmax      Distance    Shielding
Description       Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------        ------  -----    -----   -----     --------    ---------
Grader              No     40     85.0               50.0         0.0
Dozer               No     40             81.7       50.0         0.0
Tractor             No     40     84.0               50.0         0.0

                        Results
                        -------
                                     Noise Limits (dBA)                   Noise Limit Exceedance (dBA)
                            ---------------------------------------------    --------------------------------------------
                Calculated (dBA)       Day          Evening        Night            Day          Evening          Night
                ----------------   --------------   -------------  --------------    --------------  --------------  --------------
Equipment              Lmax    Leq       Lmax    Leq      Lmax     Leq     Lmax    Leq      Lmax    Leq     Lmax    Leq
Lmax    Leq
--------------------  ------  ------    ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Grader                 85.0    81.0      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Dozer                  81.7    77.7      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Tractor                84.0    80.0      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
           Total       85.0    84.6      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
               Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          04/25/2023
Case Description:       SCUS-05:Phase 1

                         **** Receptor #1 ****

                              Baselines (dBA)
Description        Land Use       Daytime    Evening    Night
-----------        --------       -------    -------    -----
Site Preparation    Residential       60.0       55.0     50.0

                              Equipment
                              ---------
                              Spec    Actual    Receptor    Estimated
               Impact  Usage    Lmax    Lmax     Distance    Shielding
Description        Device   (%)    (dBA)   (dBA)     (feet)      (dBA)
-----------        ------  -----    -----   -----     --------    ---------
Tractor               No     40    84.0              50.0         0.0
Front End Loader       No     40            79.1        50.0         0.0
Dozer                 No     40           81.7        50.0         0.0

                              Results
                              -------
                                        Noise Limits (dBA)                   Noise Limit Exceedance (dBA)
                                ----------------------------------------    ----------------------------------------
                   Calculated (dBA)        Day          Evening        Night            Day          Evening         Night
                   ----------------   --------------   -------------  -------------    --------------  --------------  --------------
Equipment                Lmax    Leq       Lmax    Leq     Lmax    Leq     Lmax    Leq      Lmax    Leq     Lmax    Leq
Lmax    Leq
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Tractor               84.0    80.0       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Front End Loader         79.1    75.1       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Dozer                 81.7    77.7       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
          Total      84.0    82.8       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                    Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          05/02/2023
Case Description:        SCUS-05 Phase 2

                          **** Receptor #1 ****

                                 Baselines (dBA)
Description             Land Use       Daytime    Evening    Night
-----------            --------       -------    -------    -----
Architectural Coating    Residential       60.0       55.0     50.0

                             Equipment
                             ---------
                             Spec    Actual    Receptor    Estimated
                 Impact  Usage    Lmax    Lmax      Distance    Shielding
Description        Device   (%)     (dBA)   (dBA)     (feet)      (dBA)
-----------        ------  -----    -----   -----     --------    ---------
Compressor (air)       No     40           77.7        50.0         0.0

                             Results
                             -------
                                             Noise Limits (dBA)                   Noise Limit Exceedance (dBA)
                                 ---------------------------------------------    ---------------------------------------------
                    Calculated (dBA)       Day         Evening        Night            Day         Evening        Night
                    ----------------   --------------   -------------  --------------    --------------  --------------  --------------
Equipment                Lmax    Leq       Lmax    Leq     Lmax    Leq     Lmax    Leq      Lmax    Leq    Lmax    Leq
Lmax    Leq
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Compressor (air)         77.7    73.7       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
           Total     77.7    73.7       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                  Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          05/02/2023
Case Description:       SCUS-05 Phase 2

                         **** Receptor #1 ****

                               Baselines (dBA)
Description       Land Use        Daytime    Evening    Night
-----------       --------        -------    -------    -----
Asphalt Paving    Residential       60.0       55.0     50.0

                           Equipment
                           ---------
                              Spec    Actual    Receptor    Estimated
                  Impact  Usage    Lmax    Lmax      Distance    Shielding
Description          Device   (%)     (dBA)   (dBA)      (feet)      (dBA)
-----------          ------  -----    -----   -----     --------    ---------
Concrete Mixer Truck       No     40           78.8        50.0         0.0
Pavement Scarafier         No     20           89.5        50.0         0.0
Tractor                No     40     84.0              50.0         0.0

                           Results
                           -------
                                         Noise Limits (dBA)                  Noise Limit Exceedance (dBA)
                               ------------------------------------------    ------------------------------------------
                  Calculated (dBA)        Day          Evening        Night             Day          Evening         Night
                  ----------------   --------------   -------------  --------------    --------------  --------------  --------------
Equipment               Lmax    Leq        Lmax    Leq      Lmax     Leq      Lmax    Leq       Lmax    Leq      Lmax    Leq
Lmax    Leq
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Concrete Mixer Truck      78.8    74.8       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A
N/A     N/A
Pavement Scarafier       89.5    82.5       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Tractor                 84.0    80.0       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
            Total      89.5    84.9       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                    Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          05/02/2023
Case Description:       SCUS-05 Phase 2

                         **** Receptor #1 ****

                                Baselines (dBA)
Description   Land Use       Daytime    Evening    Night
-----------   --------       -------    -------    -----
Demolition    Residential       60.0       55.0     50.0

                            Equipment
                            ---------
                            Spec    Actual    Receptor    Estimated
               Impact  Usage    Lmax    Lmax      Distance    Shielding
Description        Device  (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------       ------  -----    -----   -----     --------    ---------
Concrete Saw          No     20            89.6        50.0         0.0
Tractor            No     40     84.0              50.0         0.0
Dozer              No     40            81.7        50.0         0.0

                            Results
                            -------
                                           Noise Limits (dBA)                    Noise Limit Exceedance (dBA)
                                ---------------------------------------------    ---------------------------------------------
                    Calculated (dBA)        Day          Evening        Night            Day          Evening         Night
                    ----------------   --------------   -------------  --------------    --------------  --------------  --------------
Equipment                  Lmax    Leq       Lmax    Leq     Lmax    Leq     Lmax    Leq      Lmax    Leq     Lmax    Leq
Lmax    Leq
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Concrete Saw            89.6    82.6       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
Tractor              84.0    80.0       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
Dozer                81.7    77.7       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
          Total     89.6    85.3       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
```

```
                    Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          05/02/2023
Case Description:       SCUS-05 Phase 2

                          **** Receptor #1 ****

                                  Baselines (dBA)
Description      Land Use       Daytime    Evening    Night
-----------      --------       -------    -------    -----
Rough Grading    Residential       60.0       55.0     50.0

                              Equipment
                              ---------
                              Spec    Actual    Receptor    Estimated
                 Impact  Usage    Lmax    Lmax      Distance    Shielding
Description        Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------        ------  -----    -----   -----     --------    ---------
Grader               No     40    85.0               50.0         0.0
Tractor              No     40    84.0               50.0         0.0
Dozer                No     40            81.7       50.0         0.0

                              Results
                              -------
                                          Noise Limits (dBA)                   Noise Limit Exceedance (dBA)
                                  ---------------------------------------------    ---------------------------------------------
                    Calculated (dBA)        Day          Evening         Night            Day          Evening          Night
                    ----------------   --------------  -------------  --------------    --------------  --------------  --------------
Equipment                Lmax    Leq       Lmax    Leq      Lmax    Leq      Lmax    Leq       Lmax    Leq      Lmax    Leq
Lmax    Leq
---------------------  ------  ------    ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Grader                 85.0    81.0      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Tractor                84.0    80.0      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Dozer                  81.7    77.7      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
           Total     85.0    84.6      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                    Roadway Construction Noise Model (RCNM),Version 1.1

Report date:           05/02/2023
Case Description:       SCUS-05 Phase 2

                          **** Receptor #1 ****

                                 Baselines (dBA)
Description         Land Use        Daytime    Evening    Night
-----------         --------        -------    -------    -----
Site Preparation    Residential       60.0      55.0     50.0

                             Equipment
                             ---------
                             Spec     Actual    Receptor    Estimated
                  Impact  Usage    Lmax    Lmax      Distance    Shielding
Description         Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------         ------  -----    -----   -----     --------    ---------
Grader                No     40     85.0               50.0         0.0
Tractor               No     40     84.0               50.0         0.0
Dozer                 No     40            81.7        50.0         0.0

                             Results
                             -------
                                          Noise Limits (dBA)                    Noise Limit Exceedance (dBA)
                                  ---------------------------------------------   ---------------------------------------------
                    Calculated (dBA)        Day          Evening        Night            Day         Evening         Night
                    ----------------   --------------   -------------  --------------    --------------  --------------  --------------
Equipment                Lmax    Leq       Lmax    Leq      Lmax    Leq      Lmax    Leq       Lmax    Leq      Lmax    Leq
Lmax    Leq
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Grader                  85.0    81.0      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Tractor                 84.0    80.0      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Dozer                   81.7    77.7      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
           Total       85.0    84.6      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                    Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          05/02/2023
Case Description:       SCUS-05 Phase 3

                         **** Receptor #1 ****

                               Baselines (dBA)
Description             Land Use       Daytime    Evening    Night
-----------             --------       -------    -------    -----
Architectural Coating    Residential       60.0       55.0     50.0

                           Equipment
                           ---------
                           Spec    Actual    Receptor    Estimated
                Impact  Usage    Lmax    Lmax      Distance    Shielding
Description         Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------         ------  -----    -----   -----     --------    ---------
Compressor (air)        No     40            77.7        50.0         0.0

                           Results
                           -------
                                        Noise Limits (dBA)                   Noise Limit Exceedance (dBA)
                               --------------------------------------------    --------------------------------------------
                    Calculated (dBA)        Day         Evening        Night            Day         Evening        Night
                    ----------------    --------------   -------------  --------------    --------------  --------------  --------------
Equipment               Lmax    Leq       Lmax    Leq     Lmax    Leq     Lmax    Leq      Lmax    Leq     Lmax    Leq
Lmax    Leq
---------------------  ------  ------    ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Compressor (air)         77.7    73.7       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
          Total     77.7    73.7      N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
```

```
                    Roadway Construction Noise Model (RCNM),Version 1.1

Report date:           05/02/2023
Case Description:        SCUS-05 Phase 3

                         **** Receptor #1 ****

                                Baselines (dBA)
Description       Land Use       Daytime    Evening    Night
-----------      --------       -------    -------    -----
Asphalt Paving    Residential       60.0       55.0     50.0

                            Equipment
                            ---------
                               Spec    Actual    Receptor    Estimated
                 Impact  Usage    Lmax    Lmax      Distance    Shielding
Description           Device  (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------          ------  -----    -----   -----     --------    ---------
Paver                    No     50           77.2        50.0         0.0
Concrete Mixer Truck        No    40           78.8        50.0          0.0
Tractor                   No     40    84.0               50.0         0.0

                            Results
                            -------
                                        Noise Limits (dBA)                   Noise Limit Exceedance (dBA)
                                 ------------------------------------------    ------------------------------------------
                 Calculated (dBA)        Day          Evening        Night            Day         Evening         Night
                 ----------------   --------------   -------------  --------------    --------------  --------------  --------------
Equipment              Lmax    Leq       Lmax    Leq     Lmax    Leq     Lmax    Leq      Lmax    Leq     Lmax    Leq
Lmax    Leq
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Paver                 77.2    74.2       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Concrete Mixer Truck      78.8    74.8       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A
N/A     N/A
Tractor                84.0    80.0       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
           Total      84.0    82.0       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          05/02/2023
Case Description:        SCUS-05 Phase 3

                     **** Receptor #1 ****

                           Baselines (dBA)
Description   Land Use       Daytime    Evening    Night
-----------   --------       -------    -------    -----
Demolition    Residential       60.0       55.0     50.0

                        Equipment
                        ---------
                        Spec    Actual    Receptor    Estimated
            Impact  Usage    Lmax    Lmax      Distance    Shielding
Description       Device   (%)     (dBA)   (dBA)      (feet)      (dBA)
-----------       ------  -----    -----   -----     --------    ---------
Concrete Saw          No     20            89.6        50.0         0.0
Tractor             No     40     84.0              50.0         0.0
Dozer               No     40            81.7        50.0         0.0

                        Results
                        -------
                                      Noise Limits (dBA)                  Noise Limit Exceedance (dBA)
                            --------------------------------------------   --------------------------------------------
                Calculated (dBA)       Day         Evening        Night            Day          Evening         Night
                ----------------   --------------  -------------  --------------   --------------  --------------  --------------
Equipment             Lmax    Leq       Lmax    Leq     Lmax    Leq     Lmax    Leq      Lmax    Leq     Lmax    Leq
Lmax    Leq
---------------------  ------  ------    ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Concrete Saw           89.6    82.6       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
Tractor              84.0    80.0       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
Dozer                81.7    77.7       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
          Total      89.6    85.3       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          05/02/2023
Case Description:        SCUS-05 Phase 3

                     **** Receptor #1 ****

                           Baselines (dBA)
Description      Land Use       Daytime    Evening    Night
-----------      --------       -------    -------    -----
Rough Grading    Residential       60.0       55.0     50.0

                       Equipment
                       ---------
                       Spec    Actual    Receptor    Estimated
             Impact  Usage    Lmax    Lmax      Distance    Shielding
Description       Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------       ------  -----    -----   -----     --------    ---------
Grader              No     40     85.0                50.0         0.0
Dozer               No     40             81.7        50.0         0.0
Tractor             No     40     84.0                50.0         0.0

                       Results
                       -------
                                    Noise Limits (dBA)                   Noise Limit Exceedance (dBA)
                          -------------------------------------------    -------------------------------------------
                Calculated (dBA)       Day          Evening        Night           Day          Evening         Night
                ----------------   --------------   -------------  --------------    --------------  --------------  --------------
Equipment              Lmax    Leq       Lmax    Leq      Lmax    Leq      Lmax    Leq       Lmax    Leq      Lmax    Leq
Lmax    Leq
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Grader               85.0    81.0      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Dozer                81.7    77.7      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Tractor              84.0    80.0      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
          Total     85.0    84.6      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          05/02/2023
Case Description:       SCUS-05 Phase 3

                    **** Receptor #1 ****

                         Baselines (dBA)
Description        Land Use       Daytime    Evening    Night
-----------        --------       -------    -------    -----
Site Preparation    Residential       60.0       55.0     50.0

                      Equipment
                      ---------
                      Spec    Actual    Receptor    Estimated
              Impact  Usage    Lmax    Lmax      Distance    Shielding
Description        Device   (%)     (dBA)   (dBA)      (feet)      (dBA)
-----------        ------  -----    -----   -----     --------    ---------
Grader               No     40     85.0              50.0         0.0
Tractor              No     40     84.0              50.0         0.0
Front End Loader       No     40            79.1         50.0         0.0

