Appendix A Musco Lighting Plan

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Sports Illustrated Stadium, Harrison, New Jersey, USA



UBS Arena, Elmont, New York, USA



Iowa Women of Achievement Bridge, Des Moines, Iowa, USA



Tottenham Hotspur FC Training Ground, Tottenham, London, UK

Summit High School Stadium

Fontana, CA

Sales Representative: M.Higgins · Designed By: E.Messamaker · Design No.: 247957A · March 10, 2026

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Summit High School Stadium
Fontana, CA

LIGHTING SYSTEM

Structure/Fixture Summary

Structure ID	Structure Height	Fixt. Attachment Ht.	Fixture Qty	Fixture Type	Load	Circuit
F1	80'	80'	1	TLC-LED-900	0.88 kW	A
		80'	2	TLC-LED-900	1.76 kW	B
		80'	5	TLC-LED-1500	7.05 kW	A
		70'	1	TLC-LED-550	0.54 kW	C
		16'	2	TLC-BT-575	1.15 kW	A
F2	80'	80'	6	TLC-LED-1500	8.46 kW	A
		70'	2	TLC-LED-550	1.08 kW	C
F3-F4	80'	80'	1	TLC-LED-900	0.88 kW	A
		80'	2	TLC-LED-900	1.76 kW	B
		80'	5	TLC-LED-1500	7.05 kW	A
		70'	1	TLC-LED-550	0.54 kW	C
		16'	2	TLC-BT-575	1.15 kW	A
F5	80'	80'	6	TLC-LED-1500	8.46 kW	A
		70'	2	TLC-LED-550	1.08 kW	C
F6	80'	80'	1	TLC-LED-900	0.88 kW	A
		80'	2	TLC-LED-900	1.76 kW	B
		80'	5	TLC-LED-1500	7.05 kW	A
		70'	1	TLC-LED-550	0.54 kW	C
		16'	2	TLC-BT-575	1.15 kW	A
6			**60**		**64.60 kW**	

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Football	53.24 kW	44
B	Track	7.04 kW	8
C	Egress	4.32 kW	8

Fixture Type Summary

Type	Circuit	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-BT-575	A	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	8
TLC-LED-1500	A	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	32
TLC-LED-550	C	LED 5700K - 75 CRI	540W	67,000	>120,000	>120,000	>120,000	8
TLC-LED-900	A	LED 5700K - 75 CRI	880W	104,000	>120,000	>120,000	>120,000	4
TLC-LED-900	B	LED 5700K - 75 CRI	880W	104,000	>120,000	>120,000	>120,000	8

Single Fixture Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Fixture (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-900	5.2	4.9	4.5	3.9	3.1	2.9	2.3
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-550	3.2	3.0	2.8	2.4	1.9	1.8	1.4

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination Ave					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
150' Spill	Horizontal Illuminance	0.0170	0.00	0.05	10.462	3.481	A,B,C	60
150' Spill	Max Candela Metric	4969.7393	969.28	9935.73	10.251	5.127	A,B,C	60
150' Spill	Max Vertical Illuminance Metric	0.0539	0.02	0.15	9.756	3.556	A,B,C	60
Blanket Grid	Horizontal	10.58	0	67	-	-	A,B,C	60
East D-Zone	Horizontal	34.70	21	49	2.35	1.66	A,B	52
Football	Horizontal Illuminance	51.65	45	61	1.38	1.16	A	44
Home Bleachers	Horizontal	16.88	7	33	4.88	2.48	A	44
Home Bleachers Egress	Horizontal	5.41	3	8	2.75	1.98	C	8
Placeworks Spill	Horizontal Illuminance	0.0662	0.00	0.37	-	-	A,B,C	60
Placeworks Spill	Max Candela Metric	2378.6328	115.07	6935.98	60.278	20.672	A,B,C	60
Placeworks Spill	Max Vertical Illuminance Metric	0.1279	0.00	0.65	1366.925	270.538	A,B,C	60
Soccer	Horizontal Illuminance	50.77	41	62	1.52	1.24	A	44
Spill @ 15ft	Max Candela Metric	280.5109	9.14	1485.62	162.608	30.703	A,B,C	60
Spill @ 15ft	Max Vertical Illuminance Metric	0.0043	0.00	0.03	-	-	A,B,C	60
Spill @ 15ft.	Horizontal Illuminance	0.0008	0.00	0.01	-	-	A,B,C	60
Track	Horizontal Illuminance	30.47	14	47	3.40	2.19	A,B	52
Visitor Bleachers	Horizontal	11.42	5	25	5.08	2.33	A	44
Visitor Bleachers Egress	Horizontal	3.31	1	6	4.86	2.62	C	8
West D-Zone	Horizontal	38.38	23	51	2.17	1.64	A,B	52

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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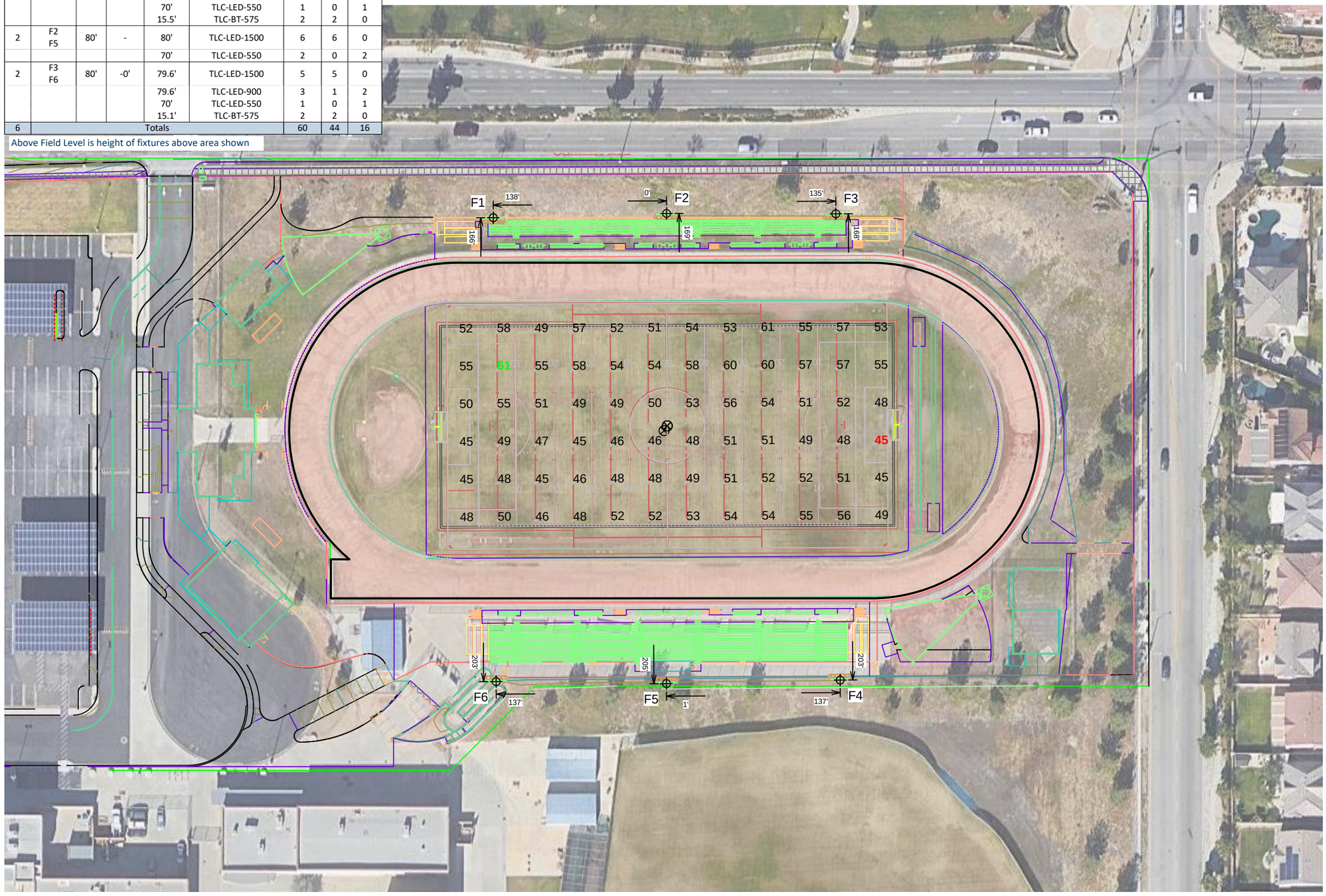
Summit High School Stadium

Fontana, CA

Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	1	2
				70'	TLC-LED-550	1	0	1
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	0	2
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	1	2
				70'	TLC-LED-550	1	0	1
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	44	16

Above Field Level is height of fixtures above area shown



Grid Summary

Name:	**Football**
Size:	361' x 159'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

Illumination Summary

MAINTAINED HORIZONTAL FOOTCANDLES	Entire Grid
Guaranteed Average:	**50**
Scan Average:	51.65
Maximum:	61
Minimum:	45
Avg/Min:	1.16
Guaranteed Max/Min:	**2**
Max/Min:	1.38
UG (adjacent pts):	1.18
CU:	0.51
No. of Points:	72
FIXTURE INFORMATION	
Applied Circuits:	A
No. of Fixtures:	**44**
Total Load:	53.24 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 80

0' 80' 160'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	1	2
				70'	TLC-LED-550	1	0	1
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	0	2
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	1	2
				70'	TLC-LED-550	1	0	1
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	44	16

Above Field Level is height of fixtures above area shown



Grid Summary

Name:	**Home Bleachers**
Size:	361' x 159'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average:	**16.88**
Maximum:	33
Minimum:	7
Avg/Min:	2.48
Max/Min:	**4.88**
UG (adjacent pts):	1.58
CU:	0.04
No. of Points:	160
FIXTURE INFORMATION	
Applied Circuits:	A
No. of Fixtures:	**44**
Total Load:	53.24 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 30

0' 30' 60'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	0	5
				80'	TLC-LED-900	3	0	3
				70'	TLC-LED-550	1	1	0
				15.5'	TLC-BT-575	2	0	2
2	F2 F5	80'	-	80'	TLC-LED-1500	6	0	6
				70'	TLC-LED-550	2	2	0
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	0	5
				79.6'	TLC-LED-900	3	0	3
				70'	TLC-LED-550	1	1	0
				15.1'	TLC-BT-575	2	0	2
6	Totals					60	8	52

Above Field Level is height of fixtures above area shown



Summit High School Stadium

Fontana, CA

Grid Summary

Name:	**Home Bleachers Egress**
Size:	361' x 159'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average:	**5.41**
Maximum:	8
Minimum:	3
Avg/Min:	1.98
Max/Min:	**2.75**
UG (adjacent pts):	1.36
CU:	0.17
No. of Points:	160
FIXTURE INFORMATION	
Applied Circuits:	C
No. of Fixtures:	**8**
Total Load:	4.32 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 30

0' 30' 60'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	1	2
				70'	TLC-LED-550	1	0	1
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	0	2
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	1	2
				70'	TLC-LED-550	1	0	1
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	44	16

Above Field Level is height of fixtures above area shown



Summit High School Stadium

Fontana, CA

Grid Summary

Name:	**Visitor Bleachers**
Size:	361' x 159'
Spacing:	10.0' x 10.0'
Height:	-0.0' above grade

Illumination Summary

MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	**11.42**
Maximum:	25
Minimum:	5
Avg/Min:	2.33
Max/Min:	**5.08**
UG (adjacent pts):	1.64
CU:	0.03
No. of Points:	148
FIXTURE INFORMATION	
Applied Circuits:	A
No. of Fixtures:	**44**
Total Load:	53.24 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 30

0' 30' 60'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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Summit High School Stadium

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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	0	5
				80'	TLC-LED-900	3	0	3
				70'	TLC-LED-550	1	1	0
				15.5'	TLC-BT-575	2	0	2
2	F2 F5	80'	-	80'	TLC-LED-1500	6	0	6
				70'	TLC-LED-550	2	2	0
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	0	5
				79.6'	TLC-LED-900	3	0	3
				70'	TLC-LED-550	1	1	0
				15.1'	TLC-BT-575	2	0	2
6	Totals					60	8	52

Above Field Level is height of fixtures above area shown



Grid Summary

Name:	**Visitor Bleachers Egress**
Size:	361' x 159'
Spacing:	10.0' x 10.0'
Height:	-0.0' above grade

Illumination Summary

MAINTAINED HORIZONTAL FOOTCANDLES	Entire Grid
Scan Average:	**3.31**
Maximum:	6
Minimum:	1
Avg/Min:	2.62
Max/Min:	**4.86**
UG (adjacent pts):	1.58
CU:	0.10
No. of Points:	148
FIXTURE INFORMATION	
Applied Circuits:	C
No. of Fixtures:	**8**
Total Load:	4.32 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 30

0' 30' 60'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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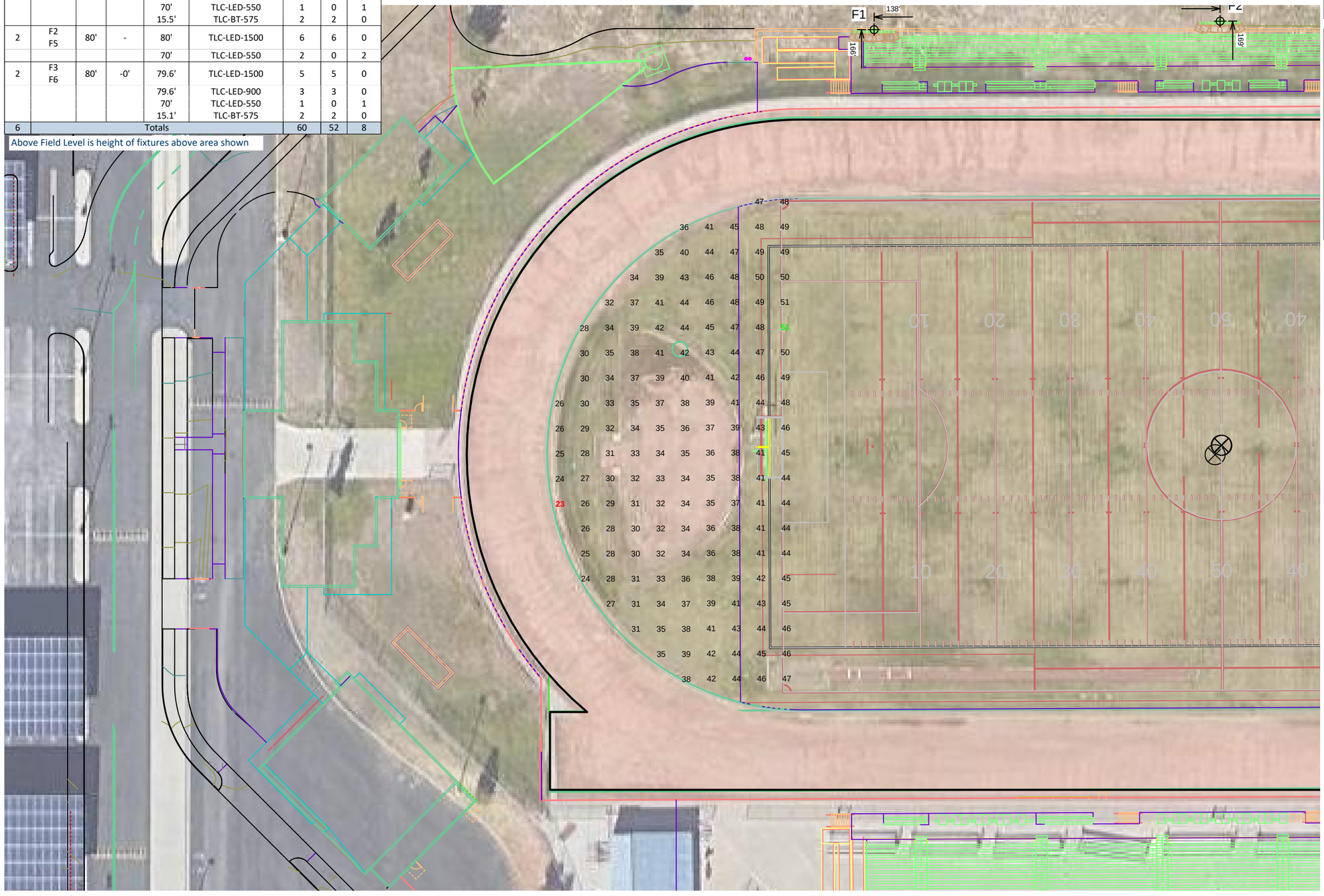
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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	0	1
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	0	2
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	0	1
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	52	8

Above Field Level is height of fixtures above area shown



Summit High School Stadium

Fontana, CA

Grid Summary

Name:	**West D-Zone**
Size:	361' x 159'
Spacing:	10.0' x 10.0'
Height:	-0.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Guaranteed Average:	**30**
Scan Average:	38.38
Maximum:	51
Minimum:	23
Avg/Min:	1.64
Guaranteed Max/Min:	**2.5**
Max/Min:	2.17
UG (adjacent pts):	1.20
CU:	0.08
No. of Points:	158
FIXTURE INFORMATION	
Applied Circuits:	A,B
No. of Fixtures:	**52**
Total Load:	60.28 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 40

0' 40' 80'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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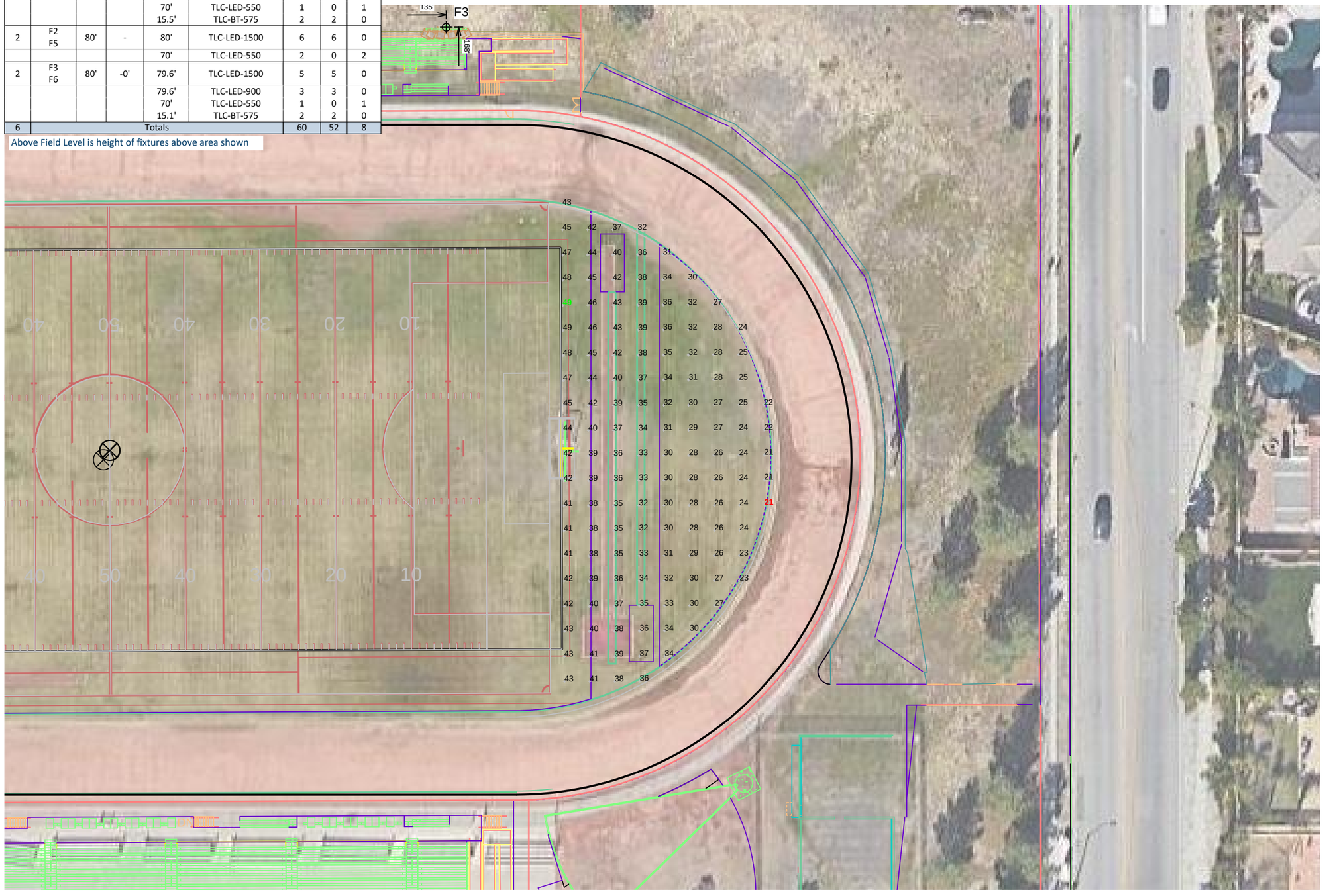
Summit High School Stadium