                      Results
                      -------
                                  Noise Limits (dBA)                  Noise Limit Exceedance (dBA)
                         ---------------------------------------------    ---------------------------------------------
                Calculated (dBA)       Day         Evening        Night           Day         Evening         Night
                ----------------   --------------   -------------  --------------    --------------  --------------  --------------
Equipment              Lmax    Leq       Lmax    Leq     Lmax     Leq     Lmax    Leq      Lmax    Leq     Lmax    Leq
Lmax    Leq
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Grader               85.0    81.0      N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
Tractor              84.0    80.0      N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
Front End Loader         79.1    75.1      N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
          Total      85.0    84.1      N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
```

SCUS-05 - Construction Noise Modeling Attenuation Calculations

		Levels in dBA Leq			
Phase	**RCNM Reference Noise Level**	**Williams Memorial Church of God in Christ (North Receptor)**	**Multi-Family Residence at 4609 Meddocino Blvd (East Receptor)**	**Single Family Residences at 3835-4017 22nd Avenue (South Receptor/s)**	**Single Family Residence at 3830 21st Avenue (West Receptor)**
Distance in feet	*50*	*150*	*200*	*200*	*260*
Phase 2,3 Demolition	85	76	73	73	71
Phase 2 Site Prep	85	75	73	73	70
Phase 2,3 Rough Grading	85	75	73	73	70
Distance in feet	*50*	*450*	*30*	*165*	*733*
Phase 1 Building Construction	80	61	84	70	57
Phase 1,2,3 Architectural Coating	74	55	78	64	51
Distance in feet	*50*	*285*	*235*	*80*	*536*
Phase 1,2 Asphalt Paving	85	70	71	81	64

Attenuation calculated through Inverse Square Law: Lp(R2) = Lp(R1) - 20Log(R2/R1)

SCUS-05 - Vibration Damage Attenuation Calculations

		Levels in in/sec PPV			
	Vibration Reference Level	**Church of God in Christ (North)**	**Residence at 4609 Mendocino Blvd**	**Residence at 3825 Martin Luther King**	**Residence at 3830 21st Avenue (West)**
Distance in feet	**at *25 feet***	*15*	*10*	*25*	*65*
Vibratory Roller	0.21	0.452	0.830	0.210	0.050
Static Roller	0.05	0.108	0.198	0.050	0.012
Large Bulldozer	0.089	0.191	0.352	0.089	0.021
Loaded Trucks	0.076	0.164	0.300	0.076	0.018
Jackhammer	0.035	0.075	0.138	0.035	0.008
Small Bulldozer	0.003	0.006	0.012	0.003	0.001

SCUS-05 - Vibration Annoyance Attenuation Calculations

Levels in VdB

Equipment	Vibration @ 25 ft	Williams Memorial Church of God in Christ (North)	Multi-Family Residence at 4609 Mendocino Blvd (East)	Multi-Family Residence at 3825 Martin Luther King Jr. Blvd (South)	Single-Family Residence at 3830 21st Avenue (West)
Distance in feet		*15*	*10*	*25*	*65*
Vibratory Roller	94.0	NA	105.9	94.0	81.6
Large Bulldozer	87.0	NA	NA	87.0	74.6
Loaded Trucks	86.0	NA	NA	NA	73.6
Static Roller	82.0	NA	93.9	82.0	69.6
Jackhammer	79.0	85.7	NA	NA	66.6
Small Bulldozer	58.0	NA	NA	58.0	45.6

STATIONARY NOISE MODELING

SCUS-05 - Stationary Noise Modeling Attenuation Calculations

Phase	**HVAC Reference Level**	**Receptor to North**
Distance in feet	*3*	*30*
HVAC	72.0	52

Phase	**Playfield Reference Level**	**Receptor to South**
Distance in feet	*15*	*50*
Soccer Field	60.0	50

Attenuation calculated through Inverse Square Law: Lp(R2) = Lp(R1) - 20Log(R2/R1)

Appendix D Transportation Impact Analysis

TRANSPORTATION IMPACT ANALYSIS

FOR

OAK RIDGE ELEMENTARY SCHOOL REBUILD PROJECT (SCUS-05.0)

Sacramento, CA

Prepared For:

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April 25, 2023

5424-06

TRANSPORTATION IMPACT ANALYSIS FOR OAK RIDGE ELEMENTARY SCHOOL REBUILD PROJECT (SCUS-05.0)

Sacramento, CA

TABLE OF CONTENTS

TRANSPORTATION IMPACT ANALYSIS FOR OAK RIDGE ELEMENTARY SCHOOL REBUILD PROJECT (SCUS-05.0)

INTRODUCTION

This Transportation Impact Analysis (TIA) has been prepared addressing the impacts of the Oak Ridge Elementary Rebuild Project under the California Environmental Quality Act (CEQA). The analysis focuses on Vehicle Miles Traveled (VMT) as well as alternative transportation modes and safety, including discussion of access to state highways. Because Martin Luther King Jr. Blvd access improvements will need to be approved by the City of Sacramento, a Local Traffic Operational Analysis (LTA) is also included which addresses the effects of the project within the context of City General Plan requirements, confirms the adequacy of site access, supports the CEQA safety analysis and supports the subsequent preparation of a Traffic Signal Design Concept Report (DCR) needed for the proposed modifications to the Martin Luther King Jr. Blvd / 21st Avenue intersection traffic signal. The LTA portion of this study addresses "Existing Conditions" and "Existing Plus Project Conditions," and any additional improvement recommendations that should be implemented concurrent with the project. Figure 1 displays the project site location.

Project Description

The Sacramento City Unified School District plans to completely rebuild the Oak Ridge Elementary School campus, consisting of moving the academic portion of the campus to the northeast corner of the campus and the athletic facilities to the west, moving the existing primary campus access point on Martin Luther King Jr. Blvd south to align with the 21st Avenue signalized intersection, and creating a new access point for emergency vehicles and pedestrians via Mendocino Boulevard.

The school's existing driveways and parking lots are located on the western portion of the site. A student drop-off loop is located on campus, accessed via Martin Luther King Jr. Blvd, and also connects to the staff parking lot.

Students and parents are generally encouraged to park along surrounding streets including Martin Luther King Jr. Boulevard, 21st Avenue, 22nd Avenue and 23rd Avenue and walk to the campus to avoid congestion in the school's parking lot.

Vehicle access to the site is currently provided via two driveways to Martin Luther King Jr. Blvd. The southerly driveway is located immediately north of the 21st Avenue intersection and is one-way inbound. The northerly driveway serves outbound traffic and is located 150 feet to the north of the southerly driveway. The proposed project will remove these existing driveways and construct a new access point to the site on Martin Luther King Jr. Blvd aligning with 21st Street, creating a 4-way intersection. This new access would lead to a driveway bordering the south boundary of the site which would continue as a loop around the proposed parking lot. This driveway would also provide access to two student drop-off/pick-up zones in front of the administration/multi-purpose building. Another access point is proposed for Mendocino Blvd and this access would be restricted to pedestrians and emergency vehicles only. A separated bus drop-off would be located at the east end of the parking lot.

A sidewalk and bike lane would be provided on the north side of the Martin Luther King Jr. Boulevard driveway. The sidewalk would continue in front of the campus and loop around the bus drop-off area, ending at the Mendocino Boulevard pedestrian access point. The existing sidewalk along Mendocino Boulevard will connect to the campus's internal sidewalk. The proposed parking lot on the southeast portion of the campus would contain 54 parking stalls including accessible parking spaces. Figure 2 displays the project site plan.

School Operations

Oak Ridge Elementary School serves students from kindergarten through the 6th grade. Kindergarten classes start school at 9:00 AM and are dismissed at 12:50 PM on Mondays through Fridays. Grades 1 through 3 start at 9:00 AM and are dismissed at 3:07 PM on Mondays, Tuesdays, Wednesdays, and Fridays, and at 2:07 PM on Thursdays. Grades 4 through 6 start at 9:00 AM and are dismissed at 3:12 PM on Mondays, Tuesdays, Wednesdays, and Fridays, and at 2:12 PM on Thursdays. This school schedule will not change with rebuilding of the campus.

The 2021-2022 school year enrolled 475 students and 462 students are currently enrolled for the 2022-2023 school year. Based upon enrollment history for the last 10-years for Oak Ridge Elementary School, the highest enrollment of 592 students occurred in the 2016-2017 school year. The rebuild project will provide for enrollment of up to 600 students and this traffic analysis has been prepared considering the maximum enrollment potential.

VICINITY MAP

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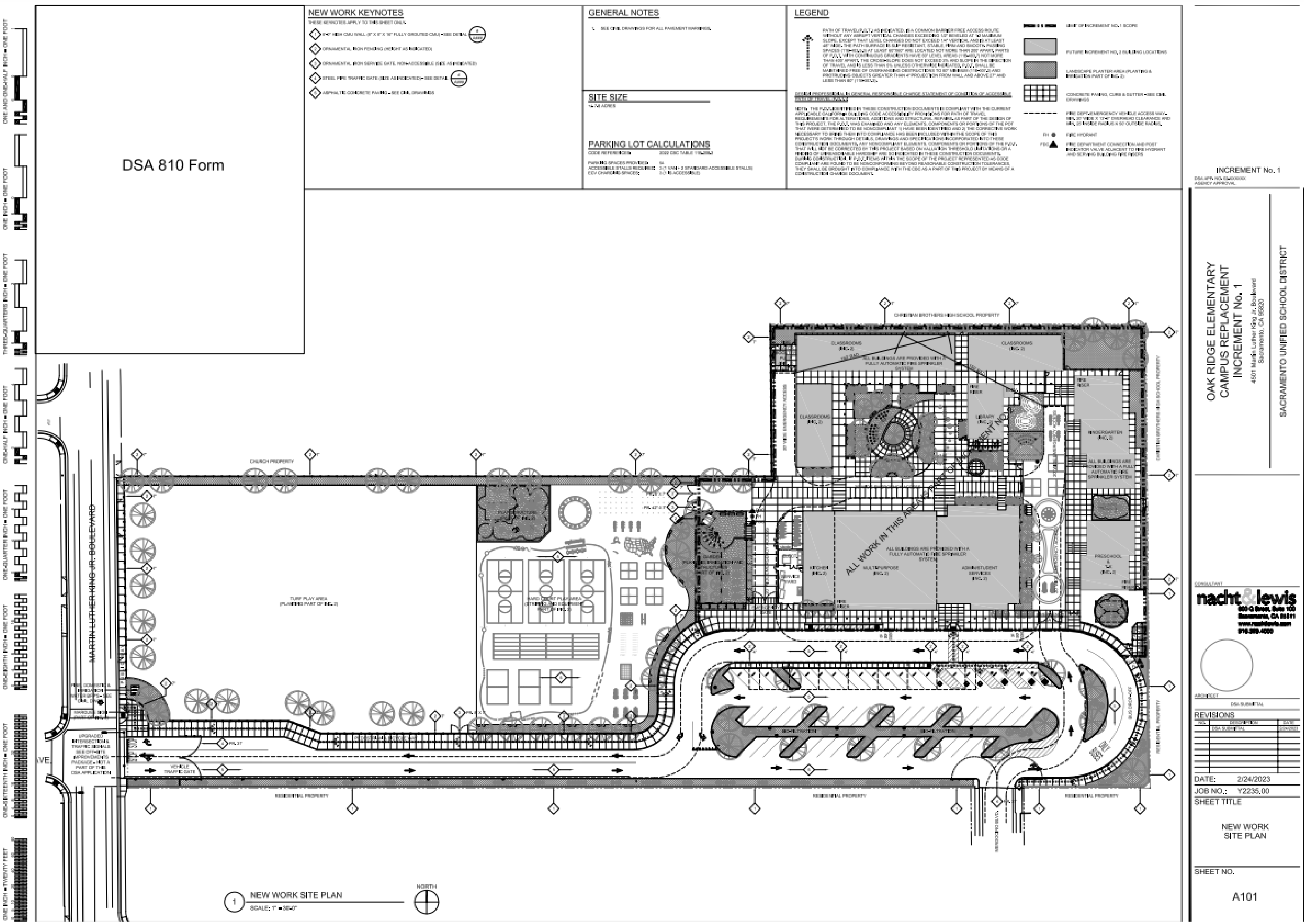
Transportation Engineers
0000-00 RA 4/21/2023

figure 1



SITE PLAN

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Transportation Engineers

0000-00 RA 4/21/2023

figure 2

EXISTING SETTING

Roadways

Martin Luther King Jr. Blvd is a 2-lane north-south facility through the study area with Class II on-street bike lanes. On-street parking is permitted in most areas. The City of Sacramento General Plan Citywide Circulation Diagram identifies the street as a Major Collector. The Circulation Diagram also identifies the street as a 2-lane facility and indicates it is planned to remain a 2-lane facility in the future. The roadway currently carries approximately 1,200 peak hour vehicles in the vicinity of the project site. The posted speed is 35 mph.

20th Avenue is a local 2-lane east-west street with residential frontage and extends approximately 2,000 feet west from Martin Luther King Jr. Blvd to 32nd Street. The roadway is stop sign controlled at Martin Luther King Jr. Blvd.

21st Avenue is a 2-lane east-west street with residential frontage which extends west from Martin Luther King Jr. Blvd and provides an undercrossing of Highway 99 and intersects Franklin Blvd immediately west of Highway 99. 21st Avenue is the only roadway between the 12th Avenue and Fruitridge Road interchanges with Highway 99 which provides circulation to the west side of the highway. The 21st Avenue intersection with Martin Luther King Jr. Blvd is signalized. No left turn channelization is provided on Martin Luther King Jr. Blvd at the intersection.

22nd Avenue is a local 2-lane east-west street with residential frontage and extends approximately 2,000 feet west from Martin Luther King Jr. Blvd and 800 feet to the east where it intersects Mendocino Blvd. The roadway is stop sign controlled at Martin Luther King Jr. Blvd. The east and west side intersection with Martin Luther King Jr. Blvd is offset by approximately 125 feet.

Mendocino Blvd is a local 2-lane north-south street with residential frontage and extends south from the south border of the school site to Fruitridge Road and terminates approximately 2,500 feet south of Fruitridge Road.

Pedestrian Facilities

All streets in the vicinity of the school site provide sidewalks. Signal controlled pedestrian crossings are provided at the Martin Luther King Jr. Blvd / 21st Avenue intersection on the north and west sides of the intersection. Oak Ridge Elementary School staff also provides a school crossing guard at the intersection during school arrival and departure periods.

Transit Service

Sacramento Regional Transit (RT) provides bus service within the project area. The project site is approximately 0.95-miles east of the Sacramento Regional Transit District's light rail system. RT Route 67 extends north on Martin Luther King Jr. Blvd from Fruitridge Road and then follows 21st Avenue west to Franklin Blvd. Bus stops are located on 21st Avenue immediately west of Martin Luther King Jr. Blvd and on Martin Luther King Jr. Blvd on the north side of 23rd Avenue. No

Oak Ridge elementary students were observed to use this RT service. Oak Ridge Elementary School is not served with District school bus service and no future service is currently planned to be provided with the rebuild of the campus.

Traffic Data

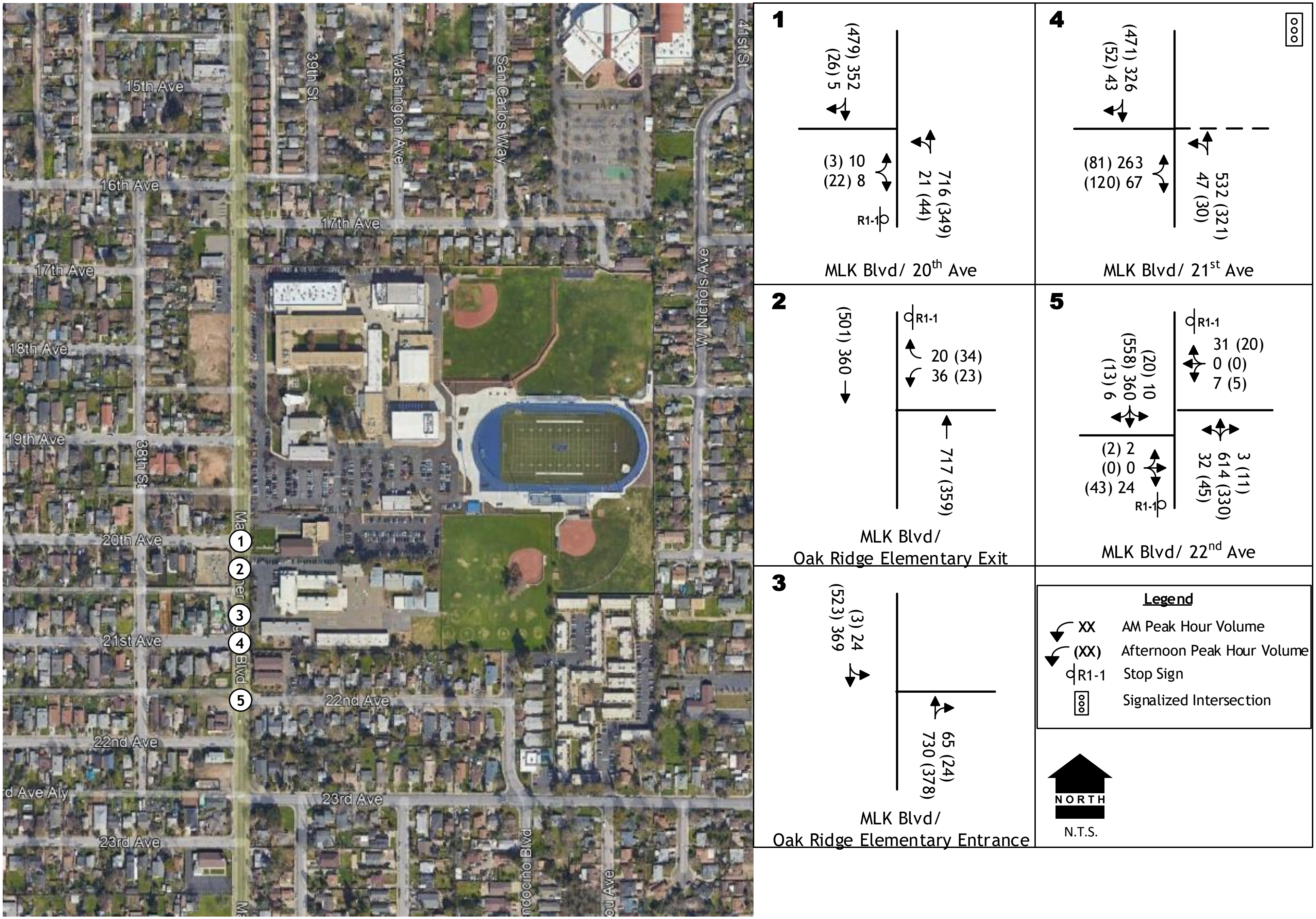
A.m. peak hour (7:00 to 9:00 a.m.) and afternoon peak hour (2:00 to 4:00 p.m.) traffic volume counts were conducted for this analysis. Traffic count data was collected over two hours in 15-minute intervals, and the four consecutive intervals with the greatest overall total traffic volumes identified as the "peak hour". Figure 3 displays existing peak hour intersection volumes. Traffic counts are appended. Existing queuing at study intersections as it relates to the general condition of on-site and off-site drop-off and loading activity was also observed, as was the number of on-street parked cars associated with school drop-off and pick-up activity. Traffic counts were conducted at the following intersections:

1. MLK Blvd / 20th Avenue
2. MLK Blvd / Oak Ridge Elementary Exit
3. MLK Blvd / Oak Ridge Elementary Entrance
4. MLK Blvd / 21st Avenue
5. MLK Blvd / 22nd Avenue

Traffic Field Observations

Peak hour traffic in the study area is heavily influenced by traffic generated by Christian Brothers High School. Table 1 displays Oak Ridge Elementary and Christian Brothers High School start and end times as well as the morning and afternoon peak hour times of adjacent street traffic. The peak hour of adjacent street traffic is largely driven by high school traffic. Elementary school traffic primarily occurs outside of the morning peak traffic hour and ends towards the beginning of the afternoon peak hour of the adjacent street traffic. Morning peak hour traffic on area streets was observed to result in long queue formations on Martin Luther King Jr. Blvd and on 21st Avenue. Afternoon conditions were observed to be better, but also experience periods of congestion on Martin Luther King Jr. Blvd due to high school operations.

In the morning, long vehicle queues extend south from the high school past the elementary school site and were observed to extend south past the elementary school for approximately a quarter mile to the 25th Avenue intersection. This condition is a result of high school traffic backing up on Martin Luther King Jr. Blvd from the high school driveways to the 21st Avenue signalized intersection. Northbound traffic to the high school utilizes northbound Martin Luther King Jr. Blvd as well as eastbound 21st Avenue. For a period of approximately 20 minutes in advance of the high school start time, these queues can prevent both northbound and eastbound traffic from utilizing available green time at the signalized intersection. Northbound and eastbound traffic was observed to be unable to advance through the intersection due to vehicle queues immediately north of the intersection. This condition then generates large vehicle queues on both northbound Martin Luther King Jr. Blvd south of 21st Avenue and on eastbound 21st Avenue. This condition persists for a number of signal cycles.



EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