Fontana, CA

Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	0	1
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	0	2
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	0	1
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	52	8

Above Field Level is height of fixtures above area shown



SCALE IN FEET 1 : 40

0' 40' 80'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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Grid Summary

Name:	**East D-Zone**
Size:	361' x 159'
Spacing:	10.0' x 10.0'
Height:	-0.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Guaranteed Average:	**30**
Scan Average:	34.70
Maximum:	49
Minimum:	21
Avg/Min:	1.66
Guaranteed Max/Min:	**2.5**
Max/Min:	2.35
UG (adjacent pts):	1.18
CU:	0.06
No. of Points:	138
FIXTURE INFORMATION	
Applied Circuits:	A,B
No. of Fixtures:	**52**
Total Load:	60.28 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

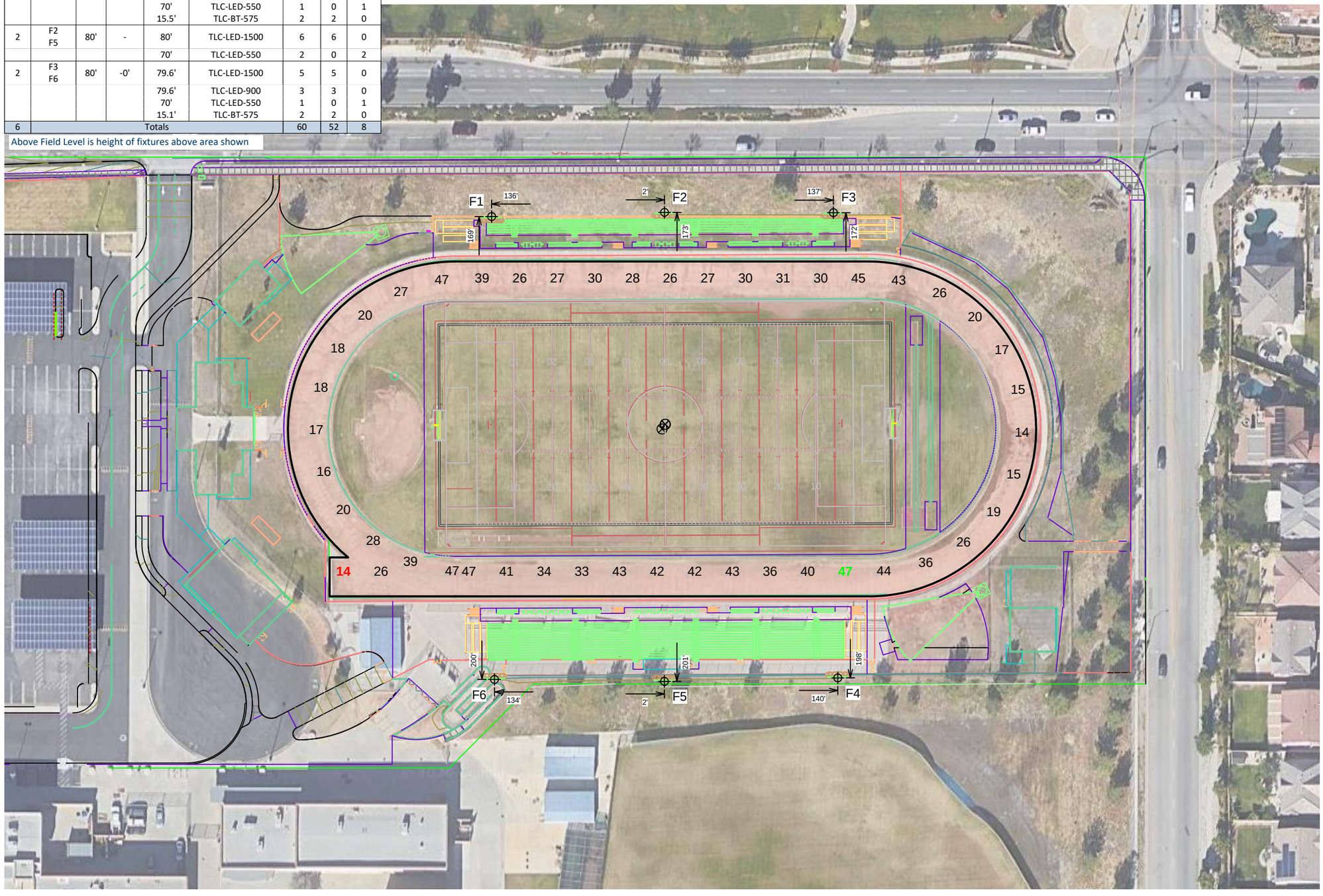
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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	0	1
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	0	2
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	0	1
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	52	8

Above Field Level is height of fixtures above area shown



Summit High School Stadium

Fontana, CA

Grid Summary

Name:	**Track**
Size:	Irregular
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Guaranteed Average:	**25**
Scan Average:	30.47
Maximum:	47
Minimum:	14
Avg/Min:	2.19
Guaranteed Max/Min:	**4**
Max/Min:	3.40
UG (adjacent pts):	0.00
CU:	0.17
No. of Points:	46
FIXTURE INFORMATION	
Applied Circuits:	A,B
No. of Fixtures:	**52**
Total Load:	60.28 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 80

0' 80' 160'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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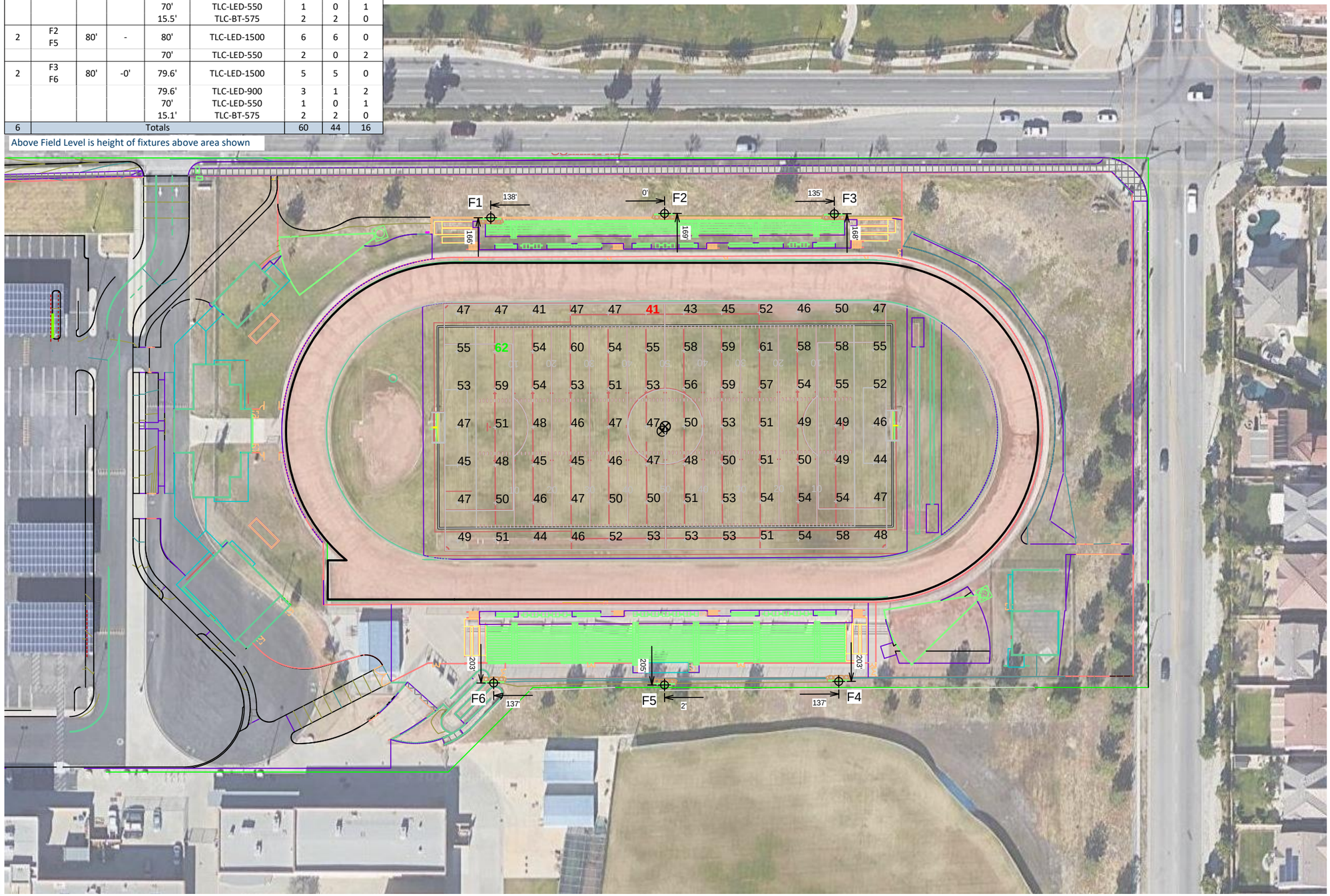
Summit High School Stadium