0000-00 RA 4/21/2023

figure 3

Following this period of high school traffic, pedestrian traffic associated with elementary school drop-off's on the adjacent street system further exacerbates this condition. Morning drop-off's occur near the Martin Luther King Jr. Blvd / 21st Avenue intersection, primarily on 21st Avenue and on the west side of Martin Luther King Jr. Blvd. School children and many parents then cross the west side and north side of the intersection to the school grounds. A school crossing guard assists these crossings. These crossings in turn conflict with northbound left turns from Martin Luther King Jr. Blvd to 21st Avenue and with eastbound left turns from 21st Avenue to northbound Martin Luther King Jr. Blvd. As no left turn lane is provided on Martin Luther King Jr. Blvd, northbound left turn traffic further inhibits northbound traffic flow.

Table 2 displays pedestrian counts observed at the subject intersection. As shown, approximately 100 pedestrians cross Martin Luther King Jr. Blvd in both the morning and afternoon hours, with 38 pedestrians crossing 21st Avenue in the morning. The proposed access and school drop-off design is projected to significantly improve conditions at the Martin Luther King Jr. Blvd / 21st Avenue intersection associated with pedestrian activity during both the morning drop-off period and afternoon pick-up loading times. The on-site circulation system, together with the location of the new campus buildings is projected to move school drop-off and pick-up activity from the adjacent street system to the on-site loading area. This is projected to eliminate the majority of school pedestrian crossings at the intersection and improve intersection vehicle delays. This is also a safety improvement, as it will remove school age pedestrians and parents from these street crossings.

Vehicle traffic at the existing school driveways to Martin Luther King Jr. Blvd also experience delays accessing the roadway due to congestion on Martin Luther King Jr. Blvd. Vehicles exiting the site typically must wait for a gap in queued traffic to access the roadway. Vehicles entering the site also experience delays due to congestion on Martin Luther King Jr. Blvd and due to the entrance driveway location being immediately north of 21st Avenue. It is noted that school driveway gates are typically closed at the afternoon school bell due to the very limited on-site vehicle storage.

TABLE 1
SCHOOL AND PEAK TRAFFIC HOURS

Oak Ridge Elementary School	9:00 a.m. start	3:07 – 3:12 p.m. end
Christian Brothers High School	8:40 a.m. start	3:10 p.m. end
Peak Hour of Oak Ridge traffic	8:20 – 9:20 a.m.	2:30 – 3:30 p.m.
Peak Hour of adjacent street traffic	7:45 – 8:45 a.m.	3:00 – 4:00 p.m.

TABLE 2
EXISTING PEDESTRIAN VOLUMES
MARTIN LUTHER KING Jr. BLVD / 21st AVENUE

	Morning	Afternoon
North Side Martin Luther King Jr. Blvd crosswalk	97	107
West side 21st Avenue crosswalk	38	0

Collision History

Accident data for Martin Luther King Jr. Blvd at the study intersections has been compiled. Collision history has been identified for the last three years using data available from the Statewide Integrated Traffic Records System (SWITRS). This information indicates one injury accident at the 22nd Avenue intersection involving a pedestrian crossing Martin Luther King Jr. Blvd. Two accidents were reported at the 20th Avenue intersection. These were reported as one property damage accident and one injury accident associated with a head-on collision. Six (6) accidents were reported at the 21st Avenue intersection. These consisted of five (5) injury accidents and one property damage accident. The type of accidents consisted of two (2) rear-end, three (3) broadside and one head-on accident. The consultant cannot draw any definite conclusions from this collision data, but broadside accidents are typically associated with uncontrolled left turns.

PROJECT PHASING AND CONSTRUCTION TRAFFIC

In order to accommodate students at the site, redevelopment of the site would occur in three phases to allow students to remain on campus during construction.

During Phase 1, students and staff would utilize the existing school buildings on the western portion of the campus while the new buildings are constructed on the eastern portion of the campus. Construction workers and equipment would access the site via Mendocino Blvd.

During Phase 2, students and staff would utilize the newly constructed school buildings on the eastern portion of the campus while the existing portable buildings are removed and the new driveway is constructed on the southern portion of the site. The new parking lot would also be completed in Phase 2. The existing parking lot would continue to operate during Phase 2 and a student/staff access corridor would be provided to connect the parking lot/drop-off area to the new campus buildings.

Phase 3 would consist of demolishing the rest of the existing school buildings and the existing parking lot on the west portion of the campus. During this Phase, the playfields and site frontage would be constructed and access to the newly constructed Martin Luther King Jr. Boulevard driveway and new parking lot would be available.

The level of construction traffic will vary throughout the duration of the project and will be dependent on specific construction tasks. Input from the construction contractor team indicates that the work force personnel would range from about 15 persons to 65 persons working on site during Phase 1 when construction access is provided via Mendocino Blvd. Truck traffic will similarly vary, with 2-5 trucks projected per day for deliveries and off-haul during slower periods and 6-10 trucks per day during peak days. Working days will be Monday through Friday from 7:00 a.m. – 3:30 p.m. This will place construction worker arrivals and departures outside of school day arrivals and departures for both Oak Ridge Elementary and the adjacent high school.

A construction worksite traffic control plan would be prepared and implemented by the District. The plan would identify haul routes, hours of construction, protective devices, warning signs, and access.

Use of Martin Luther King Jr. Blvd to 23rd Avenue and Mendocino Blvd likely represents the most direct route to the construction access point to minimize travel through residential neighborhoods. 23rd Avenue is a 38 foot wide street and Mendocino Blvd is 32 feet in width. 22nd Avenue is slightly narrower at 30 feet in width. This route from Martin Luther King Jr. Blvd would result in construction traffic travelling on approximately 850 feet of 23rd Avenue and 450 feet of Mendocino Blvd.

Project Trip Generation

Traffic generated by Oak Ridge Elementary School is not projected to increase with the rebuild project, as maximum student enrollment will not be increased with the project. Project trip generation has been quantified based upon traffic counts conducted at the site and field observations on the surrounding street system to determine projected traffic at the new access driveway. Projected peak hour traffic volumes into and out of the new site driveway are displayed in Figure 4 and these volumes consider several factors for purposes of evaluating traffic operations. Although overall trip generation is not projected to change, traffic which is currently oriented to the adjacent street system and which parks on the street for student drop-off and pick-up is projected to enter the new site driveway and access the student loading area. Project traffic has been quantified relative to the peak hour of adjacent street traffic as well as the peak hour of traffic generated by the elementary school site. This latter component has been used in evaluating on-site circulation associated with student drop-off and pick-up activity. Lastly, traffic volumes associated with the current enrollment of 462 students have been factored to represent a maximum enrollment of 600 students for purposes of evaluating on site circulation and intersection operations at the new driveway connection to the Martin Luther King Jr. Blvd / 21st Avenue intersection.

Trip Distribution. The regional distribution of project trips has been determined based on consideration of current travel patterns and intersection traffic counts. Table 3 summarizes this information.

TABLE 3
EXISTING TRIP DISTRIBUTION

	Morning		Afternoon	
	Inbound	Outbound	Inbound	Outbound
North via Martin Luther King Blvd	18%	30%	12%	10%
South via Martin Luther King Blvd	46%	24%	60%	58%
West via 20th Avenue	6%	12%	5%	8%
West via 21st Avenue	21%	23%	14%	12%
West via 22nd Avenue	3%	3%	3%	3%
East via 22nd Avenue	6%	8%	6%	9%

Vehicle Miles Traveled (VMT)

Level of Service (LOS) has been used in the past in California Environmental Quality Act (CEQA) documents to identify the significance of a project's impact on traffic operating conditions. As noted in the California Governor's Office of Planning and Research (OPR) document *Technical Advisory on Evaluating Transportation Impacts in CEQA* (California Governor's Office of Planning and Research 2018),

> "Senate Bill 743 (Steinberg, 2013), which was codified in Public Resources Code section 21099, required changes to the guidelines implementing CEQA (CEQA Guidelines) (Cal. Code Regs., Title 14, Div. 6, Ch. 3, § 15000 et seq.) regarding the analysis of transportation impacts. . . OPR has proposed, and the California Natural Resources Agency (Agency) has

> certified and adopted, changes to the CEQA Guidelines that identify vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. With the California Natural Resources Agency's certification and adoption of the changes to the CEQA Guidelines, automobile delay, as measured by "level of service" and other similar metrics, generally no longer constitutes a significant environmental effect under CEQA. (Pub. Resources Code, § 21099, subd. (b)(3).)"

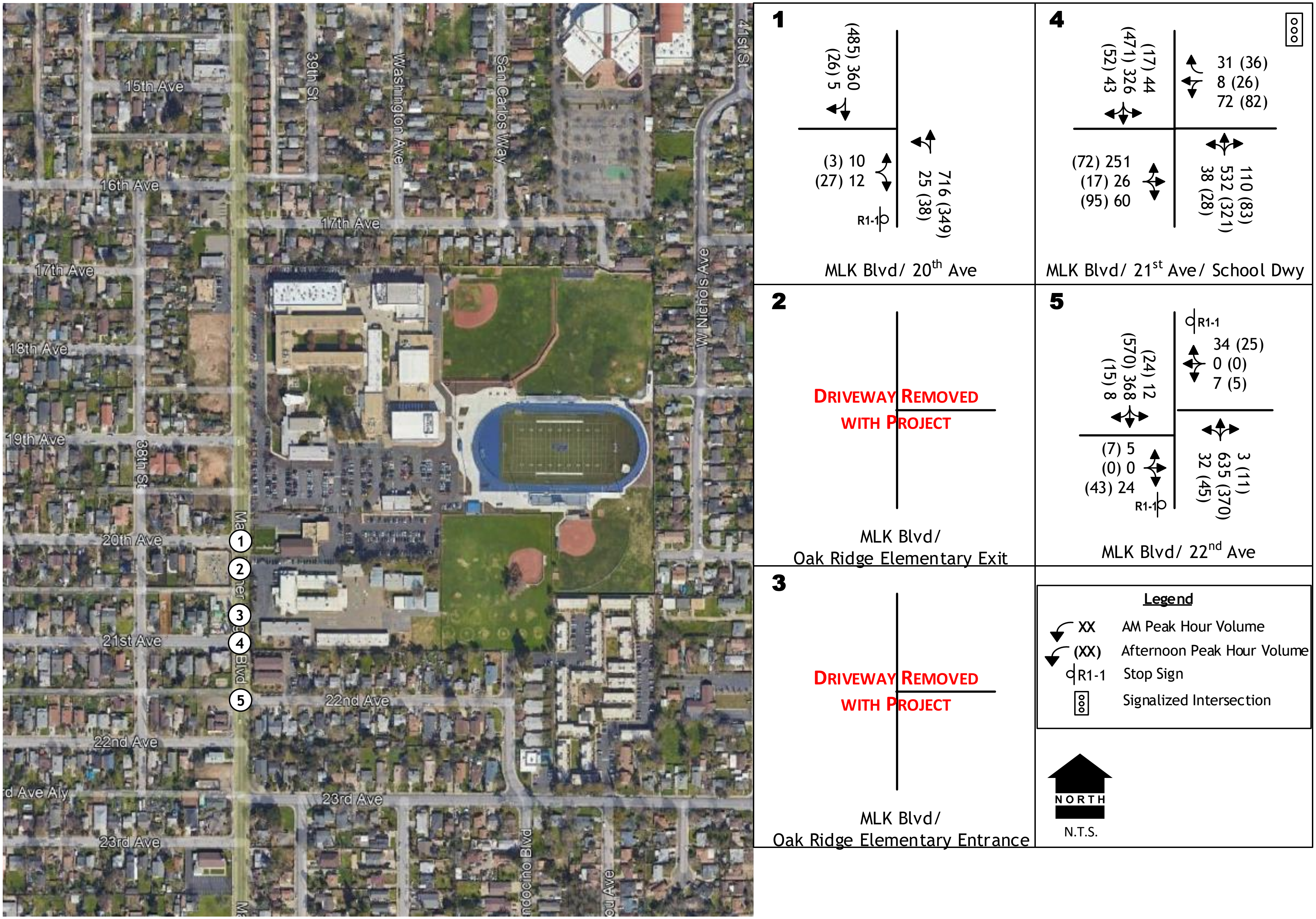
For land use projects, OPR identified Vehicle Miles Traveled (VMT) per capita, VMT per employee, and net VMT as new metrics for transportation analysis. The CEQA Guidelines state that lead agencies may establish "thresholds of significance" to assist with the determination of significant impacts of a project. The CEQA Guidelines generally state that projects that decrease VMT can be assumed to have a less than significant transportation impact. The CEQA Guidelines do not provide any specific criteria on how to determine what level of project VMT would be considered a significant impact.

Methods and Significance Criteria. The OPR *Technical Advisory* provides general direction regarding the methods to be employed and significance criteria to evaluate VMT impacts, absent policies adopted by local agencies. The directive addresses several aspects of VMT impact analysis, and is organized as follows:

Screening Criteria. Screening criteria can be used to quickly identify whether sufficient evidence exists to presume a project will have a less than significant VMT impact without conducting a detailed study. However, each project should be evaluated against the evidence supporting that screening criteria to determine if it applies. Projects meeting at least one of the criteria below can be presumed to have a less than significant VMT impact, absent substantial evidence that the project will lead to a significant impact.

- ***Small Projects:*** Defined as a project that generates 110 or fewer average daily vehicle trips.
- ***Affordable Housing:*** Defined as a project consisting of deed-restricted affordable housing.
- ***Local Serving Retail***: Defined as retail uses of 50,000 square feet or less can be presumed to have a less than significant impact.
- ***Projects in Low VMT-Generating Area:*** Defined as a residential or office project that is in a VMT efficient area based on an available VMT Estimation Tool. The project must be consistent in size and land use type (i.e., density, mix of uses, transit accessibility, etc.) as the surrounding built environment.
- ***Proximity to High Quality Transit.*** The directive notes that employment and residential development located within ½ mile of a high-quality transit corridor can be presumed to have a less than significant impact.

Screening Evaluation. The extent to which the proposed project's VMT impacts can be presumed to be less than significant has been determined based on review of the OPR directive's screening criteria and general guidance. As the Oak Ridge Elementary School Rebuild Project will not increase maximum enrollment capacity above current levels and the school assignment area boundaries will remain unchanged, project trip generation quantities and trip lengths are projected to remain unchanged. As such, VMT impacts can be presumed to be less than significant.



KD Anderson & Associates, Inc.
Transportation Engineers

EXISTING PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

0000-00 RA 4/21/2023

figure 4

State Highway facilities

The project site is approximately 2.48 miles to the east of Interstate 5, 1.78 miles south of Highway 50 and 0.43 miles east of State Route 99. The Oak Ridge Elementary School Rebuild projects impact to state highway facilities is projected to be less than significant. The project will not increase maximum school enrollment capacity and the quantity of traffic generated by the site as well as the directional distribution of regional traffic which might be oriented to the state highway system is projected to remain as occurs today.

School Access and Circulation

The proposed project access driveway will extend 500 feet east from Martin Luther King Jr. Blvd prior to entering the parking lot and drop off-area loop system. The driveway would be 27 feet in width and widen to 39 feet near the Martin Luther King Jr. Blvd intersection to provide two outbound lanes at the intersection. These will consist of a shared left+through lane and a right turn lane. The right turn lane will be 135 feet long.

The parking lot will provide 54 parking spaces. This is based upon a 9% student load per City of Sacramento requirements. In general, this is intended to provide roughly 40 staff parking spaces and 14 spaces for visitors. The number of parking spaces is estimated to be satisfactory based upon the number of spaces in the existing parking lot and observed utilization of these spaces. The existing parking lot provides 46 parking spaces. Field observations in the morning and afternoon indicated that two to five spaces were available in the existing parking lot.

The student drop-off curb lane will be 280 feet long and this will accommodate approximately 10 vehicles. The balance of the loop driveway in the parking lot area is approximately 450 feet in length. This length, together with the 500 feet of driveway to be provided prior to entering the parking lot / drop-off area provides on-site storage for approximately 38 vehicles in advance of the drop-off lane.

On-Site Drop-off and Loading. The flow of traffic through any school's drop-off and loading zones can have an effect on off-site traffic conditions, as delays created by drop-off and loading can create peak period queues that extend back onto adjacent public streets.

Morning Drop-off. The adequacy of the drop-off area is linked to the rate at which parent vehicles can maneuver into the zone and students can be unloaded. Assuming some assistance from staff who will direct students into and out of vehicles, each space could accommodate one drop-off every 15-20 seconds, or about 30 drop-offs per minute for the 10 space drop-off area. With a maximum enrollment of 600 students, 250 morning inbound vehicles are projected for the site. Thus, if all 250 inbound parent vehicles used the drop-off area, it would take 8-10 minutes to drop off all students. In reality a portion of the drop-off demand is likely to be dispersed to the parking lot area rather than the designated zone. In addition, the majority of drop-off activity will be dispersed into a roughly 20 minute arrival period. Given this demand, together with the proposed on-site vehicle storage, it is estimated that morning arrivals can be accommodated on-site the majority of the time without appreciable queues extending onto the adjacent street system.

Afternoon Conditions. Conditions at the end of the school day are inherently different since many parents arrive before the school day ends to wait for their student, while others arrive after the school bell. The combination of staff vehicles and waiting parent vehicles would need to be accommodated in parking spaces, the loading area and the available on-site driveway storage area. As indicated, this consists of the 10 car loading area and a driveway and loop area accommodating another 38 vehicles. In addition, approximately 14 parking spaces might be available for student pickup. It has been assumed that the central driveway parking lot aisle would not be available to store vehicles for student pick-up. As such, storage for 62 vehicles might typically be available on-site for student pick-up.

The total number of vehicles expected to be waiting or parked as the school day ends has been determined from observations of existing conditions at the site. This consists of traffic counts at the existing driveways and associated vehicles parked on the surrounding street system. As previously indicated, some pick-up activity currently occurs on-site at some times. However, the existing driveway gates are most often closed during afternoon pick-up, as on-site vehicle storage is very limited. As such, parents park on the surrounding street system.

In the afternoon, a peak of 46 vehicles was observed to be parked and waiting either on-site or on the surrounding street system at one time. Adjusting this number for a maximum enrollment of 600 students indicates that a peak of approximately 60 vehicles might be expected. This number is very close to the 62 vehicles which would be accommodated on-site and resulting demand would typically not be expected to extend onto the adjacent street system.

LEVEL OF SERVICE ANALYSIS

Methods of Analysis - Level of Service

To assess the quality of project traffic conditions, Levels of Service were calculated at study intersections. "Level of Service" (LOS) is a qualitative measure of traffic operating conditions whereby a letter grade "A" through "F", corresponding to progressively worsening traffic operating conditions, is assigned to an intersection or roadway segment. The City of Sacramento has identified LOS 'D' as the general minimum standard for its roadways.

The City of Sacramento General Plan Goals and Policies section indicates the City shall implement a flexible context-sensitive Level of Service (LOS) standard and will measure traffic operations against the vehicle LOS thresholds established in this policy. LOS thresholds have been defined based upon community values with respect to modal priorities, land use context, economic development, and environmental resources and constraints. As such, the City has established variable LOS thresholds appropriate for the unique characteristics of the City's diverse neighborhoods and communities. The City will strive to operate the roadway network at LOS D or better for vehicles during typical weekday conditions, including AM and PM peak hour with the following exceptions described below and mapped on Figure M-1. It is noted here that the exceptions mapped on Figure M-1 do not include Martin Luther King Jr. Blvd and therefore the LOS D standard is generally applicable to the roadway.

Intersection Analysis Methodology. Procedures used for calculating Levels of Service at signalized intersections are presented in the Transportation Research Board's *Highway Capacity Manual, 6th Edition*. In addition to traffic volume, these procedures make use of geometric information and in the case of traffic signals, signal timing data. *Synchro* Version 11 software was used to determine the levels of service for all signalized intersections. Table 4 presents typical Level of Service characteristics for signalized and unsignalized intersections.

TABLE 4
INTERSECTION LEVEL OF SERIVE CRITERIA

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10.0 sec	Little or no delay. Delay ≤ 10 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. Delay > 10.0 sec and ≤ 20.0 sec	Short traffic delays. Delay > 10 sec/veh and ≤ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. Delay > 20.0 sec and ≤ 35.0 sec	Average traffic delays. Delay > 15 sec/veh and ≤ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestion of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35.0 sec and ≤ 55.0 sec	Long traffic delays. Delay > 25 sec/veh and ≤ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55.0 sec and ≤ 80.0 sec	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and ≤ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. Delay > 80.0 sec	Intersection blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.
Sources: Highway Capacity Manual, 6th Edition Transportation Research Board (TRB).			

Existing Levels of Service

Table 5 summarizes existing intersection levels of service. Level of service calculations are appended. As shown, LOS A to F is experienced in the morning peak hour at individual unsignalized intersection approaches. LOS E operations are calculated at the Martin Luther King Jr. Blvd / 21st Avenue intersection. As discussed in the Traffic Field Observations section of this report, peak period queues on Martin Luther King Jr. Blvd can significantly affect operations at this intersection and substantially increase delays during peak periods of the peak traffic hour.

Similarly, LOS B operations are identified for the southbound left turn into the school driveway in the morning peak hour. Observed conditions were worse than this as vehicle queues on Martin Luther King Jr. Blvd can block this movement during peak periods.

Existing afternoon intersection operations are better, with levels of service ranging from A to D.

TABLE 5
EXISTING LEVELS OF SERVICE

Intersection	Control	Level of Service			
		AM Peak Hour		PM Peak Hour	
		LOS	Delay	LOS	Delay
Martin Luther King Blvd / 20th Avenue	EB Stop				
Eastbound		E	46.3	C	16.1
Northbound left		A	8.8	A	9.3
Martin Luther King Blvd / School Exit	WB Stop				
Westbound left		F	110.5	D	29.9
Martin Luther King Blvd / School Entrance	None				
Southbound left		B	11.9	A	8.8
Martin Luther King Blvd / 21st Avenue	Signal	E	55.3	B	15.6
Martin Luther King Blvd / 22nd Avenue	EB, WB Stop				
Eastbound		C	18.6	C	23.5
Westbound		D	30.6	D	28.1
Southbound left		A	9.6	A	8.4
Northbound left		A	9.0	A	9.7

Traffic Signal Warrants. To further characterize current traffic conditions, the volume of traffic occurring at the unsignalized study intersections was compared to Warrant #3 (peak hour traffic volume) presented in the California Manual of Traffic Control Devices (CA MUTCD). The 20th Avenue and 22nd Avenue intersections with Martin Luther King Jr. Blvd do not meet this volume criteria for installation of a traffic signal.

Existing plus Project Levels of Service

Intersection levels of service are summarized in Table 6. The Oak Ridge Elementary School Rebuild Project would construct a new access driveway to Martin Luther King Jr. Blvd aligned with 21st Avenue to provide signalized access to the site. This will result in a 4-way signalized intersection.

Level of service E to C operations are projected at the signalized intersection. These calculations assume existing geometrics on Martin Luther King Jr. Blvd. No left turn channelization is provided at the intersection. As discussed for existing intersection operations, peak period queues on Martin Luther King Jr. Blvd can significantly affect operations at this intersection and substantially increase delays during peak periods of the peak traffic hour. Level of service calculations do not fully reflect these actual field conditions. With project intersection modifications, a new westbound approach will be added and southbound left turn movements will also be introduced to the signalized intersection. Without left turn channelization, left turns would be expected to further contribute to observed queues.

It is recommended that the feasibility of left turn channelization on Martin Luther King Jr. Blvd be analyzed as part of the Design Concept Report (DCR) for the intersection. The City of Sacramento requires a DCR for all new traffic signals or signal modifications. This report would also evaluate left turn phasing options such as protected operation or protected / permitted phasing.

Levels of service associated with adding left turn lanes on Martin King Luther Jr. Blvd together with protected left turn phasing have been calculated for this report. Level of Service E with average delay 68.7 seconds is projected for the a.m. peak traffic hour. The increase in total average delay at the intersection would generally be attributable to adding the protected left turn phases. An exhibit has also been prepared displaying an alternative for restriping Martin Luther King Jr. Blvd to provide left turn channelization at the intersection. This would require removal of on-street parking north and south of the intersection. See Figure 5.

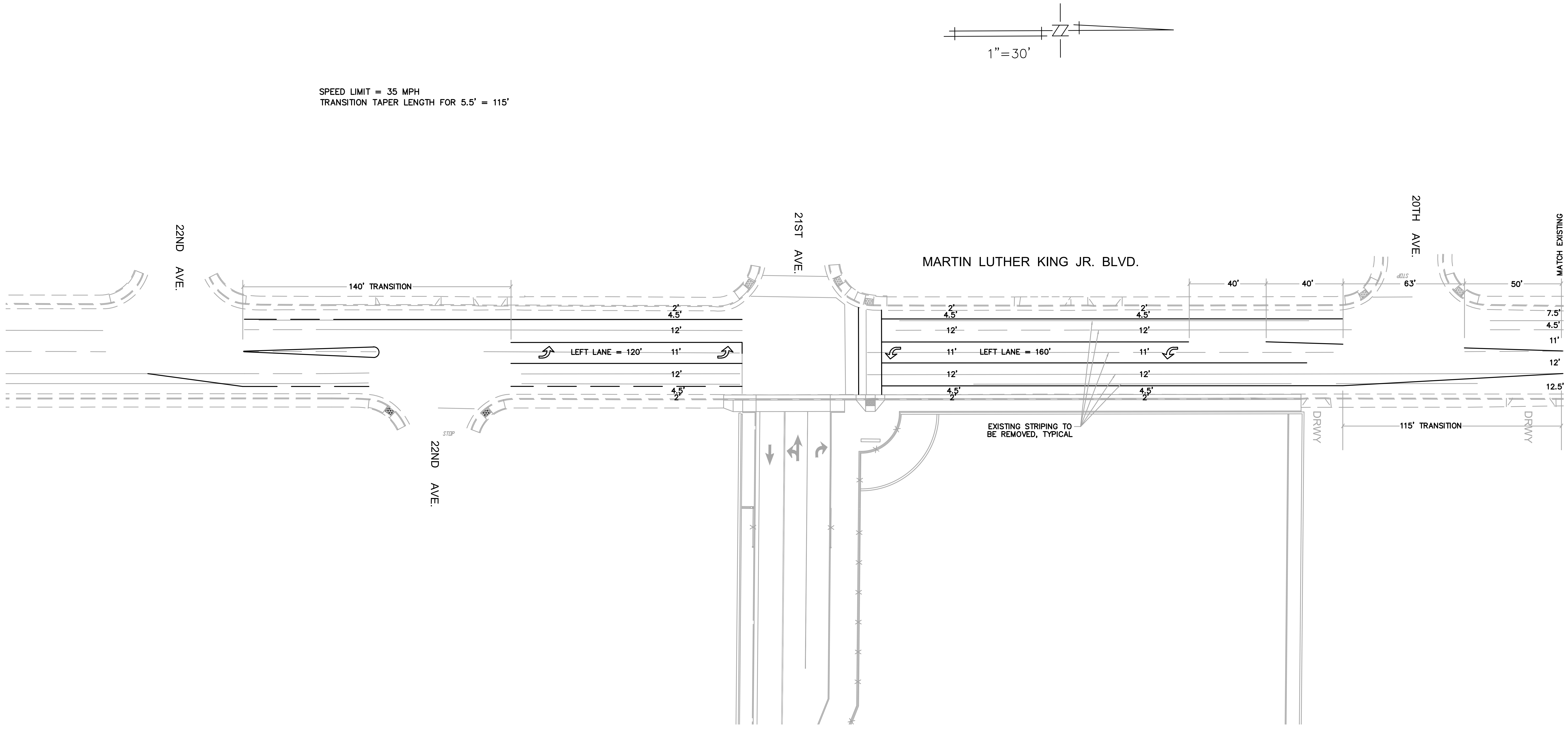
Turn Lane Queues. The lengths of peak period queues created in turn lanes at the intersection has also been determined as a byproduct of the HCM LOS analysis, and 95th percentile queues have been identified for the Martin Luther King Jr. Blvd / 21st Avenue intersection. These are summarized in Table 7. Queue calculations are appended. As shown, vehicle queues are projected to be accommodated in the turn lane lengths.

TABLE 6
EXISTING PLUS PROJECT LEVELS OF SERVICE

Intersection	Control	Level of Service			
		AM Peak Hour		PM Peak Hour	
		LOS	Delay	LOS	Delay
Martin Luther King Blvd / 20th Avenue	EB Stop				
Eastbound		E	45.2	C	16.1
Northbound left		A	8.9	A	9.3
Martin Luther King Blvd / 21st Avenue	Signal	E	60.2	C	23.5
Martin Luther King Blvd / 22nd Avenue	EB, WB Stop				
Eastbound		D	28.9	E	47.5
Westbound		D	32.0	D	30.5
Southbound left		A	9.7	A	9.7
Northbound left		A	9.0	A	8.6

TABLE 7
PROJECTED VEHICLE QUEUE LENGTHS
MARTIN LUTHER KING JR. BLVD / 21ST AVENUE
EXISTING PLUS PROJECT CONDITIONS WITH LEFT TURN LANES

	Peak Hour		Storage
	AM	PM	
Westbound Left + Thru Lane	130 ft	170 ft	500 ft
Westbound Right Turn Lane	55 ft	60 ft	135 ft
Northbound Left Turn Lane	70 ft	80 ft	120 ft
Southbound Left Turn Lane	15 ft	85 ft	160 ft



SPEED LIMIT = 35 MPH
TRANSITION TAPER LENGTH FOR 5.5' = 115'

0 1 2
FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES

SCALE : 1"=30'

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STRIPING EXHIBIT
MARTIN LUTHER KING JR BLVD LEFT TURN LANES

FIGURE 5

APPENDIX

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 23-070004-002 **Day:** Wednesday

City: Sacramento **TOTALS** **Date:** 1/18/2023

AM

NS/EW Streets:	Martin Luther King Jr Blvd			Martin Luther King Jr Blvd			21st Ave/Oak Ridge Elementary School Entrance Dwy			21st Ave/Oak Ridge Elementary School Entrance Dwy				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	0	0	0	0	0	0	0	0	0	0	0					
7:30 AM	2	53	2	1	20	4	4	0	4	0	0	0	90	0	0	0	0
7:35 AM	2	40	0	1	21	2	10	1	4	0	0	0	81	0	0	0	0
7:40 AM	2	66	1	0	26	0	13	0	5	0	0	0	113	0	0	0	0
7:45 AM	10	65	0	2	25	5	7	0	2	0	0	0	116	0	0	0	0
7:50 AM	11	39	2	2	24	2	6	0	3	0	0	0	89	0	0	0	0
7:55 AM	5	38	2	0	31	4	9	2	8	0	0	0	99	0	0	0	0
8:00 AM	3	38	5	0	28	3	14	1	3	0	0	0	95	0	0	0	0
8:05 AM	7	38	3	3	41	7	8	1	14	0	0	0	122	0	0	0	0
8:10 AM	5	45	2	2	27	2	13	0	7	0	0	0	103	0	0	0	0
8:15 AM	1	49	4	1	25	3	14	0	6	0	0	0	103	0	0	0	0
8:20 AM	0	59	4	3	26	0	20	4	5	0	0	0	121	0	0	0	0
8:25 AM	0	41	3	3	18	6	46	3	3	0	0	0	123	0	0	0	0
8:30 AM	1	29	6	2	23	0	47	2	1	0	0	0	111	0	0	0	0
8:35 AM	1	21	5	1	21	8	31	4	7	0	0	0	99	0	0	0	0
8:40 AM	3	25	9	5	37	3	28	3	8	0	0	0	121	0	0	0	0
8:45 AM	2	32	13	3	29	6	6	2	3	0	0	0	96	0	0	0	0
8:50 AM	2	14	11	2	29	3	4	6	6	0	0	0	77	0	0	0	0
8:55 AM	0	17	9	5	26	3	5	8	7	0	0	0	80	0	0	0	0
9:00 AM	1	24	15	4	36	2	6	2	12	0	0	0	102	0	0	0	0
9:05 AM	1	22	10	5	26	1	2	1	7	0	0	0	75	1	0	0	0
9:10 AM	0	17	3	5	36	2	1	0	1	0	0	0	65	0	0	0	0
9:15 AM	3	26	2	2	9	1	4	0	4	0	0	0	51	0	0	0	0
9:20 AM	1	16	2	1	26	1	3	0	5	0	0	0	55	0	0	0	0
9:25 AM	1	34	1	1	14	2	2	0	2	0	0	0	57	0	0	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	64	848	114	54	624	70	303	40	127	0	0	0	2244	1	0	0	0
APPROACH %'s :	6.24%	82.65%	11.11%	7.22%	83.42%	9.36%	64.47%	8.51%	27.02%	#DIV/0!	#DIV/0!	#DIV/0!					

AM Peak Hr Begins at: 745 AM

PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	47	487	45	24	326	43	243	20	67	0	0	0	1302
PEAK HR FACTOR :		0.643			0.642			0.529			0.000		0.882

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 23-070004-002 **Day:** Wednesday

City: Sacramento **TOTALS** **PM** **Date:** 1/18/2023

NS/EW Streets:	Martin Luther King Jr Blvd			Martin Luther King Jr Blvd			21st Ave/Oak Ridge Elementary School Entrance Dwy			21st Ave/Oak Ridge Elementary School Entrance Dwy				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	0	0	0	0	0	0	0	0	0	0	0					
2:00 PM	2	18	2	1	22	1	2	0	3	0	0	0	51	0	0	0	0
2:05 PM	5	23	0	1	28	0	1	0	5	0	0	0	63	0	0	0	0
2:10 PM	4	18	4	0	30	1	1	0	10	0	0	0	68	0	0	0	0
2:15 PM	1	20	3	0	29	1	5	0	7	0	0	0	66	0	0	0	0
2:20 PM	3	26	2	0	29	1	2	0	6	0	0	0	69	0	0	0	0
2:25 PM	4	31	3	1	40	4	6	1	6	0	0	0	96	0	0	0	0
2:30 PM	1	23	7	1	24	5	5	1	10	0	0	1	78	0	0	0	0
2:35 PM	4	25	2	2	40	1	5	0	8	0	0	0	87	0	0	0	0
2:40 PM	1	19	1	0	22	3	7	1	6	0	0	0	60	0	0	0	0
2:45 PM	2	23	1	0	30	7	6	0	4	0	0	0	73	0	0	0	0
2:50 PM	1	20	0	0	30	5	7	0	5	0	0	0	68	0	0	0	0
2:55 PM	7	30	0	0	25	5	8	0	5	0	0	0	80	0	0	0	0
3:00 PM	5	26	0	0	21	2	6	0	8	0	0	0	68	0	0	0	0
3:05 PM	3	18	0	0	27	1	7	0	7	0	0	0	63	0	0	0	0
3:10 PM	2	26	0	0	31	0	14	0	8	0	0	0	81	1	0	0	0