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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	1	2
				70'	TLC-LED-550	1	0	1
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	0	2
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	1	2
				70'	TLC-LED-550	1	0	1
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	44	16

Above Field Level is height of fixtures above area shown



Grid Summary

Name:	**Soccer**
Size:	351' x 193'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

Illumination Summary

MAINTAINED HORIZONTAL FOOTCANDLES	Entire Grid
Guaranteed Average:	**50**
Scan Average:	50.77
Maximum:	62
Minimum:	41
Avg/Min:	1.24
Guaranteed Max/Min:	**2**
Max/Min:	1.52
UG (adjacent pts):	1.36
CU:	0.58
No. of Points:	84
FIXTURE INFORMATION	
Applied Circuits:	A
No. of Fixtures:	**44**
Total Load:	53.24 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 80

0' 80' 160'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

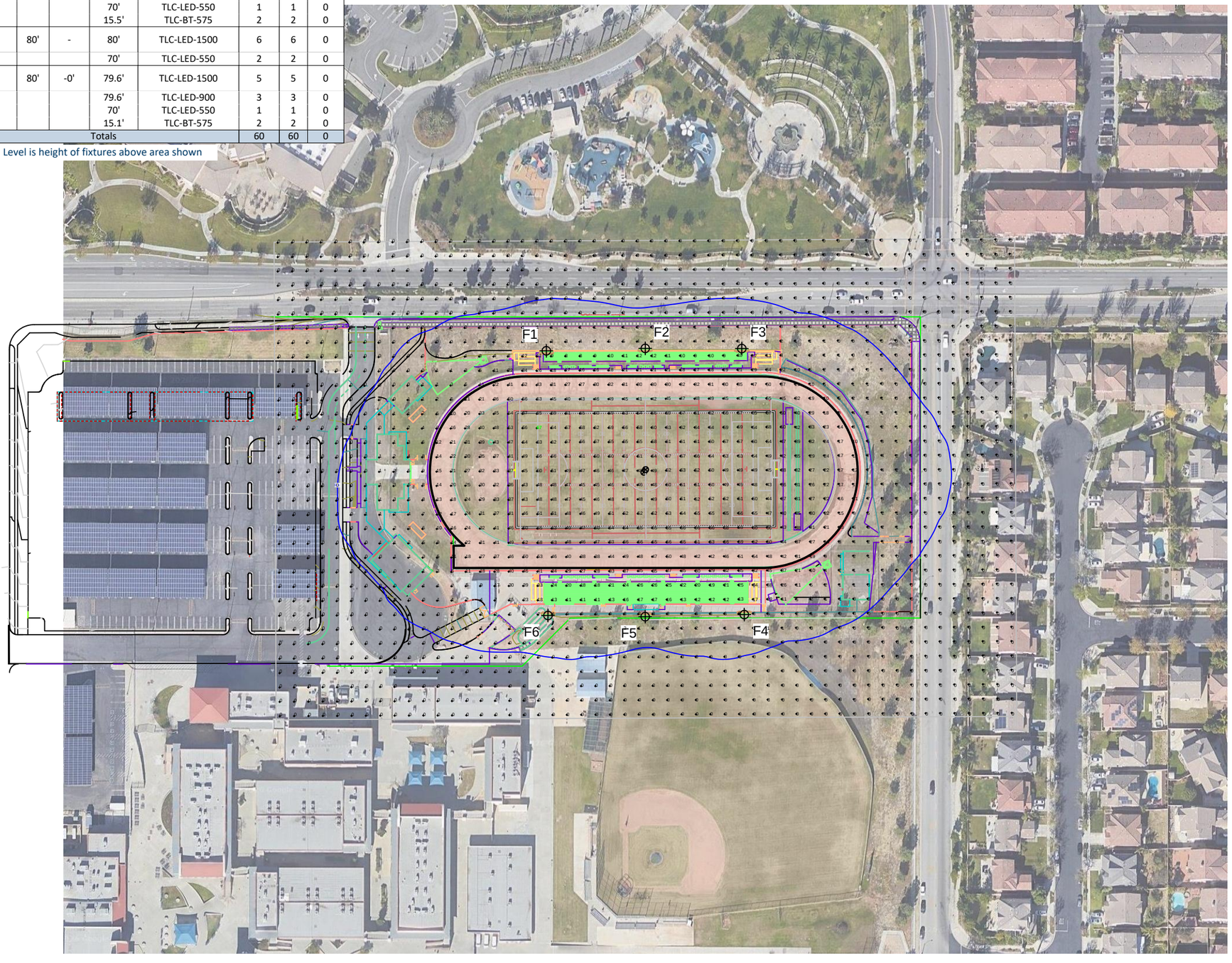
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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	2	0
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	60	0

Above Field Level is height of fixtures above area shown



SCALE IN FEET 1 : 150

0' 150' 300'

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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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Grid Summary

Name:	**Blanket Grid**
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average:	**10.58**
Maximum:	67
Minimum:	0
Avg/Min:	-
Max/Min:	**-**
UG (adjacent pts):	25.32
CU:	0.94
No. of Points:	1768
FIXTURE INFORMATION	
Applied Circuits:	A,B,C
No. of Fixtures:	**60**
Total Load:	64.60 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

NOTES: Contour line shows 0.1 horizontal FC.

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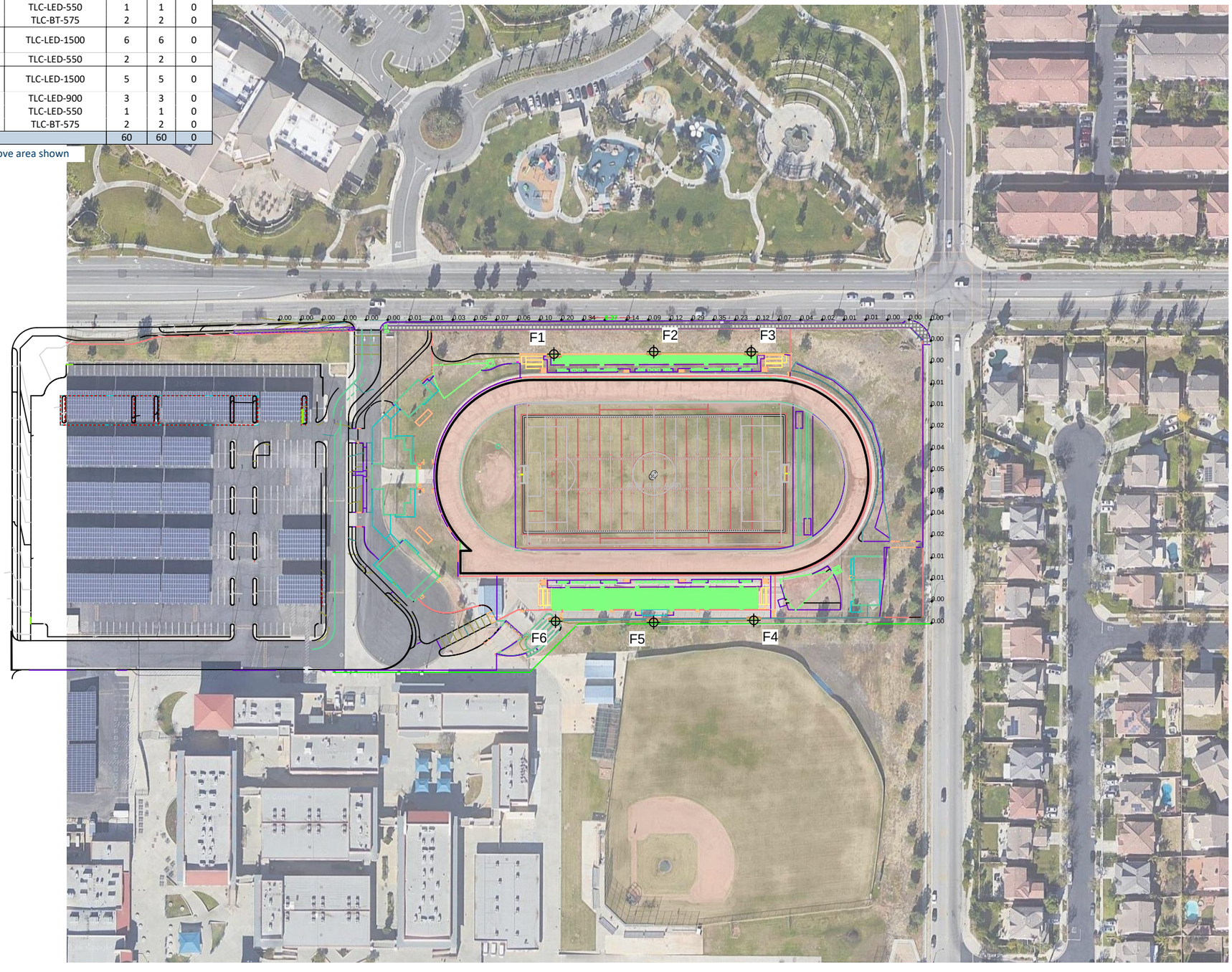
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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	2	0
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	60	0