3:15 PM	3	10	3	1	22	5	11	4	11	0	0	0	70	0	0	0	0
3:20 PM	2	31	6	2	38	8	9	2	13	0	0	0	111	0	1	0	0
3:25 PM	3	39	4	0	55	7	0	1	14	0	0	0	123	0	0	0	0
3:30 PM	5	27	0	0	42	9	4	0	17	0	0	0	104	0	0	0	0
3:35 PM	3	35	1	0	60	4	5	0	3	0	0	0	111	0	0	0	0
3:40 PM	0	16	0	0	46	5	5	0	7	0	0	0	79	0	0	0	0
3:45 PM	2	31	3	0	45	4	4	0	10	0	0	0	99	0	0	0	0
3:50 PM	2	27	0	0	36	3	6	0	10	0	0	0	84	0	0	0	0
3:55 PM	0	18	0	0	48	4	3	0	12	0	0	0	85	0	0	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	65	580	42	9	820	86	129	10	195	0	0	1	1937	1	1	0	0
APPROACH %'s :	9.46%	84.43%	6.11%	0.98%	89.62%	9.40%	38.62%	2.99%	58.38%	0.00%	0.00%	100.00%					

PM Peak Hr Begins at: 300 PM

PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	30	304	17	3	471	52	74	7	120	0	0	0	1078
PEAK HR FACTOR :		0.636			0.685			0.644			0.000		0.730

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 23-070004-002
N/S Street: Martin Luther King Jr Blvd
E/W Street: 21st Ave/Oak Ridge Elementary School Entrance Dwy
DATE: 1/18/2023
DAY: Wednesday
CITY: Sacramento

A M

PEDESTRIANS

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:30 AM	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	0	0	1	1
7:40 AM	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	0	0
7:50 AM	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	3	0	0	0
8:05 AM	0	0	0	0	2	0	0	0
8:10 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:20 AM	5	0	0	0	0	0	2	0
8:25 AM	2	0	0	0	0	0	4	0
8:30 AM	1	1	0	0	0	0	2	0
8:35 AM	5	1	0	0	1	0	2	0
8:40 AM	6	0	0	0	0	0	5	0
8:45 AM	7	1	0	0	0	0	2	1
8:50 AM	7	0	0	0	1	0	0	0
8:55 AM	22	2	0	0	1	0	5	1
9:00 AM	11	4	0	0	1	0	2	1
9:05 AM	8	7	0	0	0	0	4	1
9:10 AM	0	3	0	0	0	0	1	1
9:15 AM	3	0	0	0	0	0	2	0
9:20 AM	0	0	0	0	0	0	0	0
9:25 AM	0	1	0	0	0	0	0	0
TOTALS	**77**	**20**	**0**	**0**	**9**	**1**	**32**	**6**

BIKES

T I M E	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:05 AM	0	1	0	0	0	0	0	0	0	0	0	0
8:10 AM	0	0	0	0	1	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:20 AM	0	0	2	0	0	0	0	0	0	1	0	0
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:35 AM	1	0	0	0	0	0	0	0	1	0	0	0
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:05 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:10 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	1	1	0	0	0	0	0	0	0	0	0	0
9:20 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:25 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**2**	**3**	**2**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**

P M

PEDESTRIANS

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
2:00 PM	0	0	0	0	0	0	0	0
2:05 PM	0	0	0	0	0	0	0	0
2:10 PM	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0
2:20 PM	0	0	0	0	0	0	0	0
2:25 PM	0	0	0	1	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0
2:35 PM	0	0	0	0	0	0	0	0
2:40 PM	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0
2:50 PM	0	0	0	0	0	3	0	0
2:55 PM	0	0	0	1	0	0	0	0
3:00 PM	2	0	0	0	0	0	0	0
3:05 PM	17	4	4	1	0	0	0	0
3:10 PM	5	32	2	0	0	0	0	0
3:15 PM	7	37	0	0	0	0	0	0
3:20 PM	3	0	1	0	0	0	0	0
3:25 PM	0	0	1	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:35 PM	0	0	0	0	0	0	0	0
3:40 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
3:50 PM	0	0	0	0	0	0	0	0
3:55 PM	0	0	0	0	0	0	0	0
TOTALS	**34**	**73**	**8**	**3**	**0**	**3**	**0**	**0**

BIKES

T I M E	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:05 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:10 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	1	0	0	0	0	0	0	0	0	0	0
2:20 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:25 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:35 PM	0	1	0	0	0	0	0	0	0	0	0	0
2:40 PM	0	0	0	0	1	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:50 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:55 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:05 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:10 PM	0	0	0	0	1	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:20 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:25 PM	0	0	0	0	0	0	0	1	0	0	0	0
3:30 PM	0	0	1	0	0	0	0	0	0	1	0	0
3:35 PM	0	1	0	0	1	0	0	0	0	0	0	0
3:40 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:50 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:55 PM	0	1	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**4**	**1**	**0**	**3**	**0**	**0**	**1**	**0**	**1**	**0**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Pedestrian Count

PROJECT#: 23-070004-002
N/S Street: Martin Luther King Jr Blvd
E/W Street: 21st Ave/Oak Ridge Elementary School Entrance Dwy
DATE: 1/18/2023 DAY: Wednesday
CITY: Sacramento

	Start:	End:
AM	7:30	9:30
NOON		
PM	14:00	16:00

AM	77
NOON	0
PM	34

20	AM
0	NOON
73	PM

NORTH LEG

AM	NOON	PM
6	0	0

AM	NOON	PM
1	0	3

WEST LEG

EAST LEG

32	0	0
AM	NOON	PM

9	0	0
AM	NOON	PM

SOUTH LEG

AM	0
NOON	0
PM	8

0	AM
0	NOON
3	PM

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Bicycle Count

	Start:	End:
AM	7:30	9:30
NOON		
PM	14:00	16:00

PROJECT#: 23-070004-002

N/S Street: Martin Luther King Jr Blvd

E/W Street: 21st Ave/Oak Ridge Elementary School Entrance Dwy

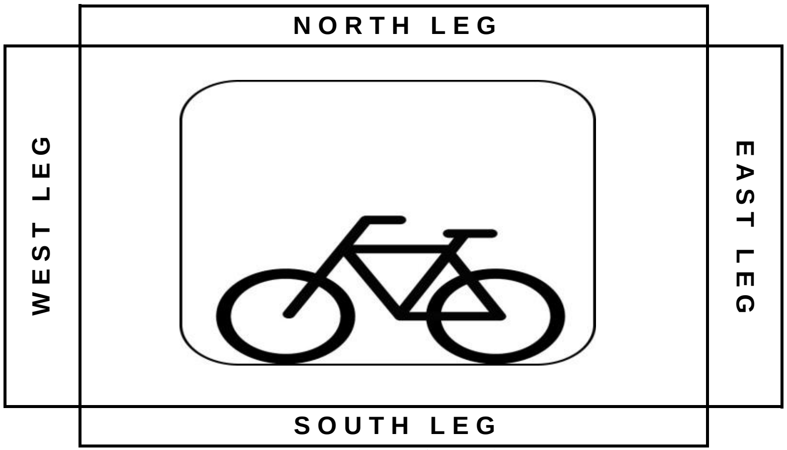
DATE: 1/18/2023

DAY: Wednesday

CITY: Sacramento

AM	0	1	0
NOON	0	0	0
PM	0	3	0

AM	NOON	PM
0	0	0
0	0	1
1	0	0



AM	NOON	PM
0	0	0
0	0	0
1	0	1

AM	2	3	2
NOON	0	0	0
PM	0	4	1

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Martin Luther King Jr Blvd and 21st Ave/Oak Ridge Elementary School Entrance Dwy , Sacramento

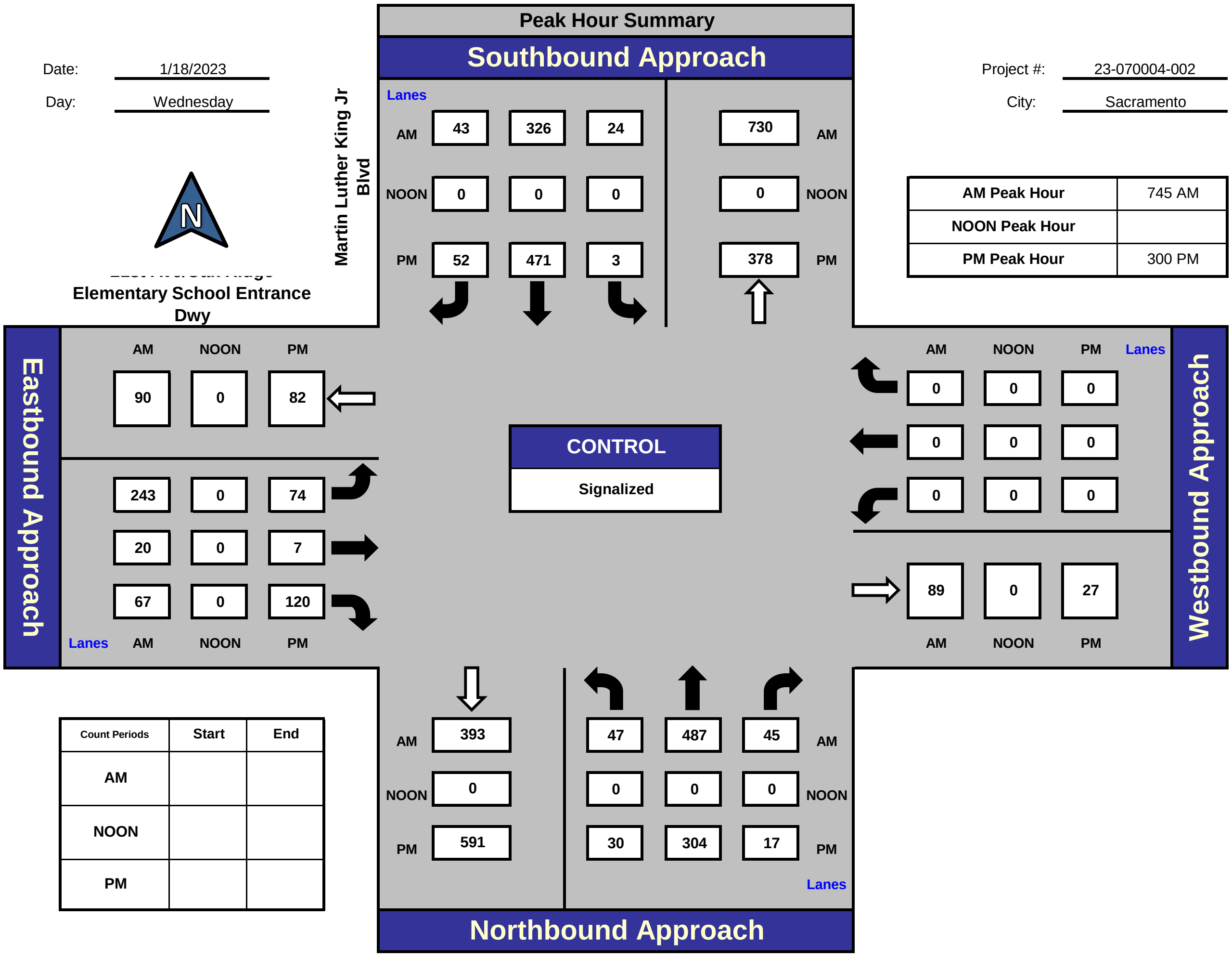
Date: 1/18/2023

Day: Wednesday

Project #: 23-070004-002

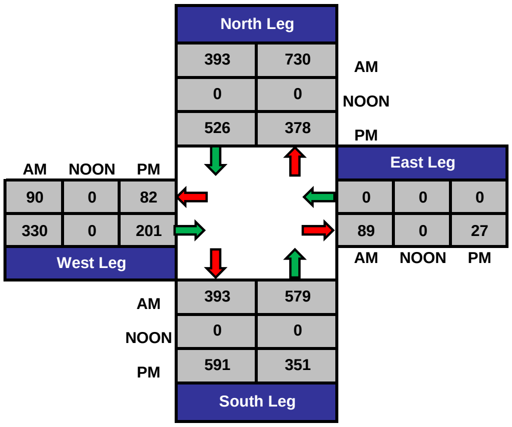
City: Sacramento

AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	300 PM

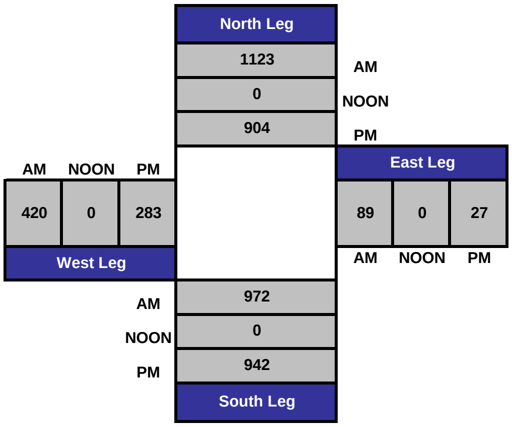


Count Periods	Start	End
AM		
NOON		
PM		

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 23-070004-003

Day: Wednesday

City: Sacramento

TOTALS
AM

Date: 1/18/2023

NS/EW Streets:	Martin Luther King Jr Blvd			Martin Luther King Jr Blvd			22nd Ave			22nd Ave				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	0	0	0	0	0	0	0	0	0	0	0					
7:30 AM	1	51	0	0	24	0	0	0	0	1	0	2	79	0	0	0	0
7:35 AM	4	46	0	0	24	0	0	0	1	1	0	2	78	0	0	0	0
7:40 AM	4	61	0	1	31	0	1	0	2	1	0	1	102	0	0	0	0
7:45 AM	3	71	0	1	25	1	0	0	1	1	0	4	107	0	0	0	0
7:50 AM	5	49	1	1	25	1	0	0	2	0	0	5	89	1	0	0	0
7:55 AM	5	41	0	2	37	0	0	0	1	1	0	2	89	0	0	0	0
8:00 AM	1	47	0	2	27	0	0	0	5	0	0	1	83	0	0	0	0
8:05 AM	1	44	0	0	51	3	0	0	4	0	0	3	106	0	0	0	0
8:10 AM	1	48	1	1	35	1	1	0	2	1	0	2	93	0	0	0	0
8:15 AM	1	54	0	1	30	0	0	0	0	0	0	2	88	0	0	0	0
8:20 AM	2	59	1	0	30	0	0	0	1	1	0	2	96	0	0	0	0
8:25 AM	4	43	0	1	21	0	0	0	5	0	0	5	79	0	0	0	0
8:30 AM	4	25	0	1	20	1	0	0	9	0	0	7	67	0	0	0	0
8:35 AM	1	30	1	3	26	1	0	0	2	0	0	0	64	0	0	1	0
8:40 AM	3	33	3	1	42	0	0	0	2	3	0	5	92	0	0	0	0
8:45 AM	5	37	0	1	33	0	0	0	6	1	0	2	85	0	0	0	0
8:50 AM	1	26	0	2	32	1	0	0	2	0	0	4	68	0	0	0	0
8:55 AM	1	31	0	1	32	0	0	0	0	1	0	9	75	0	0	0	0
9:00 AM	4	26	2	3	40	2	0	0	2	0	0	4	83	0	0	0	0
9:05 AM	1	28	0	0	37	0	0	0	1	0	0	2	69	0	0	0	0
9:10 AM	0	18	1	2	33	0	0	0	2	0	0	2	58	0	0	0	0
9:15 AM	0	31	0	1	14	0	0	0	0	0	0	1	47	0	0	0	0
9:20 AM	0	16	0	2	26	1	0	0	0	0	0	2	47	0	0	0	0
9:25 AM	2	37	0	2	17	0	0	0	0	1	0	2	61	0	0	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	54	952	10	29	712	12	2	0	50	13	0	71	1905	1	0	1	0
APPROACH %'s :	5.31%	93.70%	0.98%	3.85%	94.56%	1.59%	3.85%	0.00%	96.15%	15.48%	0.00%	84.52%					

AM Peak Hr Begins at: 730 AM

PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	32	614	3	10	360	6	2	0	24	7	0	31	1089
PEAK HR FACTOR :		0.731			0.580			0.433			0.633		0.848

CONTROL : 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 23-070004-003

Day: Wednesday

City: Sacramento

TOTALS

PM

Date: 1/18/2023

NS/EW Streets: Martin Luther King Jr Blvd | Martin Luther King Jr Blvd | 22nd Ave | 22nd Ave

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	4	20	1	0	25	0	1	0	1	1	0	1	54
2:05 PM	0	32	1	0	31	2	0	1	1	0	0	1	69
2:10 PM	3	21	1	0	40	0	0	0	0	0	0	1	66
2:15 PM	3	21	0	3	33	0	0	0	1	2	0	3	66
2:20 PM	0	30	0	1	32	0	0	0	0	0	0	0	63
2:25 PM	4	38	0	1	43	0	0	0	1	0	0	1	88
2:30 PM	2	26	1	2	32	2	0	0	0	0	0	4	69
2:35 PM	2	30	2	3	47	0	0	0	2	0	0	1	87
2:40 PM	3	20	1	1	24	1	0	0	1	1	0	1	53
2:45 PM	4	27	1	2	32	2	0	0	3	0	0	1	72
2:50 PM	2	17	0	3	31	0	0	0	2	0	0	2	57
2:55 PM	4	34	1	2	25	2	0	0	0	0	0	4	72
3:00 PM	2	29	1	0	28	3	0	0	5	1	0	1	70
3:05 PM	5	33	0	0	26	2	0	0	1	0	0	0	67
3:10 PM	6	19	2	2	34	1	0	0	0	0	0	1	65
3:15 PM	7	13	4	2	34	1	0	0	5	0	0	1	67
3:20 PM	6	38	1	1	55	0	0	0	13	0	0	4	118
3:25 PM	3	40	0	1	66	0	0	0	5	1	0	2	118
3:30 PM	2	30	0	2	58	1	0	0	3	0	0	3	99
3:35 PM	1	35	1	1	59	1	0	0	3	0	0	3	104
3:40 PM	2	17	0	3	52	1	0	0	4	1	0	0	80
3:45 PM	5	32	0	0	50	1	0	0	1	0	0	3	92
3:50 PM	2	28	1	2	42	1	2	0	0	2	0	1	81
3:55 PM	4	16	1	6	54	1	0	0	3	0	0	1	86
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	76	646	20	38	953	22	3	1	55	9	0	40	1863
APPROACH %'s :	10.24%	87.06%	2.70%	3.75%	94.08%	2.17%	5.08%	1.69%	93.22%	18.37%	0.00%	81.63%	

	UTURNS			
	NB	SB	EB	WB
2:00 PM	0	0	0	0
2:05 PM	0	0	0	0
2:10 PM	0	0	0	0
2:15 PM	0	0	0	0
2:20 PM	0	0	0	0
2:25 PM	0	0	0	0
2:30 PM	0	0	0	0
2:35 PM	1	0	0	0
2:40 PM	0	0	0	0
2:45 PM	0	0	0	0
2:50 PM	0	0	0	0
2:55 PM	0	0	0	0
3:00 PM	0	0	0	0
3:05 PM	0	0	0	0
3:10 PM	1	0	0	0
3:15 PM	1	0	0	0
3:20 PM	0	0	0	0
3:25 PM	1	0	0	0
3:30 PM	0	0	0	0
3:35 PM	0	0	0	0
3:40 PM	0	0	0	0
3:45 PM	0	0	0	0
3:50 PM	0	0	0	0
3:55 PM	0	0	0	0
	NB	SB	EB	WB
TOTAL VOLUMES :	4	0	0	0

PM Peak Hr Begins at: 300 PM

PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	45	330	11	20	558	13	2	0	43	5	0	20	1047
PEAK HR FACTOR :		0.715			0.735			0.288			0.521		0.739

CONTROL : 0

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 23-070004-003
N/S Street: Martin Luther King Jr Blvd
E/W Street: 22nd Ave
DATE: 1/18/2023
DAY: Wednesday
CITY: Sacramento

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:30 AM	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	0	0	1	1
7:40 AM	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	0	0
7:50 AM	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	2	0	0	0
8:05 AM	0	0	0	0	0	0	0	0
8:10 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	1
8:20 AM	0	0	0	0	0	0	5	0
8:25 AM	0	0	0	0	1	0	1	1
8:30 AM	0	0	0	0	2	1	0	0
8:35 AM	0	0	0	0	4	0	1	0
8:40 AM	0	0	1	0	3	0	2	1
8:45 AM	0	0	0	0	1	0	0	0
8:50 AM	0	0	0	0	9	1	2	1
8:55 AM	1	0	0	0	9	4	0	1
9:00 AM	0	0	0	0	0	3	4	0
9:05 AM	0	0	0	0	1	1	0	0
9:10 AM	0	0	0	0	0	0	3	1
9:15 AM	0	0	0	0	0	1	0	0
9:20 AM	0	0	0	0	0	0	0	0
9:25 AM	0	0	0	0	0	0	0	0
TOTALS	**1**	**0**	**1**	**0**	**32**	**12**	**19**	**7**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:05 AM	0	1	0	0	0	0	0	0	1	0	0	0
8:10 AM	0	0	0	0	1	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:20 AM	1	0	0	0	1	0	0	0	0	0	0	2
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:35 AM	0	0	0	0	0	1	1	0	0	0	0	0
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:05 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:10 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	1	0	0	0	0	0	0	0	0	0	1
9:20 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:25 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**1**	**3**	**0**	**0**	**2**	**1**	**1**	**0**	**1**	**0**	**0**	**3**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
2:00 PM	1	0	0	0	0	0	0	0
2:05 PM	1	0	1	0	1	0	2	1
2:10 PM	0	0	0	0	0	0	1	0
2:15 PM	0	0	1	0	0	0	0	1
2:20 PM	0	0	0	0	0	0	1	1
2:25 PM	0	0	0	0	0	0	1	1
2:30 PM	0	0	0	0	0	0	2	0
2:35 PM	1	1	0	0	0	0	0	0
2:40 PM	0	0	0	0	0	0	3	3
2:45 PM	0	0	0	0	0	0	1	0
2:50 PM	1	0	0	0	1	3	1	0
2:55 PM	0	0	0	0	2	0	0	2
3:00 PM	0	0	0	0	3	0	1	0
3:05 PM	0	0	0	0	3	0	2	0
3:10 PM	0	0	0	0	3	17	0	6
3:15 PM	0	0	0	0	0	15	1	4
3:20 PM	0	0	0	0	1	6	0	0
3:25 PM	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	1	0
3:35 PM	0	0	0	0	0	1	0	0
3:40 PM	0	0	0	0	0	0	1	1
3:45 PM	0	0	0	0	0	0	2	1
3:50 PM	0	0	0	0	0	0	2	0
3:55 PM	0	0	0	0	0	0	0	2
TOTALS	**4**	**1**	**2**	**0**	**14**	**42**	**22**	**24**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:05 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:10 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	1	0	0	0	0	0	0	0	0	0	0
2:20 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:25 PM	1	0	0	0	0	0	0	0	1	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:35 PM	0	1	0	0	0	0	0	0	1	0	0	0
2:40 PM	0	0	0	0	1	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:50 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:55 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:05 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:10 PM	0	0	0	0	1	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:20 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:25 PM	0	0	0	0	1	0	0	0	0	0	0	0
3:30 PM	0	1	0	0	0	0	0	0	0	0	0	0
3:35 PM	0	1	0	1	0	0	0	0	0	0	0	0
3:40 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:50 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:55 PM	0	1	0	0	0	0	0	0	0	0	0	0
TOTALS	**1**	**5**	**0**	**1**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**0**

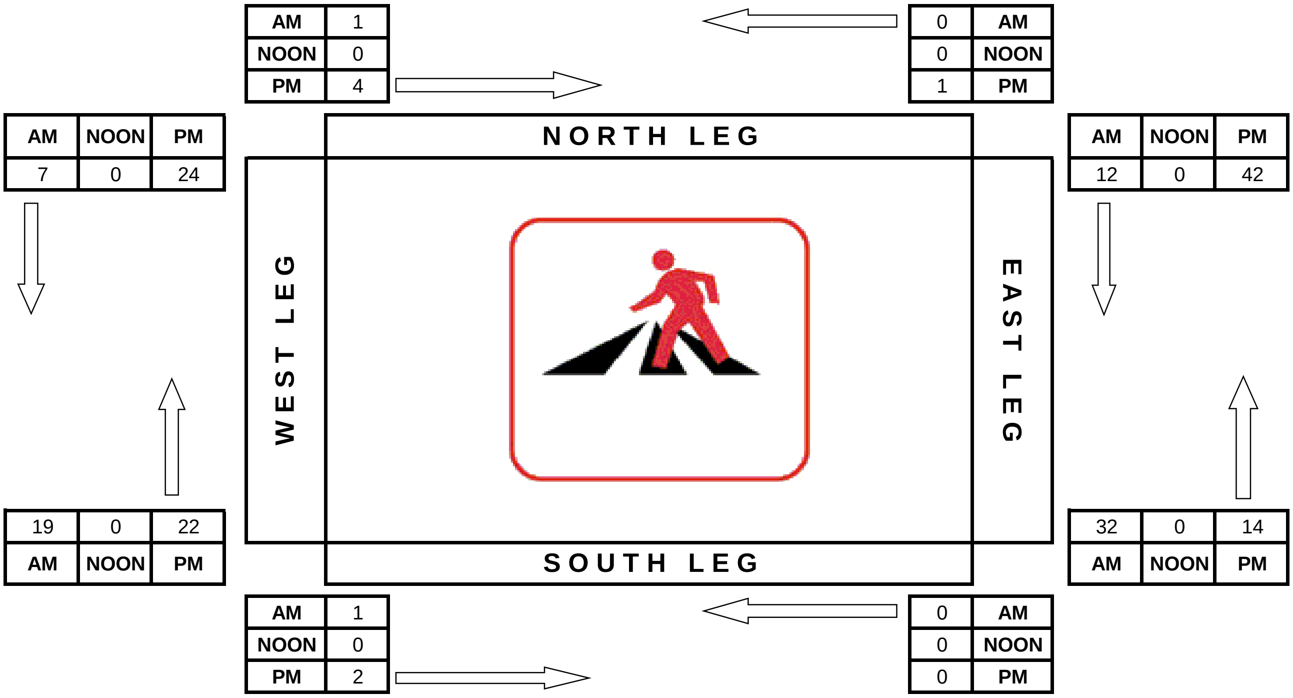
PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Pedestrian Count

	Start:	End:
AM	7:30	9:30
NOON		
PM	14:00	16:00

PROJECT#:	23-070004-003
N/S Street:	Martin Luther King Jr Blvd
E/W Street:	22nd Ave
DATE:	1/18/2023
CITY:	Sacramento

DAY: Wednesday



AM	1
NOON	0
PM	4

0	AM
0	NOON
1	PM

AM	NOON	PM
7	0	24

AM	NOON	PM
12	0	42

19	0	22
AM	NOON	PM

32	0	14
AM	NOON	PM

AM	1
NOON	0
PM	2

0	AM
0	NOON
0	PM

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

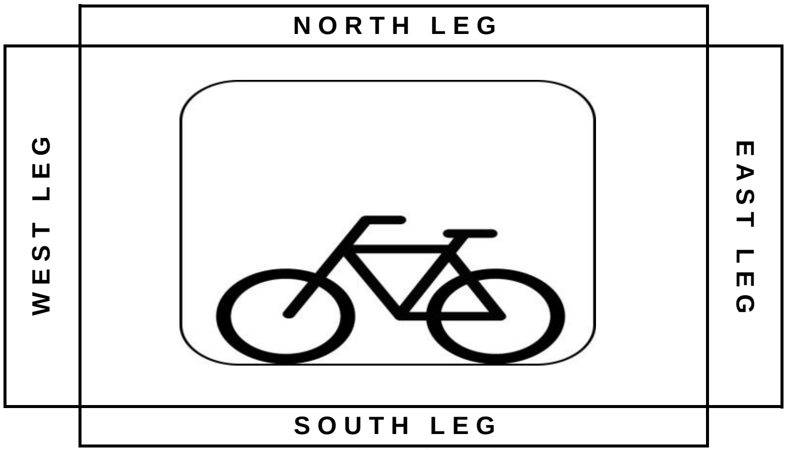
Bicycle Count

PROJECT#: 23-070004-003
N/S Street: Martin Luther King Jr Blvd
E/W Street: 22nd Ave
DATE: 1/18/2023
CITY: Sacramento

DAY: Wednesday

	Start:	End:
AM	7:30	9:30
NOON		
PM	14:00	16:00

AM	1	2	0
NOON	0	0	0
PM	0	3	1



AM	NOON	PM
1	0	0
0	0	0
1	0	2

AM	NOON	PM
3	0	0
0	0	0
0	0	0

AM	1	3	0
NOON	0	0	0
PM	1	5	0

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Martin Luther King Jr Blvd and 22nd Ave , Sacramento

Date: 1/18/2023

Day: Wednesday

Project #: 23-070004-003

City: Sacramento

AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	300 PM

Peak Hour Summary

Martin Luther King Jr Blvd

22nd Ave

Southbound Approach

Lanes

AM	6	360	10	647	AM
NOON	0	0	0	0	NOON
PM	13	558	20	352	PM

Eastbound Approach

	AM	NOON	PM
	38	0	58
	2	0	2
	0	0	0
	24	0	43
Lanes	AM	NOON	PM

Westbound Approach

AM	NOON	PM	Lanes
31	0	20	
0	0	0	
7	0	5	
13	0	31	
AM	NOON	PM	

CONTROL

Northbound Approach

AM	391	32	614	3	AM
NOON	0	0	0	0	NOON
PM	606	45	330	11	PM
					Lanes

Count Periods	Start	End
AM		
NOON		
PM		

Total Ins & Outs

North Leg

376	647	AM
0	0	NOON
591	352	PM

West Leg

AM	NOON	PM
38	0	58
26	0	45

East Leg

38	0	25
13	0	31
AM	NOON	PM

South Leg

AM	391	649
NOON	0	0
PM	606	386

Total Volume Per Leg

North Leg

1023	AM
0	NOON
943	PM

West Leg

AM	NOON	PM
64	0	103

East Leg

51	0	56
AM	NOON	PM

South Leg

AM	1040
NOON	0
PM	992

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 23-070004-001

Day: Wednesday

City: Sacramento

TOTALS

AM

Date: 1/18/2023

NS/EW Streets:	Martin Luther King Jr Blvd			Martin Luther King Jr Blvd			20th Ave/Oak Ridge Elementary School Exit Dwy			20th Ave/Oak Ridge Elementary School Exit Dwy							