Above Field Level is height of fixtures above area shown



Grid Summary

Name:	**Placeworks Spill**
Spacing:	30.0'
Height:	3.0' above grade

Illumination Summary

	INITIAL HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average:	**0.0662**
Maximum:	0.37
Minimum:	0.00
CU:	0.00
No. of Points:	45
FIXTURE INFORMATION	
Applied Circuits:	A,B,C
No. of Fixtures:	**60**
Total Load:	64.60 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 150

0' 150' 300'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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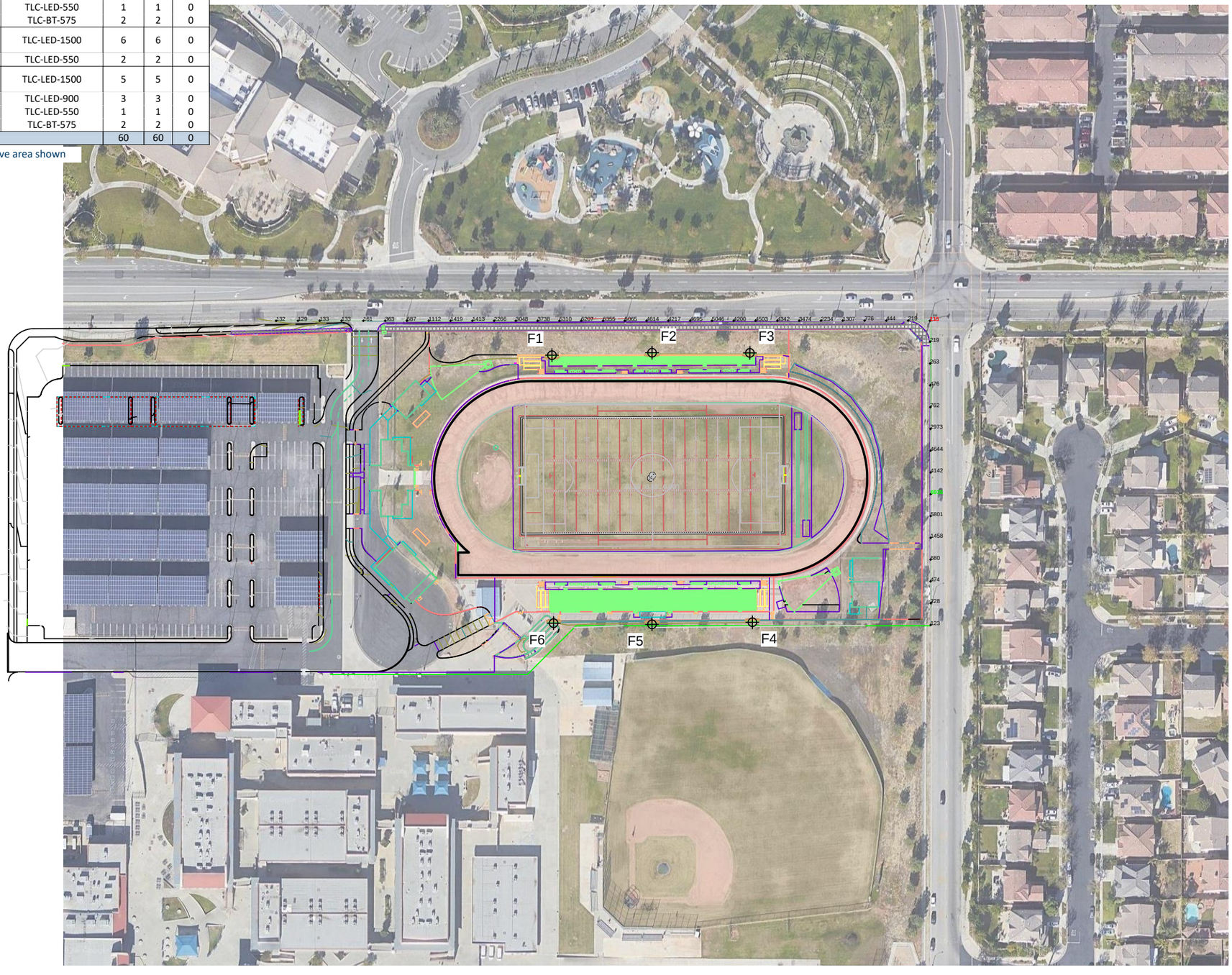
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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	2	0
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	60	0

Above Field Level is height of fixtures above area shown



Grid Summary

Name:	**Placeworks Spill**
Spacing:	30.0'
Height:	5.0' above grade

Illumination Summary

	INITIAL CANDELA (PER FIXTURE)
	Entire Grid
Scan Average:	**2378.6328**
Maximum:	6935.98
Minimum:	115.07
CU:	0.00
No. of Points:	45
FIXTURE INFORMATION	
Applied Circuits:	A,B,C
No. of Fixtures:	**60**
Total Load:	64.60 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 150

0' 150' 300'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

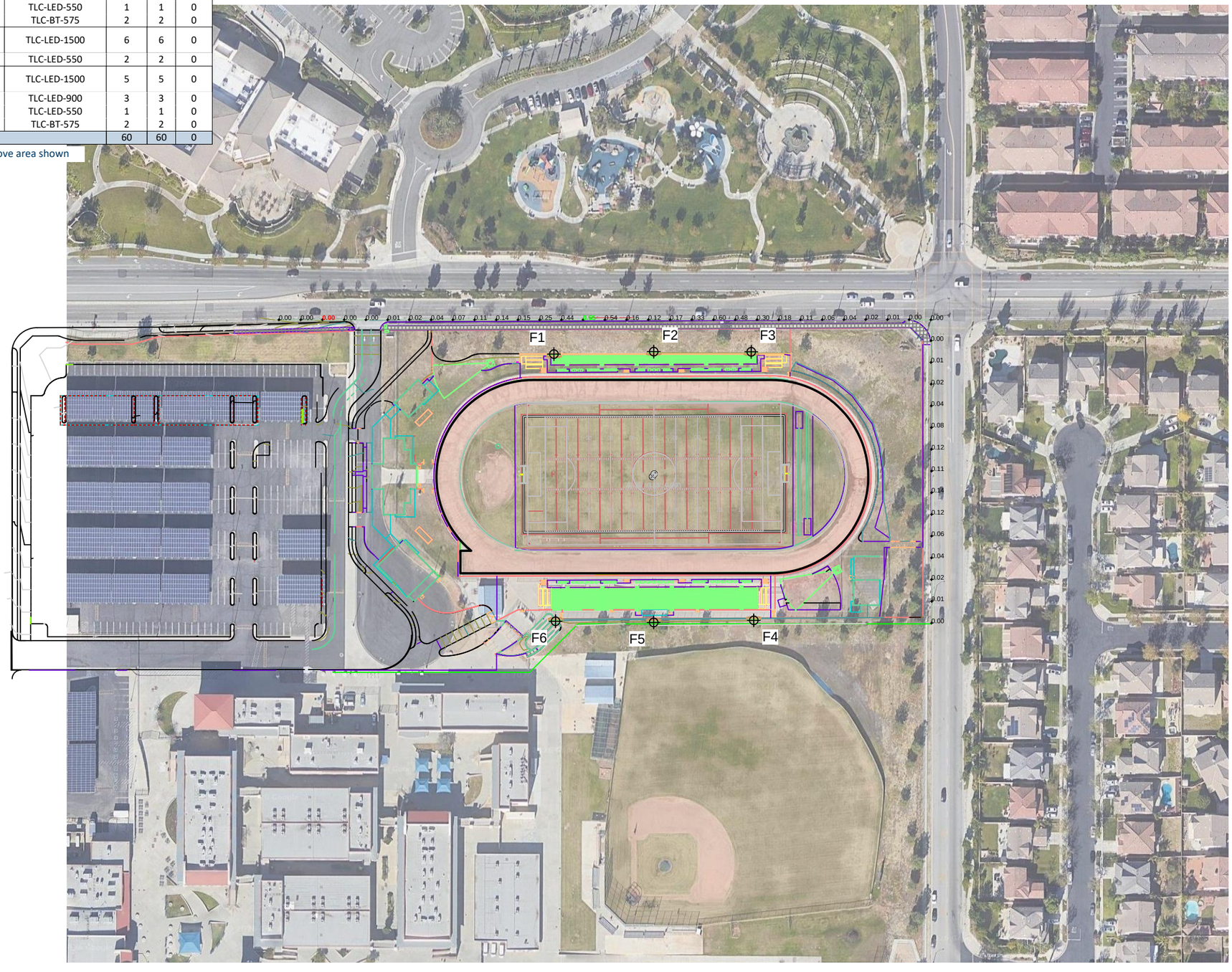
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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	2	0
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	60	0

Above Field Level is height of fixtures above area shown



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Grid Summary

Name:	**Placeworks Spill**
Spacing:	30.0'
Height:	5.0' above grade

Illumination Summary

	INITIAL MAX VERTICAL FOOTCANDLES
	Entire Grid
Scan Average:	**0.1279**
Maximum:	0.65
Minimum:	0.00
CU:	0.00
No. of Points:	45
FIXTURE INFORMATION	
Applied Circuits:	A,B,C
No. of Fixtures:	**60**
Total Load:	64.60 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 150

0' 150' 300'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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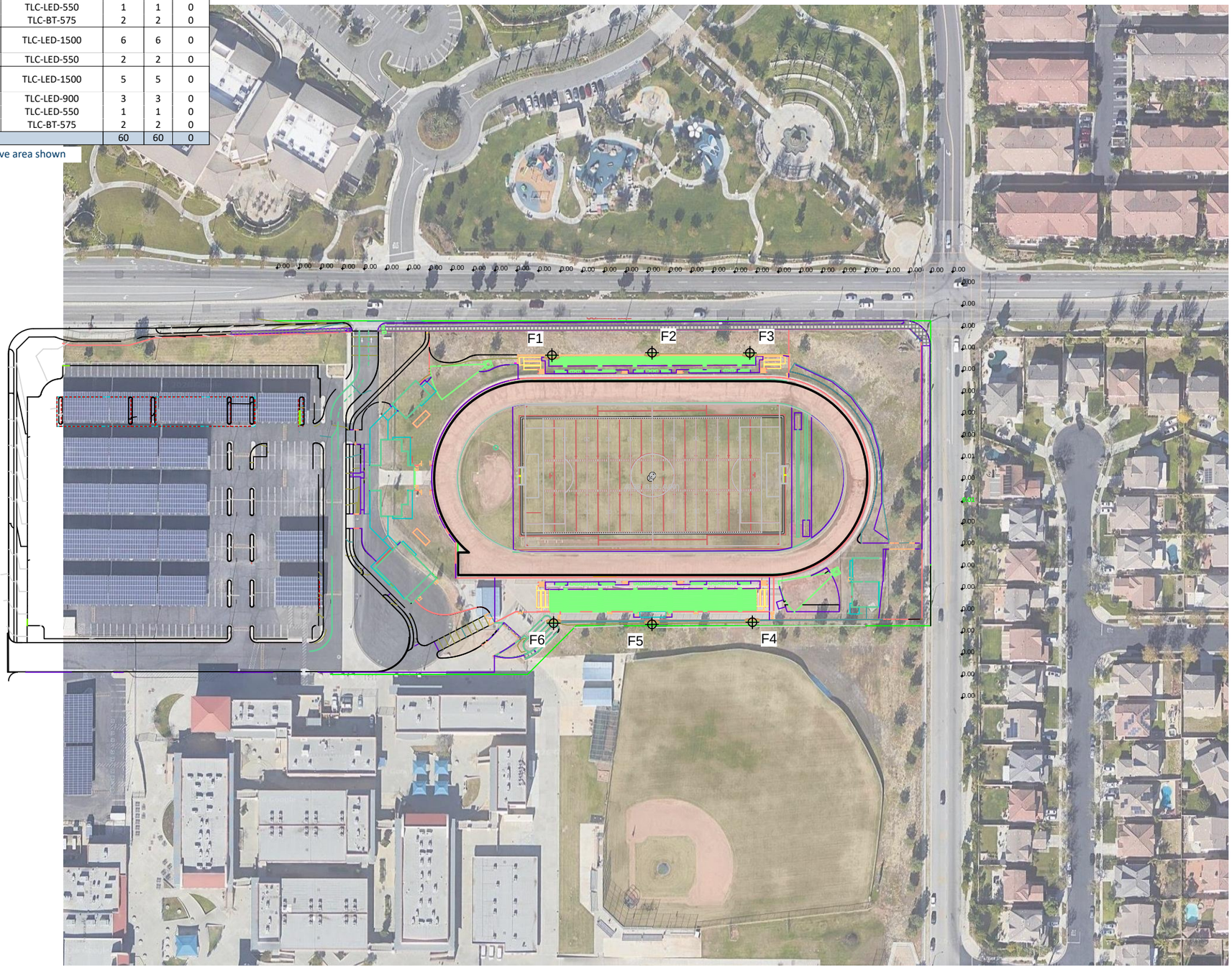
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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	2	0
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	60	0

Above Field Level is height of fixtures above area shown



Grid Summary

Name:	**Spill @ 15ft.**
Spacing:	30.0'
Height:	15.0' above grade

Illumination Summary

	INITIAL HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average:	**0.0008**
Maximum:	0.01
Minimum:	0.00
CU:	0.00
No. of Points:	52
FIXTURE INFORMATION	
Applied Circuits:	A,B,C
No. of Fixtures:	**60**
Total Load:	64.60 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 150

0' 150' 300'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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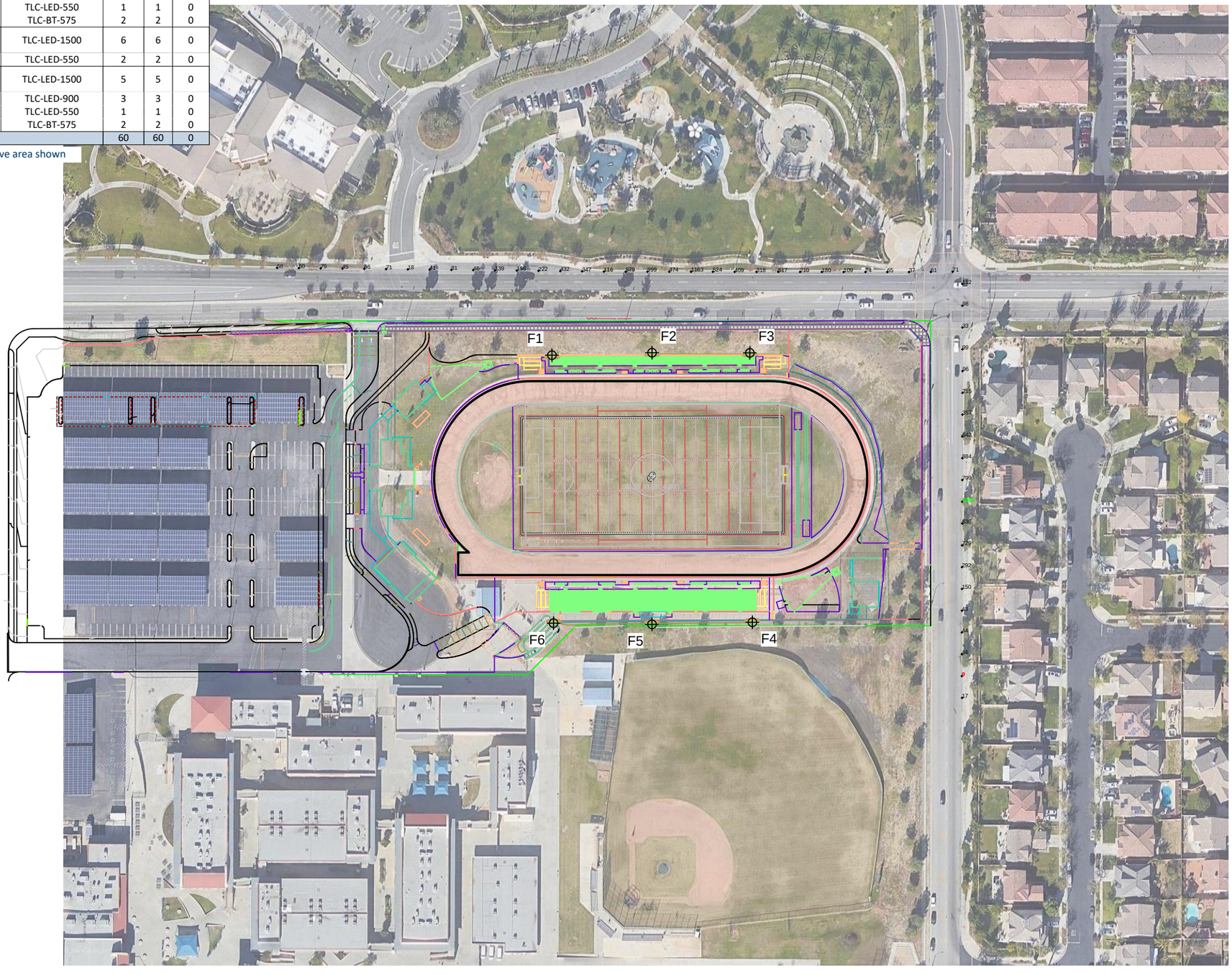
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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	2	0
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	60	0

Above Field Level is height of fixtures above area shown



Grid Summary

Name:	**Spill @ 15ft**
Spacing:	30.0'
Height:	15.0' above grade

Illumination Summary

	INITIAL CANDELA (PER FIXTURE)
	Entire Grid
Scan Average:	**280.5109**
Maximum:	1485.62
Minimum:	9.14
CU:	0.00
No. of Points:	52
FIXTURE INFORMATION	
Applied Circuits:	A,B,C
No. of Fixtures:	**60**
Total Load:	64.60 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 150