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				UTURNS			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	0	0	0	0	0	0	0	0	0	0	0					
7:30 AM	0	58	0	0	21	1	0	0	0	0	0	0	80	0	0	0	0
7:35 AM	0	49	0	0	25	0	0	0	1	0	0	0	75	0	0	0	0
7:40 AM	1	79	0	0	23	0	0	0	1	0	0	1	105	0	0	0	0
7:45 AM	5	65	0	0	33	0	0	0	0	0	0	0	103	0	0	0	0
7:50 AM	3	39	0	0	25	0	0	0	0	2	0	0	69	0	0	1	0
7:55 AM	1	51	0	0	33	1	0	0	2	1	0	0	89	0	0	0	0
8:00 AM	1	50	0	1	30	0	0	0	0	2	0	2	86	0	0	0	0
8:05 AM	0	47	0	0	50	0	1	0	0	4	0	0	102	0	0	0	0
8:10 AM	1	53	0	0	26	0	0	0	1	2	1	1	85	0	0	0	0
8:15 AM	0	66	0	0	31	0	1	0	0	0	0	0	98	0	0	0	0
8:20 AM	2	75	0	0	22	0	1	0	1	4	0	2	107	0	0	0	0
8:25 AM	0	89	0	0	24	0	1	0	0	5	0	0	119	0	0	0	0
8:30 AM	0	76	0	0	17	0	0	0	1	5	0	3	102	0	0	0	0
8:35 AM	0	50	0	0	26	0	4	0	1	6	1	4	92	1	0	0	0
8:40 AM	2	55	0	0	35	4	2	0	2	5	4	2	111	0	0	0	0
8:45 AM	1	33	0	0	34	0	1	0	0	8	2	4	83	0	0	0	0
8:50 AM	1	17	0	0	17	0	0	0	0	11	2	3	51	1	0	0	0
8:55 AM	2	16	0	0	21	0	0	0	2	11	5	4	61	1	0	0	0
9:00 AM	3	29	0	0	25	2	0	0	1	13	2	11	86	0	0	0	0
9:05 AM	1	23	0	0	23	0	0	0	0	11	1	7	66	0	0	0	0
9:10 AM	0	18	0	0	36	1	0	0	0	5	0	0	60	0	0	0	0
9:15 AM	0	28	0	0	10	0	0	0	1	1	0	3	43	0	0	0	0
9:20 AM	0	21	0	0	23	1	2	0	0	4	0	0	51	0	0	0	0
9:25 AM	0	36	0	0	18	1	0	0	0	1	0	0	56	0	0	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	24	1123	0	1	628	11	13	0	14	101	18	47	1980	3	0	1	0
APPROACH %'s :	2.09%	97.91%	0.00%	0.16%	98.13%	1.72%	48.15%	0.00%	51.85%	60.84%	10.84%	28.31%					

AM Peak Hr Begins at: 745 AM

PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	15	716	0	1	352	5	10	0	8	36	6	14	1163
PEAK HR FACTOR :		0.684			0.597			0.300			0.424		0.814

CONTROL : 1-Way Stop(EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 23-070004-001
Day: Wednesday

City: Sacramento
TOTALS
PM
Date: 1/18/2023

NS/EW Streets:	Martin Luther King Jr Blvd	Martin Luther King Jr Blvd	20th Ave/Oak Ridge Elementary School Exit Dwy	20th Ave/Oak Ridge Elementary School Exit Dwy
	NORTHBOUND	SOUTHBOUND	EASTBOUND	WESTBOUND

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	UTURNS NB	SB	EB	WB
LANES:	0	0	0	0	0	0	0	0	0	0	0	0					
2:00 PM	0	20	0	0	22	0	0	0	1	1	0	0	44	0	0	0	0
2:05 PM	0	24	0	0	25	1	0	0	1	2	0	1	54	0	0	0	0
2:10 PM	0	19	0	0	32	2	0	0	0	0	0	1	54	0	0	0	0
2:15 PM	1	22	0	0	26	0	0	0	1	2	0	0	52	0	0	0	0
2:20 PM	2	28	0	0	26	0	1	0	0	3	0	0	60	0	0	0	0
2:25 PM	0	35	0	0	45	0	0	0	2	0	1	0	83	0	0	0	0
2:30 PM	0	30	0	0	26	0	1	0	0	2	2	0	61	0	0	0	0
2:35 PM	1	29	0	0	39	0	1	0	1	3	0	0	74	0	0	0	0
2:40 PM	1	25	0	1	24	1	1	0	0	0	0	2	55	1	0	0	0
2:45 PM	1	24	1	0	37	1	1	0	1	0	0	0	66	0	0	0	0
2:50 PM	0	27	1	0	33	1	0	0	0	0	0	0	62	1	0	0	0
2:55 PM	2	36	0	1	30	3	0	0	1	0	0	0	73	1	0	0	0
3:00 PM	1	28	2	0	17	0	0	0	3	0	1	0	52	1	0	0	0
3:05 PM	3	22	0	0	26	2	0	0	3	1	0	1	58	0	0	0	0
3:10 PM	7	25	0	0	27	4	0	0	1	4	0	4	72	0	0	0	0
3:15 PM	7	22	0	0	22	10	0	0	2	1	5	5	74	0	0	0	0
3:20 PM	3	30	0	0	43	5	0	0	4	6	6	0	97	0	0	0	0
3:25 PM	4	43	0	0	55	2	1	0	2	1	3	0	111	0	0	0	0
3:30 PM	1	30	0	0	49	2	0	0	1	4	1	2	90	0	0	0	0
3:35 PM	0	40	0	0	55	0	0	0	3	2	0	2	102	0	0	0	0
3:40 PM	0	20	0	0	50	0	0	0	2	0	0	1	73	0	0	0	0
3:45 PM	0	36	0	0	47	0	1	0	1	0	0	1	86	0	0	0	0
3:50 PM	0	33	0	0	38	1	1	0	0	1	0	1	75	0	0	0	0
3:55 PM	2	20	0	0	50	0	0	0	0	3	0	1	76	0	0	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	36	668	4	2	844	35	8	0	30	36	19	22	1704	4	0	0	0
APPROACH %'s :	5.08%	94.35%	0.56%	0.23%	95.80%	3.97%	21.05%	0.00%	78.95%	46.75%	24.68%	28.57%					

PM Peak Hr Begins at: 300 PM

PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	28	349	2	0	479	26	3	0	22	23	16	18	966
PEAK HR FACTOR :		0.672			0.738			0.521			0.396		0.725

CONTROL : 1-Way Stop(EB)

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 23-070004-001
N/S Street: Martin Luther King Jr Blvd
E/W Street: 20th Ave/Oak Ridge Elementary School Exit Dwy
DATE: 1/18/2023
DAY: Wednesday
CITY: Sacramento

A M

PEDESTRIANS

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:30 AM	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	0	0	0	1
7:40 AM	0	0	0	0	0	1	1	0
7:45 AM	0	0	0	0	0	0	0	0
7:50 AM	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:05 AM	0	0	0	0	4	0	1	0
8:10 AM	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	1
8:20 AM	0	0	0	0	0	0	0	0
8:25 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:35 AM	0	0	0	0	1	0	0	0
8:40 AM	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0
8:50 AM	0	0	0	0	0	0	0	0
8:55 AM	0	0	0	0	0	0	0	5
9:00 AM	0	0	0	0	0	0	3	0
9:05 AM	0	0	0	0	0	0	0	0
9:10 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0
9:20 AM	0	0	0	0	0	0	0	0
9:25 AM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**5**	**1**	**5**	**9**

BIKES

T I M E	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:05 AM	0	1	0	0	0	0	0	0	0	0	0	0
8:10 AM	0	0	0	0	1	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:35 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:05 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:10 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	1	0	0	0	0	0	0	0	0	0	0
9:20 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:25 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

P M

PEDESTRIANS

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
2:00 PM	0	0	0	0	0	0	0	0
2:05 PM	0	0	0	0	0	0	0	0
2:10 PM	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0
2:20 PM	0	0	0	0	0	0	0	0
2:25 PM	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0
2:35 PM	0	0	0	0	0	0	0	0
2:40 PM	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0
2:50 PM	0	0	0	0	0	2	0	0
2:55 PM	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0
3:05 PM	0	0	2	0	0	0	1	2
3:10 PM	0	0	1	2	0	1	0	2
3:15 PM	0	0	1	0	3	2	6	3
3:20 PM	0	0	0	1	0	0	1	0
3:25 PM	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	1	0	0
3:35 PM	0	0	0	0	0	0	0	0
3:40 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
3:50 PM	0	0	0	0	0	0	1	0
3:55 PM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**4**	**3**	**3**	**6**	**9**	**8**

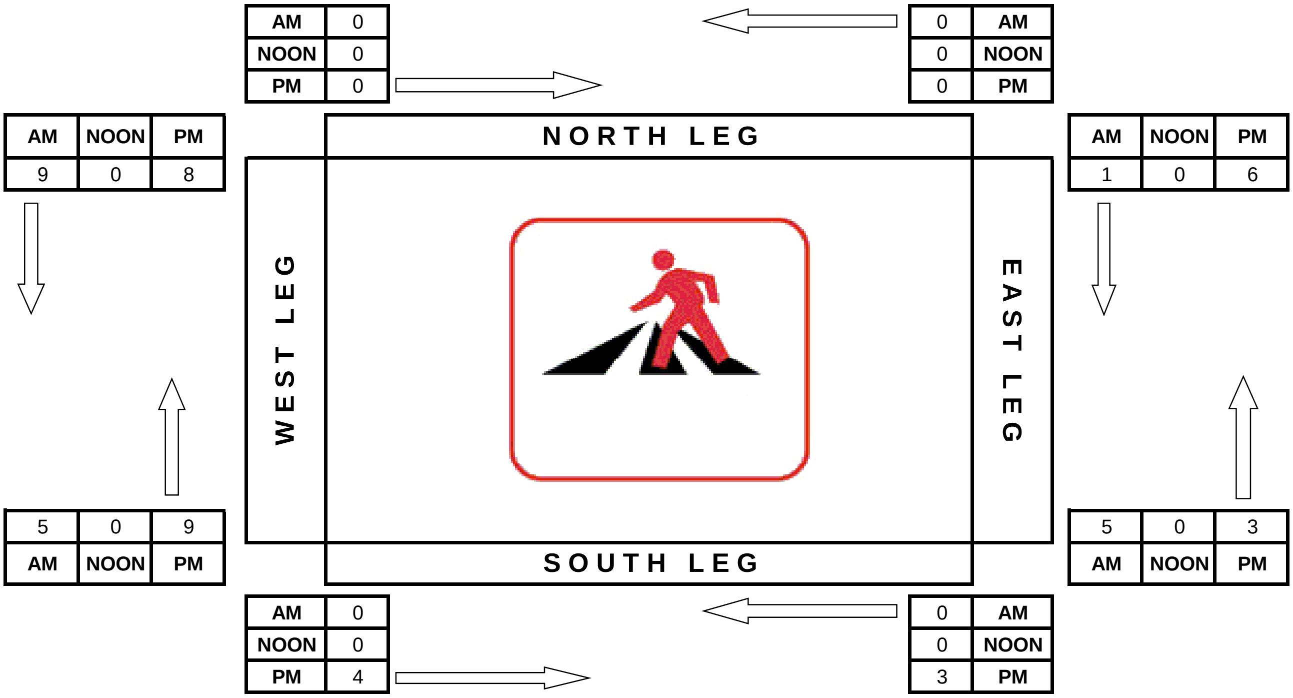
BIKES

T I M E	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:05 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:10 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	1	0	0	0	0	0	0	0	0	0	0	0
2:20 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:25 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:35 PM	0	0	1	0	0	0	0	0	0	1	0	0
2:40 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:50 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:55 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:05 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:10 PM	0	0	0	0	1	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:20 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:25 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	1	0	0	0	0	0	0	0
3:35 PM	0	1	0	0	0	0	0	0	0	0	0	0
3:40 PM	0	0	0	0	0	0	1	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:50 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:55 PM	0	1	0	0	0	0	0	0	0	0	0	0
TOTALS	**1**	**2**	**1**	**0**	**2**	**0**	**1**	**0**	**0**	**1**	**0**	**0**

Pedestrian Count

	Start:	End:
AM	7:30	9:30
NOON		
PM	14:00	16:00

PROJECT#:	23-070004-001
N/S Street:	Martin Luther King Jr Blvd
E/W Street:	20th Ave/Oak Ridge Elementary School Exit Dwy
DATE:	1/18/2023
DAY:	Wednesday
CITY:	Sacramento



AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

AM	NOON	PM
9	0	8

AM	NOON	PM
1	0	6

5	0	9
AM	NOON	PM

5	0	3
AM	NOON	PM

AM	0
NOON	0
PM	4

0	AM
0	NOON
3	PM

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Bicycle Count

	Start:	**End:**
AM	7:30	9:30
NOON		
PM	14:00	16:00

PROJECT#: 23-070004-001

N/S Street: Martin Luther King Jr Blvd

E/W Street: 20th Ave/Oak Ridge Elementary School Exit Dwy

DATE: 1/18/2023

DAY: Wednesday

CITY: Sacramento

AM	0	1	0
NOON	0	0	0
PM	0	2	0

NORTH LEG

WEST LEG

AM	**NOON**	**PM**
0	0	1
0	0	0
0	0	0

EAST LEG

AM	**NOON**	**PM**
0	0	0
0	0	0
0	0	1

SOUTH LEG

AM	0	3	0
NOON	0	0	0
PM	1	2	1

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Martin Luther King Jr Blvd and 20th Ave/Oak Ridge Elementary School Exit Dwy , Sacramento

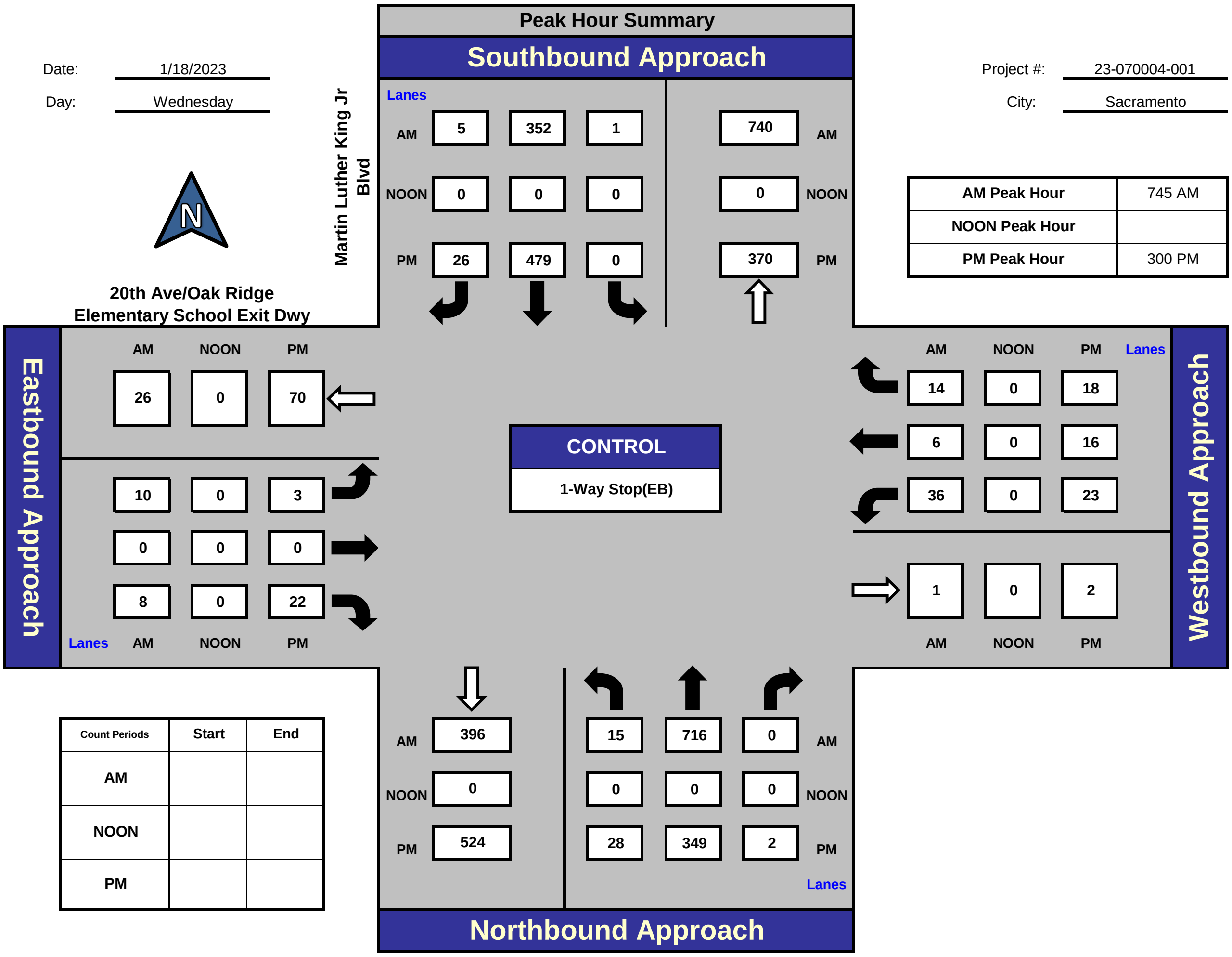
Date: 1/18/2023

Day: Wednesday

Project #: 23-070004-001

City: Sacramento

AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	300 PM



Southbound Approach

Lanes					
AM	5	352	1	740	AM
NOON	0	0	0	0	NOON
PM	26	479	0	370	PM

Eastbound Approach

	AM	NOON	PM
	26	0	70
	10	0	3
	0	0	0
	8	0	22
Lanes	AM	NOON	PM

Westbound Approach

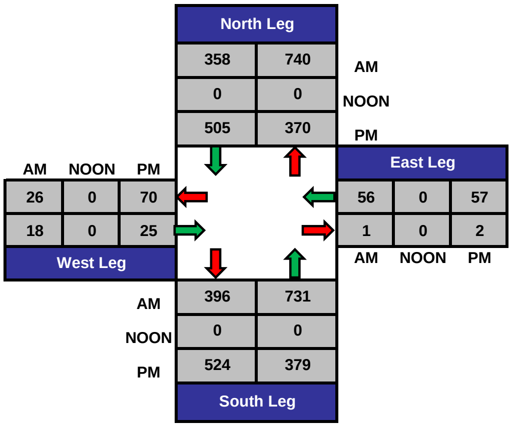
AM	NOON	PM	Lanes
14	0	18	
6	0	16	
36	0	23	
1	0	2	
AM	NOON	PM	

Northbound Approach

AM	396	15	716	0	AM
NOON	0	0	0	0	NOON
PM	524	28	349	2	PM
					Lanes

Count Periods	Start	End
AM		
NOON		
PM		

Total Ins & Outs



North Leg

AM	358	740	
NOON	0	0	
PM	505	370	

West Leg

AM	NOON	PM
26	0	70
18	0	25

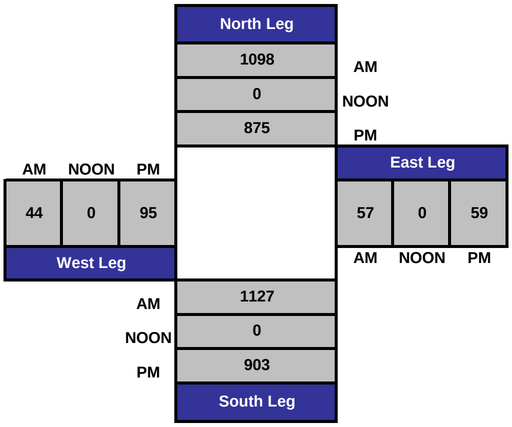
East Leg

56	0	57
1	0	2
AM	NOON	PM

South Leg

AM	396	731
NOON	0	0
PM	524	379

Total Volume Per Leg



North Leg

AM	1098
NOON	0
PM	875

West Leg

AM	NOON	PM
44	0	95

East Leg

57	0	59
AM	NOON	PM

South Leg

AM	1127
NOON	0
PM	903

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	10	8	21	716	352	5
Future Vol, veh/h	10	8	21	716	352	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	30	30	68	68	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	27	31	1053	587	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1706	591	595	0	-	0
Stage 1	591	-	-	-	-	-
Stage 2	1115	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	100	507	981	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	92	507	981	-	-	-
Mov Cap-2 Maneuver	92	-	-	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	314	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	46.3		0.3		0	
HCM LOS	E					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	981	-	145	-	-
HCM Lane V/C Ratio	0.031	-	0.414	-	-
HCM Control Delay (s)	8.8	0	46.3	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	1.8	-	-

Intersection	
Int Delay, s/veh	5.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑			↑
Traffic Vol, veh/h	36	20	717	0	0	360
Future Vol, veh/h	36	20	717	0	0	360
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	42	42	68	68	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	86	48	1054	0	0	600

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1654	1054	0	-	-	-
Stage 1	1054	-	-	-	-	-
Stage 2	600	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	108	275	-	0	0	-
Stage 1	335	-	-	0	0	-
Stage 2	548	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	108	275	-	-	-	-
Mov Cap-2 Maneuver	108	-	-	-	-	-
Stage 1	335	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	78.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	108	275	-
HCM Lane V/C Ratio	-	0.794	0.173	-
HCM Control Delay (s)	-	110.5	20.8	-
HCM Lane LOS	-	F	C	-
HCM 95th %tile Q(veh)	-	4.4	0.6	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑↱			↰↑
Traffic Vol, veh/h	0	0	730	65	24	369
Future Vol, veh/h	0	0	730	65	24	369
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	64	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1141	102	38	577

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1192	0	0	1243	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	228	-	-	560	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	228	-	-	560	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	560	-
HCM Lane V/C Ratio	-	-	-	0.067	-
HCM Control Delay (s)	-	-	0	11.9	0
HCM Lane LOS	-	-	A	B	A
HCM 95th %tile Q(veh)	-	-	-	0.2	-

HCM 6th Signalized Intersection Summary
4: 21ST AVE & MLK BLVD

AM EXISTING
04/24/2023

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗			↰↑	↓↳	
Traffic Volume (veh/h)	263	67	47	532	326	43
Future Volume (veh/h)	263	67	47	532	326	43
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.99	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	496	126	73	831	509	67
Peak Hour Factor	0.53	0.53	0.64	0.64	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	498	126	92	743	850	112
Arrive On Green	0.36	0.36	0.53	0.53	0.53	0.53
Sat Flow, veh/h	1379	350	80	1414	1619	213
Grp Volume(v), veh/h	623	0	904	0	0	576
Grp Sat Flow(s),veh/h/ln	1733	0	1494	0	0	1832
Q Serve(g_s), s	28.4	0.0	24.3	0.0	0.0	17.2
Cycle Q Clear(g_c), s	28.4	0.0	41.5	0.0	0.0	17.2
Prop In Lane	0.80	0.20	0.08			0.12
Lane Grp Cap(c), veh/h	625	0	834	0	0	962
V/C Ratio(X)	1.00	0.00	1.08	0.00	0.00	0.60
Avail Cap(c_a), veh/h	625	0	834	0	0	962
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	25.2	0.0	20.6	0.0	0.0	13.0
Incr Delay (d2), s/veh	35.1	0.0	56.4	0.0	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.9	0.0	27.7	0.0	0.0	7.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	60.3	0.0	76.9	0.0	0.0	15.7
LnGrp LOS	E	A	F	A	A	B
Approach Vol, veh/h	623			904	576	
Approach Delay, s/veh	60.3			76.9	15.7	
Approach LOS	E			E	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		46.0		33.0		46.0
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		41.5		28.5		41.5
Max Q Clear Time (g_c+I1), s		43.5		30.4		19.2
Green Ext Time (p_c), s		0.0		0.0		4.0

Intersection Summary			
HCM 6th Ctrl Delay			55.3
HCM 6th LOS			E

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	2	0	24	7	0	31	32	614	3	10	360	6
Future Vol, veh/h	2	0	24	7	0	31	32	614	3	10	360	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	43	43	43	63	63	63	73	73	73	58	58	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	56	11	0	49	44	841	4	17	621	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1616	1593	626	1619	1596	843	631	0	0	845	0	0
Stage 1	660	660	-	931	931	-	-	-	-	-	-	-
Stage 2	956	933	-	688	665	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	83	107	484	83	107	364	951	-	-	792	-	-
Stage 1	452	460	-	320	346	-	-	-	-	-	-	-
Stage 2	310	345	-	436	458	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	65	94	484	67	94	364	951	-	-	792	-	-
Mov Cap-2 Maneuver	65	94	-	67	94	-	-	-	-	-	-	-
Stage 1	413	445	-	292	316	-	-	-	-	-	-	-
Stage 2	245	315	-	373	443	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.6	30.6	0.4	0.3
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	951	-	-	324	200	792	-	-
HCM Lane V/C Ratio	0.046	-	-	0.187	0.302	0.022	-	-
HCM Control Delay (s)	9	0	-	18.6	30.6	9.6	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	1.2	0.1	-	-

1: MLK BLVD & 20TH AVE Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.3	0.1
Total Del/Veh (s)	55.8	0.3	6.7	3.2

2: OAK RIDGE EXIT & MLK BLVD Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.9	0.0	0.0	0.0
Total Del/Veh (s)	104.0	0.9	1.4	5.9

3: MLK BLVD & OAK RIDGE ENTRANCE Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.1	0.0
Total Del/Veh (s)	0.9	7.0	2.9

4: 21ST AVE & MLK BLVD Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.4	0.0	0.0	0.1
Total Del/Veh (s)	45.7	10.3	3.5	17.4

5: MLK BLVD & 22ND AVE Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.6	0.0	0.3
Total Del/Veh (s)	207.7	138.7	61.5	1.3	46.6

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	59.3

Intersection: 1: MLK BLVD & 20TH AVE

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	93	34	300
Average Queue (ft)	17	6	37
95th Queue (ft)	69	28	179
Link Distance (ft)	2002	34	1823