0' 150' 300'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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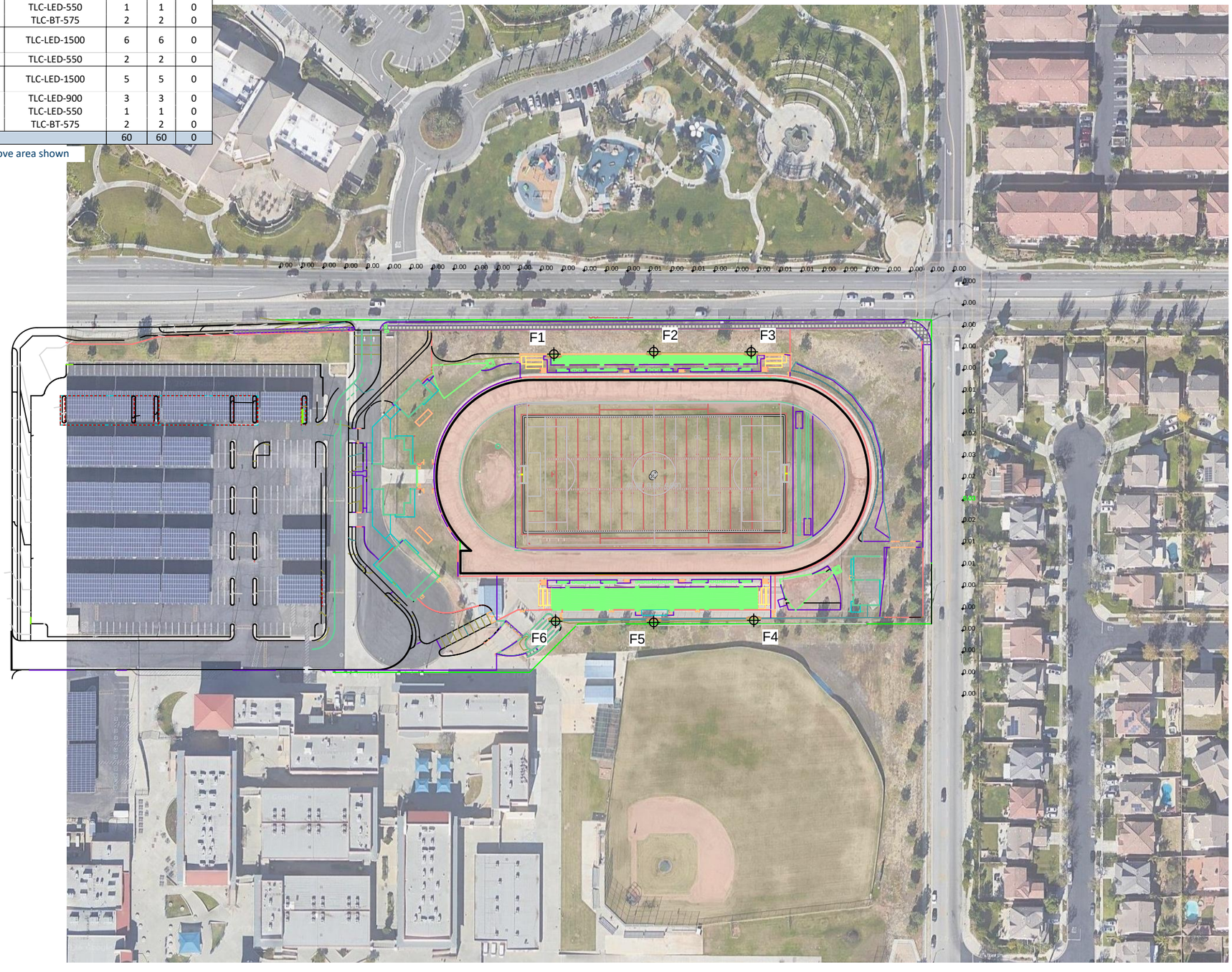
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Equipment List For Areas Shown

Structure				Fixtures				
QTY	STRUCTURE ID	SIZE	GRADE ELEVATION	ABOVE FIELD LEVEL	FIXTURE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1 F4	80'	-	80'	TLC-LED-1500	5	5	0
				80'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.5'	TLC-BT-575	2	2	0
2	F2 F5	80'	-	80'	TLC-LED-1500	6	6	0
				70'	TLC-LED-550	2	2	0
2	F3 F6	80'	-0'	79.6'	TLC-LED-1500	5	5	0
				79.6'	TLC-LED-900	3	3	0
				70'	TLC-LED-550	1	1	0
				15.1'	TLC-BT-575	2	2	0
6	Totals					60	60	0

Above Field Level is height of fixtures above area shown



Grid Summary

Name:	**Spill @ 15ft**
Spacing:	30.0'
Height:	15.0' above grade

Illumination Summary

	INITIAL MAX VERTICAL FOOTCANDLES
	Entire Grid
Scan Average:	**0.0043**
Maximum:	0.03
Minimum:	0.00
CU:	0.00
No. of Points:	52
FIXTURE INFORMATION	
Applied Circuits:	A,B,C
No. of Fixtures:	**60**
Total Load:	64.60 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 150

0' 150' 300'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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Summit High School Stadium

Fontana, CA

Equipment Layout

INCLUDES:
· Football
· Soccer
· Track

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

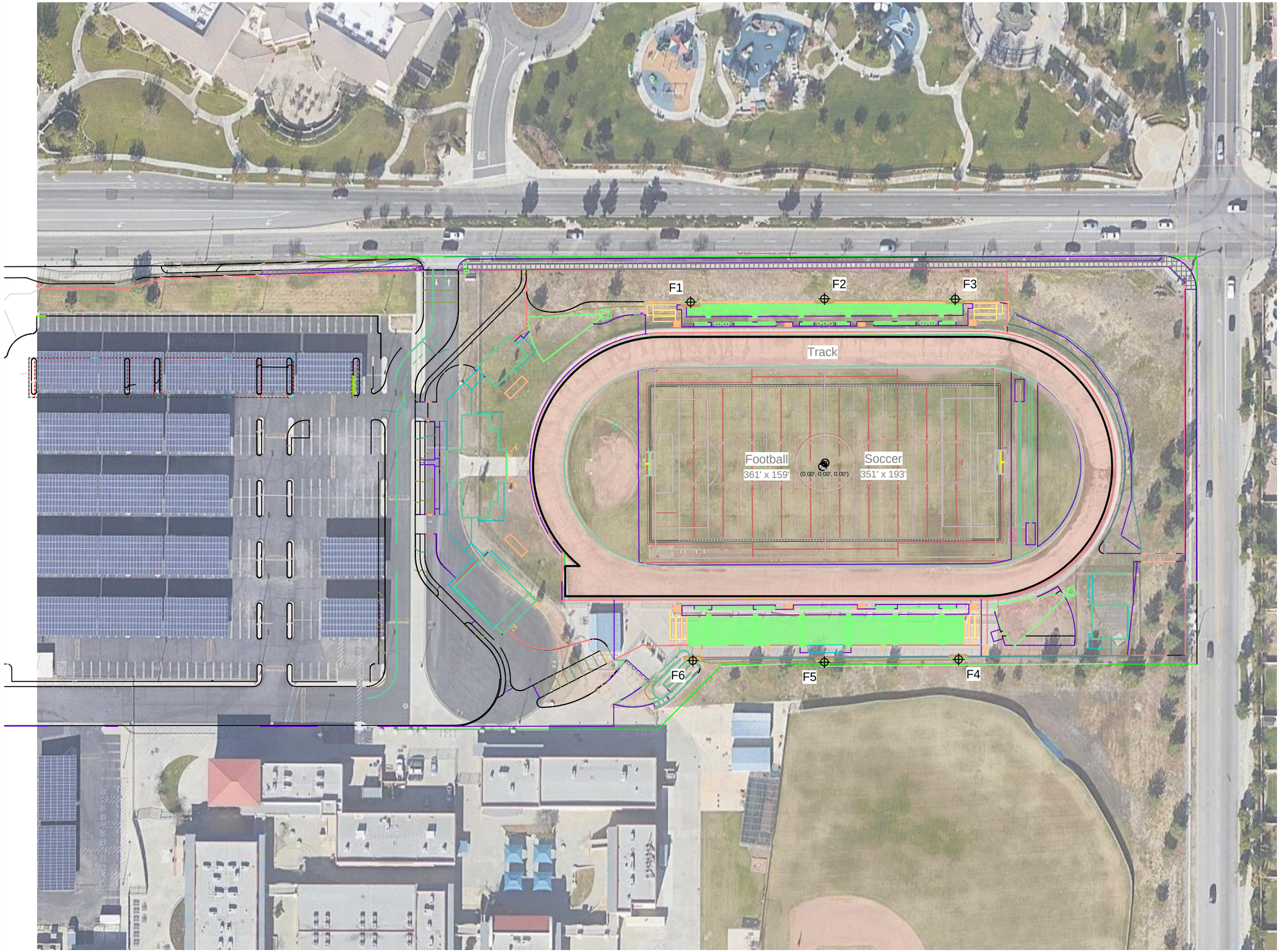
Equipment List For Areas Shown

Structure				Fixtures		
QTY	STRUCTURE ID	SIZE	GLOBAL ELEVATION	ABOVE GLOBAL LEVEL	FIXTURE TYPE	QTY/POLE
2	F1 F4	80'	-	80' 80' 70' 15.5'	TLC-LED-1500 TLC-LED-900 TLC-LED-550 TLC-BT-575	5 3 1 2
2	F2 F5	80'	-	80' 70'	TLC-LED-1500 TLC-LED-550	6 2
2	F3 F6	80'	-0'	79.6' 79.6' 70' 15.1'	TLC-LED-1500 TLC-LED-900 TLC-LED-550 TLC-BT-575	5 3 1 2
6	Totals					60

Above Global Level is height of fixtures above design (0,0,0)

Single Fixture Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Fixture (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-900	5.2	4.9	4.5	3.9	3.1	2.9	2.3
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-550	3.2	3.0	2.8	2.4	1.9	1.8	1.4



SCALE IN FEET 1 : 100

0' 100' 200'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊠

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Appendix B Air Quality, Greenhouse Gases, and Energy Analysis

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1. AIR QUALITY AND GREENHOUSE GAS BACKGROUND AND MODELING DATA

1.1 AIR QUALITY

1.1.1 Air Quality Regulatory Setting

The proposed project has the potential to release gaseous emissions of criteria pollutants and dust into the ambient air; therefore, it falls under the ambient air quality standards promulgated at the local, state, and federal levels. The project site is in the SoCAB and is subject to the rules and regulations imposed by the South Coast Air Quality Management District (South Coast AQMD). However, South Coast AQMD reports to California Air Resources board (CARB), and all criteria emissions are also governed by the California and national Ambient Air Quality Standards (AAQS). Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized below.

AMBIENT AIR QUALITY STANDARDS

The Clean Air Act (CAA) was passed in 1963 by the US Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The CAA allows states to adopt more stringent standards or to include other pollution species. The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the state to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS, based on even greater health and welfare concerns.

These National AAQS and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect “sensitive receptors” most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants. As shown in Table 1, *Ambient Air Quality Standards for Criteria Pollutants*, these pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Ozone (O_3)[3]	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m3	150 µg/m3	
Respirable Fine Particulate Matter ($PM_{2.5}$)[4,6]	Annual Arithmetic Mean	12 µg/m3	9 µg/m3	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m3	

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Lead (Pb)	30-Day Average	1.5 µg/m3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m3	
	Rolling 3-Month Average	*	0.15 µg/m3	
Sulfates (SO_4)[5]	24 hours	25 µg/m3	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Vinyl Chloride	24 hours	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2024a.