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		5	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: OAK RIDGE EXIT & MLK BLVD

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	288	52	96	47
Average Queue (ft)	60	18	10	11
95th Queue (ft)	211	53	50	38
Link Distance (ft)	1501		100	34
Upstream Blk Time (%)			0	6
Queuing Penalty (veh)			1	34
Storage Bay Dist (ft)		25		
Storage Blk Time (%)	28	5		
Queuing Penalty (veh)	10	3		

Intersection: 3: MLK BLVD & OAK RIDGE ENTRANCE

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (ft)	43	120
Average Queue (ft)	7	68
95th Queue (ft)	29	133
Link Distance (ft)	18	100
Upstream Blk Time (%)	0	8
Queuing Penalty (veh)	3	45
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: 21ST AVE & MLK BLVD

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	599	125	53
Average Queue (ft)	198	107	33
95th Queue (ft)	547	147	47
Link Distance (ft)	1867	111	18
Upstream Blk Time (%)		21	23
Queuing Penalty (veh)		156	94
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: MLK BLVD & 22ND AVE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	208	172	1462	91
Average Queue (ft)	56	57	392	10
95th Queue (ft)	231	167	1225	51
Link Distance (ft)	1618	778	1985	111
Upstream Blk Time (%)				0
Queuing Penalty (veh)				1
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 353

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	3	22	44	349	479	26
Future Vol, veh/h	3	22	44	349	479	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	52	52	67	67	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	42	66	521	647	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1318	665	682	0	-	0
Stage 1	665	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	173	460	911	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	155	460	911	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	518	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.1	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	911	-	372	-	-
HCM Lane V/C Ratio	0.072	-	0.129	-	-
HCM Control Delay (s)	9.3	0	16.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑			↑
Traffic Vol, veh/h	23	34	359	0	0	501
Future Vol, veh/h	23	34	359	0	0	501
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	40	40	67	67	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	85	536	0	0	677

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1213	536	0	-	-	-
Stage 1	536	-	-	-	-	-
Stage 2	677	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	201	545	-	0	0	-
Stage 1	587	-	-	0	0	-
Stage 2	505	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	201	545	-	-	-	-
Mov Cap-2 Maneuver	201	-	-	-	-	-
Stage 1	587	-	-	-	-	-
Stage 2	505	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	201	545	-
HCM Lane V/C Ratio	-	0.286	0.156	-
HCM Control Delay (s)	-	29.9	12.8	-
HCM Lane LOS	-	D	B	-
HCM 95th %tile Q(veh)	-	1.1	0.5	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↱			↰
Traffic Vol, veh/h	0	0	378	24	3	523
Future Vol, veh/h	0	0	378	24	3	523
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	64	64	69	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	591	38	4	758

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	610	0	0	629	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	494	-	-	953	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	494	-	-	953	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	953	-
HCM Lane V/C Ratio	-	-	-	0.005	-
HCM Control Delay (s)	-	-	0	8.8	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰↑	↑↱	
Traffic Volume (veh/h)	81	120	30	321	471	52
Future Volume (veh/h)	81	120	30	321	471	52
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.81	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	127	188	47	502	683	75
Peak Hour Factor	0.64	0.64	0.64	0.64	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	167	248	97	874	971	107
Arrive On Green	0.29	0.29	0.59	0.59	0.59	0.59
Sat Flow, veh/h	583	864	71	1491	1656	182
Grp Volume(v), veh/h	316	0	549	0	0	758
Grp Sat Flow(s),veh/h/ln	1452	0	1562	0	0	1838
Q Serve(g_s), s	14.1	0.0	2.1	0.0	0.0	20.6
Cycle Q Clear(g_c), s	14.1	0.0	22.7	0.0	0.0	20.6
Prop In Lane	0.40	0.59	0.09			0.10
Lane Grp Cap(c), veh/h	416	0	971	0	0	1077
V/C Ratio(X)	0.76	0.00	0.57	0.00	0.00	0.70
Avail Cap(c_a), veh/h	585	0	971	0	0	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	23.0	0.0	8.8	0.0	0.0	10.3
Incr Delay (d2), s/veh	3.7	0.0	2.4	0.0	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	4.7	0.0	0.0	7.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.7	0.0	11.1	0.0	0.0	14.2
LnGrp LOS	C	A	B	A	A	B
Approach Vol, veh/h	316			549	758	
Approach Delay, s/veh	26.7			11.1	14.2	
Approach LOS	C			B	B	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		46.0		24.8		46.0
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		41.5		28.5		41.5
Max Q Clear Time (g_c+I1), s		24.7		16.1		22.6
Green Ext Time (p_c), s		3.6		1.0		5.5
Intersection Summary						
HCM 6th Ctrl Delay			15.6			
HCM 6th LOS			B			

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	2	0	43	5	0	20	45	330	11	20	558	13
Future Vol, veh/h	2	0	43	5	0	20	45	330	11	20	558	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	29	29	29	52	52	52	71	71	71	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	148	10	0	38	63	465	15	27	764	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1445	1433	773	1500	1435	473	782	0	0	480	0	0
Stage 1	827	827	-	599	599	-	-	-	-	-	-	-
Stage 2	618	606	-	901	836	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	110	134	399	100	134	591	836	-	-	1082	-	-
Stage 1	366	386	-	488	490	-	-	-	-	-	-	-
Stage 2	477	487	-	333	382	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	92	115	399	56	115	591	836	-	-	1082	-	-
Mov Cap-2 Maneuver	92	115	-	56	115	-	-	-	-	-	-	-
Stage 1	328	369	-	438	440	-	-	-	-	-	-	-
Stage 2	400	437	-	200	365	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.5	28.2	1.1	0.3
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	836	-	-	347	203	1082	-	-
HCM Lane V/C Ratio	0.076	-	-	0.447	0.237	0.025	-	-
HCM Control Delay (s)	9.7	0	-	23.5	28.2	8.4	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	2.2	0.9	0.1	-	-

1: MLK BLVD & 20TH AVE Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.4	0.2
Total Del/Veh (s)	36.2	0.7	7.9	5.6

2: OAK RIDGE EXIT & MLK BLVD Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	2.3	0.0	0.0	0.2
Total Del/Veh (s)	61.2	1.6	1.5	5.3

3: MLK BLVD & OAK RIDGE ENTRANCE Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.1	0.1
Total Del/Veh (s)	1.1	7.2	4.6

4: 21ST AVE & MLK BLVD Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.2	0.7	0.0	0.3
Total Del/Veh (s)	16.3	13.6	3.3	9.1

5: MLK BLVD & 22ND AVE Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.3	0.0	0.1
Total Del/Veh (s)	80.2	44.0	25.3	1.5	14.5

Total Network Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	33.2

Intersection: 1: MLK BLVD & 20TH AVE

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	87	42	326
Average Queue (ft)	23	17	52
95th Queue (ft)	70	45	206
Link Distance (ft)	1132	34	2478
Upstream Blk Time (%)		3	
Queuing Penalty (veh)		12	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: OAK RIDGE EXIT & MLK BLVD

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	242	50	108	57
Average Queue (ft)	43	23	20	19
95th Queue (ft)	165	56	74	50
Link Distance (ft)	636		100	34
Upstream Blk Time (%)			1	8
Queuing Penalty (veh)			3	50
Storage Bay Dist (ft)		25		
Storage Blk Time (%)	18	6		
Queuing Penalty (veh)	12	2		

Intersection: 3: MLK BLVD & OAK RIDGE ENTRANCE

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (ft)	34	132
Average Queue (ft)	3	90
95th Queue (ft)	18	138
Link Distance (ft)	18	100
Upstream Blk Time (%)	1	11
Queuing Penalty (veh)	3	65
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: 21ST AVE & MLK BLVD

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	190	129	62
Average Queue (ft)	79	90	34
95th Queue (ft)	156	147	51
Link Distance (ft)	933	111	18
Upstream Blk Time (%)		15	28
Queuing Penalty (veh)		64	153
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: MLK BLVD & 22ND AVE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	217	86	560	96
Average Queue (ft)	42	23	114	14
95th Queue (ft)	165	67	419	60
Link Distance (ft)	964	778	2787	111
Upstream Blk Time (%)				0
Queuing Penalty (veh)				4
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 369

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰↑	↑↱	
Traffic Vol, veh/h	3	12	25	716	360	5
Future Vol, veh/h	3	12	25	716	360	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	30	30	68	68	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	40	37	1053	600	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1731	604	608	0	-	0
Stage 1	604	-	-	-	-	-
Stage 2	1127	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	97	498	970	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	309	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	88	498	970	-	-	-
Mov Cap-2 Maneuver	88	-	-	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	309	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.3	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	970	-	258	-	-
HCM Lane V/C Ratio	0.038	-	0.194	-	-
HCM Control Delay (s)	8.9	0	22.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

HCM 6th Signalized Intersection Summary
4: 21ST AVE/SCHOOL DWY & MLK BLVD

AM EX PL PROJ
PERMITTED SIGNAL

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			↰	↱		✥			✥	
Traffic Volume (veh/h)	251	26	60	72	8	31	38	532	110	44	326	43
Future Volume (veh/h)	251	26	60	72	8	31	38	532	110	44	326	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	474	28	113	78	9	34	59	831	120	48	509	67
Peak Hour Factor	0.53	0.92	0.53	0.92	0.92	0.92	0.64	0.64	0.92	0.92	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	457	22	89	589	63	603	85	746	105	85	664	84
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	981	58	234	1313	166	1585	68	1473	208	67	1310	166
Grp Volume(v), veh/h	615	0	0	87	0	34	1010	0	0	624	0	0
Grp Sat Flow(s),veh/h/ln	1273	0	0	1480	0	1585	1748	0	0	1543	0	0
Q Serve(g_s), s	26.0	0.0	0.0	0.0	0.0	1.0	16.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	28.9	0.0	0.0	2.9	0.0	1.0	38.5	0.0	0.0	22.5	0.0	0.0
Prop In Lane	0.77		0.18	0.90		1.00	0.06		0.12	0.08		0.11
Lane Grp Cap(c), veh/h	568	0	0	653	0	603	936	0	0	832	0	0
V/C Ratio(X)	1.08	0.00	0.00	0.13	0.00	0.06	1.08	0.00	0.00	0.75	0.00	0.00
Avail Cap(c_a), veh/h	568	0	0	653	0	603	936	0	0	832	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.9	0.0	0.0	15.5	0.0	14.9	19.5	0.0	0.0	14.2	0.0	0.0
Incr Delay (d2), s/veh	62.1	0.0	0.0	0.0	0.0	0.0	53.2	0.0	0.0	6.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.1	0.0	0.0	0.9	0.0	0.4	28.9	0.0	0.0	8.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.0	0.0	0.0	15.5	0.0	14.9	72.7	0.0	0.0	20.4	0.0	0.0
LnGrp LOS	F	A	A	B	A	B	F	A	A	C	A	A
Approach Vol, veh/h		615			121			1010			624	
Approach Delay, s/veh		89.0			15.3			72.7			20.4	
Approach LOS		F			B			E			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		43.0		33.0		43.0		33.0				
Change Period (Y+Rc), s		4.5		4.1		4.5		4.1				
Max Green Setting (Gmax), s		38.5		28.9		38.5		28.9				
Max Q Clear Time (g_c+I1), s		40.5		30.9		24.5		4.9				
Green Ext Time (p_c), s		0.0		0.0		1.7		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	60.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	5	0	24	7	0	34	32	625	3	12	368	8
Future Vol, veh/h	5	0	24	7	0	34	32	625	3	12	368	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	43	43	43	63	63	63	73	73	73	58	58	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	56	11	0	54	44	856	4	21	634	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1656	1631	641	1657	1636	858	648	0	0	860	0	0
Stage 1	683	683	-	946	946	-	-	-	-	-	-	-
Stage 2	973	948	-	711	690	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	78	101	475	78	101	357	938	-	-	781	-	-
Stage 1	439	449	-	314	340	-	-	-	-	-	-	-
Stage 2	303	339	-	424	446	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	60	88	475	62	88	357	938	-	-	781	-	-
Mov Cap-2 Maneuver	60	88	-	62	88	-	-	-	-	-	-	-
Stage 1	399	430	-	286	309	-	-	-	-	-	-	-
Stage 2	234	308	-	358	427	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.9	32	0.4	0.3
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	938	-	-	217	197	781	-	-
HCM Lane V/C Ratio	0.047	-	-	0.311	0.33	0.026	-	-
HCM Control Delay (s)	9	0	-	28.9	32	9.7	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	1.4	0.1	-	-

1: MLK BLVD & 20TH AVE Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.2	3.5	22.0	10.5
Total Del/Veh (s)	562.6	1.7	162.2	69.9

4: 21ST AVE/SCHOOL DWY & MLK BLVD Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	7.4	0.2	9.8	19.9	10.9
Total Del/Veh (s)	140.5	99.0	16.3	21.1	56.1

5: MLK BLVD & 22ND AVE Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	55.0	0.0	33.8
Total Del/Veh (s)	441.2	396.9	155.8	1.6	120.1

Total Zone Performance

Denied Del/Veh (s)	36.7
Total Del/Veh (s)	833.0

Intersection: 1: MLK BLVD & 20TH AVE

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	184	39	1494
Average Queue (ft)	57	14	396
95th Queue (ft)	211	42	1412
Link Distance (ft)	2002	34	1823
Upstream Blk Time (%)		19	8
Queuing Penalty (veh)		130	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: 21ST AVE/SCHOOL DWY & MLK BLVD

Movement	EB	WB	WB	NB	SB	B3
Directions Served	LTR	LT	R	LTR	LTR	T
Maximum Queue (ft)	1329	338	159	153	96	176
Average Queue (ft)	373	79	34	109	67	81
95th Queue (ft)	1171	268	117	151	102	206
Link Distance (ft)	1867	1057	1057	104	10	100
Upstream Blk Time (%)	4			36	51	35
Queuing Penalty (veh)	0			256	194	144
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: MLK BLVD & 22ND AVE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	314	390	1959	79
Average Queue (ft)	92	115	684	7
95th Queue (ft)	300	333	2039	42
Link Distance (ft)	1618	778	1985	104
Upstream Blk Time (%)			20	0
Queuing Penalty (veh)			0	2
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 726

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	10	22	44	349	479	26
Future Vol, veh/h	10	22	44	349	479	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	52	52	67	67	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	42	66	521	647	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1318	665	682	0	-	0
Stage 1	665	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	173	460	911	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	155	460	911	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	518	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.1	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	911	-	285	-	-
HCM Lane V/C Ratio	0.072	-	0.216	-	-
HCM Control Delay (s)	9.3	0	21.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.8	-	-

HCM 6th Signalized Intersection Summary
4: 21ST AVE/SCHOOL DWY & MLK BLVD

AFTERNOON EX PL PROJ
PERMITTED SIGNAL

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			↰	↱		✥			✥	
Traffic Volume (veh/h)	72	17	95	82	26	36	28	321	83	17	471	52
Future Volume (veh/h)	72	17	95	82	26	36	28	321	83	17	471	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	112	17	148	82	26	36	44	502	83	17	683	75
Peak Hour Factor	0.64	1.00	0.64	1.00	1.00	1.00	0.64	0.64	1.00	1.00	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	188	47	179	304	84	415	101	868	138	67	983	106
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	417	178	683	784	320	1585	67	1437	229	15	1629	176
Grp Volume(v), veh/h	277	0	0	108	0	36	629	0	0	775	0	0
Grp Sat Flow(s),veh/h/ln	1278	0	0	1103	0	1585	1733	0	0	1820	0	0
Q Serve(g_s), s	8.6	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.6	0.0	0.0	5.0	0.0	1.1	13.3	0.0	0.0	18.4	0.0	0.0
Prop In Lane	0.40		0.53	0.76		1.00	0.07		0.13	0.02		0.10
Lane Grp Cap(c), veh/h	414	0	0	388	0	415	1106	0	0	1156	0	0
V/C Ratio(X)	0.67	0.00	0.00	0.28	0.00	0.09	0.57	0.00	0.00	0.67	0.00	0.00
Avail Cap(c_a), veh/h	696	0	0	641	0	718	1106	0	0	1156	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.9	0.0	0.0	19.1	0.0	17.8	7.6	0.0	0.0	8.7	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.1	0.0	0.0	2.1	0.0	0.0	3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	0.0	1.2	0.0	0.4	4.6	0.0	0.0	6.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	0.0	0.0	19.2	0.0	17.8	9.8	0.0	0.0	11.8	0.0	0.0
LnGrp LOS	C	A	A	B	A	B	A	A	A	B	A	A
Approach Vol, veh/h		277			144			629			775	
Approach Delay, s/veh		23.6			18.9			9.8			11.8	
Approach LOS		C			B			A			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		43.0		20.8		43.0		20.8				
Change Period (Y+Rc), s		4.5		4.1		4.5		4.1				
Max Green Setting (Gmax), s		38.5		28.9		38.5		28.9				
Max Q Clear Time (g_c+I1), s		15.3		15.6		20.4		7.0				
Green Ext Time (p_c), s		1.7		0.6		2.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			13.4									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	7	0	43	5	0	25	45	370	11	24	570	15
Future Vol, veh/h	7	0	43	5	0	25	45	370	11	24	570	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	29	29	29	52	52	52	71	71	71	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	0	148	10	0	48	63	521	15	33	781	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1537	1520	792	1587	1523	529	802	0	0	536	0	0
Stage 1	858	858	-	655	655	-	-	-	-	-	-	-
Stage 2	679	662	-	932	868	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	95	119	389	87	118	550	822	-	-	1032	-	-
Stage 1	352	374	-	455	463	-	-	-	-	-	-	-
Stage 2	441	459	-	320	370	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	76	100	389	47	99	550	822	-	-	1032	-	-
Mov Cap-2 Maneuver	76	100	-	47	99	-	-	-	-	-	-	-
Stage 1	314	352	-	405	413	-	-	-	-	-	-	-
Stage 2	359	409	-	187	349	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.5	30.5	1	0.3
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	822	-	-	247	198	1032	-	-
HCM Lane V/C Ratio	0.077	-	-	0.698	0.291	0.032	-	-
HCM Control Delay (s)	9.7	0	-	47.5	30.5	8.6	0	-
HCM Lane LOS	A	A	-	E	D	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	4.6	1.2	0.1	-	-

1: MLK BLVD & 20TH AVE Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.4	0.3
Total Del/Veh (s)	31.2	0.9	5.0	4.1

4: 21ST AVE/SCHOOL DWY & MLK BLVD Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.6	0.6	0.5
Total Del/Veh (s)	18.2	19.2	9.4	5.4	10.1

5: MLK BLVD & 22ND AVE Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.4	0.0	0.1
Total Del/Veh (s)	234.3	43.4	15.5	1.8	18.5

Total Zone Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	547.5

Intersection: 1: MLK BLVD & 20TH AVE

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	93	56	273
Average Queue (ft)	24	18	29
95th Queue (ft)	67	50	173
Link Distance (ft)	2002	34	1823
Upstream Blk Time (%)		4	
Queuing Penalty (veh)		18	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: 21ST AVE/SCHOOL DWY & MLK BLVD

Movement	EB	WB	WB	NB	SB	B3
Directions Served	LTR	LT	R	LTR	LTR	T
Maximum Queue (ft)	196	116	64	135	96	183
Average Queue (ft)	78	57	22	85	67	51
95th Queue (ft)	144	101	52	143	103	155
Link Distance (ft)	1867	1057	1057	104	10	100
Upstream Blk Time (%)				12	25	7
Queuing Penalty (veh)				61	137	49
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: MLK BLVD & 22ND AVE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	557	107	481	109
Average Queue (ft)	106	28	91	18
95th Queue (ft)	423	77	319	76
Link Distance (ft)	1618	778	1985	104
Upstream Blk Time (%)				1
Queuing Penalty (veh)				4
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 270

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰↑	↑↱	
Traffic Vol, veh/h	10	12	25	716	360	5
Future Vol, veh/h	10	12	25	716	360	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	30	30	68	68	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	40	37	1053	600	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1731	604	608	0	-	0
Stage 1	604	-	-	-	-	-
Stage 2	1127	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	97	498	970	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	309	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	88	498	970	-	-	-
Mov Cap-2 Maneuver	88	-	-	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	309	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	45.2	0.3	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	970	-	160	-	-
HCM Lane V/C Ratio	0.038	-	0.458	-	-
HCM Control Delay (s)	8.9	0	45.2	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	2.1	-	-

HCM 6th Signalized Intersection Summary
4: 21ST AVE/SCHOOL DWY & MLK BLVD

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			↰	↱	↰	↱		↰	↱	
Traffic Volume (veh/h)	251	26	60	72	8	31	38	532	110	44	326	43
Future Volume (veh/h)	251	26	60	72	8	31	38	532	110	44	326	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	474	28	66	78	9	7	59	831	120	48	509	67
Peak Hour Factor	0.53	0.92	0.53	0.92	0.92	0.92	0.64	0.64	0.92	0.92	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	436	22	53	560	62	561	77	796	115	62	793	104
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.04	0.50	0.50	0.03	0.49	0.49
Sat Flow, veh/h	1070	63	149	1416	174	1585	1781	1598	231	1781	1619	213
Grp Volume(v), veh/h	568	0	0	87	0	7	59	0	951	48	0	576
Grp Sat Flow(s),veh/h/ln	1283	0	0	1590	0	1585	1781	0	1829	1781	0	1832
Q Serve(g_s), s	36.6	0.0	0.0	0.0	0.0	0.3	3.8	0.0	57.5	3.1	0.0	27.0
Cycle Q Clear(g_c), s	40.9	0.0	0.0	4.3	0.0	0.3	3.8	0.0	57.5	3.1	0.0	27.0
Prop In Lane	0.83		0.12	0.90		1.00	1.00		0.13	1.00		0.12
Lane Grp Cap(c), veh/h	511	0	0	622	0	561	77	0	910	62	0	897
V/C Ratio(X)	1.11	0.00	0.00	0.14	0.00	0.01	0.77	0.00	1.04	0.78	0.00	0.64
Avail Cap(c_a), veh/h	511	0	0	622	0	561	208	0	910	116	0	897
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.5	0.0	0.0	25.5	0.0	24.2	54.7	0.0	29.0	55.3	0.0	21.9
Incr Delay (d2), s/veh	73.7	0.0	0.0	0.0	0.0	0.0	15.0	0.0	42.1	18.5	0.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.4	0.0	0.0	1.6	0.0	0.1	2.0	0.0	34.7	1.7	0.0	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.2	0.0	0.0	25.5	0.0	24.2	69.7	0.0	71.1	73.8	0.0	25.5
LnGrp LOS	F	A	A	C	A	C	E	A	F	E	A	C
Approach Vol, veh/h		568			94			1010			624	
Approach Delay, s/veh		115.2			25.4			71.1			29.2	
Approach LOS		F			C			E			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.5	62.0		45.0	9.5	61.0		45.0				
Change Period (Y+Rc), s	4.5	4.5		4.1	4.5	4.5		4.1				
Max Green Setting (Gmax), s	7.5	57.5		40.9	13.5	50.5		40.9				
Max Q Clear Time (g_c+I1), s	5.1	59.5		42.9	5.8	29.0		6.3				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.1	1.3		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			68.7									
HCM 6th LOS			E									

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	5	0	24	7	0	34	32	625	3	12	368	8
Future Vol, veh/h	5	0	24	7	0	34	32	625	3	12	368	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	43	43	43	63	63	63	73	73	73	58	58	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	56	11	0	54	44	856	4	21	634	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1656	1631	641	1657	1636	858	648	0	0	860	0	0
Stage 1	683	683	-	946	946	-	-	-	-	-	-	-
Stage 2	973	948	-	711	690	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	78	101	475	78	101	357	938	-	-	781	-	-
Stage 1	439	449	-	314	340	-	-	-	-	-	-	-
Stage 2	303	339	-	424	446	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	60	88	475	62	88	357	938	-	-	781	-	-
Mov Cap-2 Maneuver	60	88	-	62	88	-	-	-	-	-	-	-
Stage 1	399	430	-	286	309	-	-	-	-	-	-	-
Stage 2	234	308	-	358	427	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.9	32	0.4	0.3
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	938	-	-	217	197	781	-	-
HCM Lane V/C Ratio	0.047	-	-	0.311	0.33	0.026	-	-
HCM Control Delay (s)	9	0	-	28.9	32	9.7	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	1.4	0.1	-	-

Intersection: 1: MLK BLVD & 20TH AVE

Movement	EB	NB	B2	B3	SB
Directions Served	LR	LT	T	T	TR
Maximum Queue (ft)	303	79	83	85	999
Average Queue (ft)	97	13	9	13	472
95th Queue (ft)	384	63	67	57	1713
Link Distance (ft)	2002	40	94	11	1823
Upstream Blk Time (%)		5	4	1	20
Queuing Penalty (veh)		37	30	6	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: 21ST AVE/SCHOOL DWY & MLK BLVD

Movement	EB	WB	WB	NB	NB	SB	SB	B3	B2
Directions Served	LTR	LT	R	L	TR	L	TR	T	T
Maximum Queue (ft)	919	175	73	98	147	19	98	169	95
Average Queue (ft)	296	63	22	33	101	5	68	85	25
95th Queue (ft)	801	168	57	81	152	17	101	200	80
Link Distance (ft)	1861	1051	1051		104		11	94	40
Upstream Blk Time (%)	1			0	19	13	54	37	33
Queuing Penalty (veh)	0			0	139	0	213	152	135
Storage Bay Dist (ft)				125		200			
Storage Blk Time (%)				0	19	13	54		
Queuing Penalty (veh)				3	8	44	24		

Intersection: 5: MLK BLVD & 22ND AVE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	178	237	1079	75
Average Queue (ft)	53	68	263	9
95th Queue (ft)	186	211	974	52
Link Distance (ft)	1612	772	1985	104
Upstream Blk Time (%)			3	1
Queuing Penalty (veh)			0	3
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 795

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰↑	↑↱	
Traffic Vol, veh/h	3	22	44	349	479	26
Future Vol, veh/h	3	22	44	349	479	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	52	52	67	67	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	42	66	521	647	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1318	665	682	0	-	0
Stage 1	665	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	173	460	911	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	155	460	911	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	518	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	16.1		1		0
HCM LOS	C				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	911	-	372	-	-
HCM Lane V/C Ratio	0.072	-	0.129	-	-
HCM Control Delay (s)	9.3	0	16.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection: 1: MLK BLVD & 20TH AVE

Movement	EB	NB	B2	B3	SB
Directions Served	LR	LT	T	T	TR
Maximum Queue (ft)	61	117	104	88	198
Average Queue (ft)	17	30	11	15	15
95th Queue (ft)	48	93	75	61	106
Link Distance (ft)	2002	40	94	11	1823
Upstream Blk Time (%)		4	1	1	
Queuing Penalty (veh)		23	8	5	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: 21ST AVE/SCHOOL DWY & MLK BLVD

Movement	EB	WB	WB	NB	NB	SB	SB	B3	B2
Directions Served	LTR	LT	R	L	TR	L	TR	T	T
Maximum Queue (ft)	281	149	62	86	130	15	104	170	106
Average Queue (ft)	102	68	24	26	83	2	73	65	14
95th Queue (ft)	220	126	52	67	142	11	106	169	68
Link Distance (ft)	1861	1051	1051		104		11	94	40
Upstream Blk Time (%)				0	7	5	30	9	4
Queuing Penalty (veh)				0	32	0	158	53	25
Storage Bay Dist (ft)				125		200			
Storage Blk Time (%)				0	7	5	30		
Queuing Penalty (veh)				0	2	25	5		

Intersection: 5: MLK BLVD & 22ND AVE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	236	75	313	110
Average Queue (ft)	43	22	56	16
95th Queue (ft)	178	56	190	71
Link Distance (ft)	1612	772	1985	104
Upstream Blk Time (%)				1
Queuing Penalty (veh)				5
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 342

4: 21ST AVE/SCHOOL DWY & MLK BLVD

PERM SIGNAL W N-S PROT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			↰	↱	↰	↱		↰	↱	
Traffic Volume (veh/h)	72	17	95	82	26	36	28	321	83	17	471	52
Future Volume (veh/h)	72	17	95	82	26	36	28	321	83	17	471	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	112	17	148	82	26	36	44	502	83	17	683	75
Peak Hour Factor	0.64	1.00	0.64	1.00	1.00	1.00	0.64	0.64	1.00	1.00	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	37	165	254	72	427	63	908	150	34	933	102
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.04	0.58	0.58	0.02	0.56	0.56
Sat Flow, veh/h	395	138	612	706	268	1585	1781	1565	259	1781	1656	182
Grp Volume(v), veh/h	277	0	0	108	0	36	44	0	585	17	0	758
Grp Sat Flow(s),veh/h/ln	1145	0	0	974	0	1585	1781	0	1824	1781	0	1838
Q Serve(g_s), s	15.1	0.0	0.0	0.0	0.0	1.7	2.4	0.0	19.7	0.9	0.0	30.4
Cycle Q Clear(g_c), s	24.1	0.0	0.0	9.0	0.0	1.7	2.4	0.0	19.7	0.9	0.0	30.4
Prop In Lane	0.40		0.53	0.76		1.00	1.00		0.14	1.00		0.10
Lane Grp Cap(c), veh/h	359	0	0	326	0	427	63	0	1058	34	0	1035
V/C Ratio(X)	0.77	0.00	0.00	0.33	0.00	0.08	0.70	0.00	0.55	0.51	0.00	0.73
Avail Cap(c_a), veh/h	571	0	0	517	0	654	243	0	1058	135	0	1035
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.2	0.0	0.0	29.5	0.0	27.1	47.3	0.0	12.9	48.2	0.0	16.1
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.2	0.0	0.0	13.0	0.0	2.1	11.3	0.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	0.0	0.0	2.1	0.0	0.6	1.3	0.0	8.1	0.5	0.0	13.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	0.0	29.8	0.0	27.1	60.3	0.0	15.0	59.5	0.0	20.7
LnGrp LOS	D	A	A	C	A	C	E	A	B	E	A	C
Approach Vol, veh/h		277			144			629			775	
Approach Delay, s/veh		38.5			29.1			18.1			21.5	
Approach LOS		D			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	62.0		30.8	8.0	60.4		30.8				
Change Period (Y+Rc), s	4.5	4.5		4.1	4.5	4.5		4.1				
Max Green Setting (Gmax), s	7.5	57.5		40.9	13.5	50.5		40.9				
Max Q Clear Time (g_c+I1), s	2.9	21.7		26.1	4.4	32.4		11.0				
Green Ext Time (p_c), s	0.0	1.4		0.6	0.0	1.9		0.3				

Intersection Summary			
HCM 6th Ctrl Delay			23.5
HCM 6th LOS			C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th TWSC
5: MLK BLVD & 22ND AVE

AFTERNOON EX PL PROJ
PERM SIGNAL W N-S PROT

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	7	0	43	5	0	25	45	370	11	24	570	15
Future Vol, veh/h	7	0	43	5	0	25	45	370	11	24	570	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	29	29	29	52	52	52	71	71	71	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	0	148	10	0	48	63	521	15	33	781	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1537	1520	792	1587	1523	529	802	0	0	536	0	0
Stage 1	858	858	-	655	655	-	-	-	-	-	-	-
Stage 2	679	662	-	932	868	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	95	119	389	87	118	550	822	-	-	1032	-	-
Stage 1	352	374	-	455	463	-	-	-	-	-	-	-
Stage 2	441	459	-	320	370	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	76	100	389	47	99	550	822	-	-	1032	-	-
Mov Cap-2 Maneuver	76	100	-	47	99	-	-	-	-	-	-	-
Stage 1	314	352	-	405	413	-	-	-	-	-	-	-
Stage 2	359	409	-	187	349	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.5	30.5	1	0.3
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	822	-	-	247	198	1032	-	-
HCM Lane V/C Ratio	0.077	-	-	0.698	0.291	0.032	-	-
HCM Control Delay (s)	9.7	0	-	47.5	30.5	8.6	0	-
HCM Lane LOS	A	A	-	E	D	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	4.6	1.2	0.1	-	-