Notes: ppm: parts per million; µg/m^3: micrograms per cubic meter

* Standard has not been established for this pollutant/duration by this entity.

1 California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

3 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

4 On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

5 On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

6 On February 7, 2024, the national annual $PM_{2.5}$ standard was lowered from 12 µg/m^3 to 9 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary), secondary annual $PM_{2.5}$ standard, and PM_{10} standards (primary and secondary) were retained

California has also adopted a host of other regulations that reduce criteria pollutant emissions, including:

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building and Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code

AIR POLLUTANTS OF CONCERN

Criteria Air Pollutants

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary or secondary pollutants. Primary air pollutants are those that are emitted directly from sources and include CO, VOC, NO_2, SO_X, PM_{10}, $PM_{2.5}$, and Pb. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that ambient air quality standards (AAQS) have been established for them. VOC and oxides of nitrogen (NO_X) are air pollutant precursors that form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and NO_2 are the principal secondary pollutants. A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

Carbon Monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion, engines and motor vehicles operating at slow speeds are the primary source of CO in the SoCAB. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (South Coast AQMD 2005; US EPA 2025a). The SoCAB is designated as being in attainment under the California AAQS and attainment (serious maintenance) under the National AAQS (CARB 2025a).

Volatile Organic Compounds (VOC) are composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of VOCs. Other sources include evaporative emissions from paints and solvents, asphalt paving, and household consumer products such as aerosols (South Coast AQMD 2005). There are no AAQS for VOCs. However, because they contribute to the formation of O_3, South Coast AQMD has established a significance threshold (South Coast AQMD 2023). The health effects for ozone are described later in this section.

Nitrogen Oxides (NO_X) are a by-product of fuel combustion and contribute to the formation of ground-level O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_X are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NO_X produced by combustion is NO, but NO reacts quickly with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 is an acute irritant and more injurious than NO in equal concentrations. At atmospheric concentrations, however, NO_2 is only potentially irritating. NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO_2 exposure concentrations near roadways are of particular concern for susceptible individuals, including asthmatics, children, and the elderly. Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between elevated short-term NO_2 concentrations and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma (South Coast AQMD 2005; USEPA 2025a). The SoCAB is designated in attainment (maintenance) under the National AAQS and attainment under the California AAQS (CARB 2025a).[1]

Sulfur Dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and chemical processes at plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2. When sulfur dioxide forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_X). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. Current scientific evidence links short-term exposures to SO_2, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly adverse for asthmatics at elevated ventilation rates (e.g., while exercising or playing) at lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. Studies also show a connection between short-term exposure and increased visits to emergency facilities and hospital admissions for respiratory illnesses, particularly in at-risk populations such as children, the elderly, and asthmatics (South Coast AQMD 2005; USEPA 2025a). The SoCAB is designated as attainment under the California and National AAQS (CARB 2025a).

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include particulate matter with an aerodynamic diameter of 10 microns or less (i.e., ≤0.01 millimeter). Inhalable fine particles, or $PM_{2.5}$, have an

[1] The CA-60 near-road portion of San Bernardino, Riverside and Los Angeles Counties has recently been redesignated as an attainment area based on data collected between 2018 and 2020 (South Coast AQMD 2022).

aerodynamic diameter of 2.5 microns or less (i.e., ≤0.002.5 millimeter). Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. The EPA's scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to health effects and at far lower concentrations. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing) (South Coast AQMD 2005). There has been emerging evidence that ultrafine particulates, which are even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤0.0001 millimeter) have human health implications because their toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (South Coast AQMD 2013). However, the EPA and the California Air Resources Board (CARB) have not adopted AAQS to regulate these particulates. Diesel particulate matter is classified by CARB as a carcinogen (CARB 2025b). Particulate matter can also cause environmental effects such as visibility impairment,[2] environmental damage,[3] and aesthetic damage[4] (South Coast AQMD 2005; USEPA 2025a). The SoCAB is a nonattainment area for $PM_{2.5}$ under California and National AAQS and a nonattainment area for PM_{10} under the California AAQS (CARB 2025a).[5]

Ozone (O_3) is a key ingredient of "smog" and is a gas that is formed when VOCs and NO_X, both by-products of internal combustion engine exhaust, undergo photochemical reactions in sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O_3 harms sensitive vegetation during the growing season (South Coast

[2] $PM_{2.5}$ is the main cause of reduced visibility (haze) in parts of the United States.

[3] Particulate matter can be carried over long distances by wind and then settle on ground or water, making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.

[4] Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

[5] CARB approved the South Coast AQMD's request to redesignate the SoCAB from serious nonattainment for PM_{10} to attainment for PM_{10} under the National AAQS on March 25, 2010, because the SoCAB did not violate federal 24-hour PM_{10} standards from 2004 to 2007. The EPA approved the State of California's request to redesignate the South Coast PM_{10} nonattainment area to attainment of the PM_{10} National AAQS, effective on July 26, 2013.

AQMD 2005; USEPA 2025a). The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2025a).

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (South Coast AQMD 2005; USEPA 2018). The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted more strict lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.[6] As a result of these violations, the Los Angeles County portion of the SoCAB is designated as nonattainment under the National AAQS for lead (South Coast AQMD 2012; CARB 2025a). However, lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011 (South Coast AQMD 2012). CARB's State Implementation Plan (SIP) revision was submitted to the EPA for approval. Because emissions of lead are found only in projects that are permitted by South Coast AQMD, lead is not a pollutant of concern for the proposed project.

Table 2, *Criteria Air Pollutant Health Effects Summary*, summarizes the potential health effects associated with the criteria air pollutants.

[6] Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 showed that the Trojan Battery Company and Exide Technologies exceed the federal standards (South Coast AQMD 2012).

Table 2 Criteria Air Pollutant Health Effects Summary

Pollutant	Health Effects	Examples of Sources
Carbon Monoxide (CO)	▪ Chest pain in heart patients ▪ Headaches, nausea ▪ Reduced mental alertness ▪ Death at very high levels	Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Ozone (O_3)	▪ Cough, chest tightness ▪ Difficulty taking a deep breath ▪ Worsened asthma symptoms ▪ Lung inflammation	Atmospheric reaction of organic gases with nitrogen oxides in sunlight
Nitrogen Dioxide (NO_2)	▪ Increased response to allergens ▪ Aggravation of respiratory illness	Same as carbon monoxide sources
Particulate Matter (PM_{10} and $PM_{2.5}$)	▪ Hospitalizations for worsened heart diseases ▪ Emergency room visits for asthma ▪ Premature death	Cars and trucks (particularly diesels) Fireplaces and woodstoves Windblown dust from overlays, agriculture, and construction
Sulfur Dioxide (SO_2)	▪ Aggravation of respiratory disease (e.g., asthma and emphysema) ▪ Reduced lung function	Combustion of sulfur-containing fossil fuels, smelting of sulfur-bearing metal ores, and industrial processes
Lead (Pb)	▪ Behavioral and learning disabilities in children ▪ Nervous system impairment	Contaminated soil

Source: CARB 2025c.

Toxic Air Contaminants

The public's exposure to air pollutants classified as toxic air contaminants (TACs) is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant (HAP) pursuant to Section 112(b) of the federal Clean Air Act (42 United States Code §7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as a TAC if it determines that the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. To date, CARB has established formal control measures for 11 TACs, all of which are identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

Diesel Particulate Matter

In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

CARB has promulgated the following specific rules to limit TAC emissions:

- 13 CCR Chapter 10, Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- 13 CCR Chapter 10, Section 2480, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- 13 CCR Section 2477 and Article 8, Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate

Community Risk

In addition, to reduce exposure to TACs, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) to provide guidance regarding the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB's recommendations on the siting of new sensitive land uses were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity to air pollution sources substantially increases exposure and the potential for adverse health effects. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic, DPM from trucks, and benzene and 1,3-butadiene from passenger vehicles. CARB recommendations are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

AIR QUALITY MANAGEMENT PLANNING

The South Coast AQMD is the agency responsible for improving air quality in the SoCAB and ensuring that the National and California AAQS are attained and maintained. South Coast AQMD is responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

2022 AQMP

South Coast AQMD adopted the 2022 AQMP on December 2, 2022, which serves as an update to the 2017 AQMP. On October 1, 2015, the EPA strengthened the National AAQS for ground-level ozone, lowering the primary and secondary ozone standard levels to 70 parts per billion (ppb) (2015 Ozone National AAQS.). The SoCAB is currently classified as an "extreme" nonattainment for the 2015 Ozone National AAQS. Meeting the 2015 federal ozone standard requires reducing NO_x emissions, the key pollutant that creates ozone, by 67 percent more than is required by adopted rules and regulations in 2037. The only way to achieve the required NO_x reductions is through extensive use of zero emission (ZE) technologies across all stationary and mobile sources. South Coast AQMD's primary authority is over stationary sources which account for approximately 20 percent of NO_x emissions. The overwhelming majority of NO_x emissions are from heavy-duty trucks, ships and other State and federally regulated mobile sources that are mostly beyond the South Coast AQMD's control. The region will not meet the standard absent significant federal action. In addition to federal action, the 2022 AQMP requires substantial reliance on future deployment of advanced technologies to meet the standard. The control strategy for the 2022 AQMP includes aggressive new regulations and the development

of incentive programs to support early deployment of advanced technologies. The two key areas for incentive programs are (1) promoting widespread deployment of available ZE and low-NO_x technologies and (2) developing new ZE and ultra-low NO_x technologies for use in cases where the technology is not currently available. South Coast AQMD is prioritizing distribution of incentive funding in Environmental Justice areas and seeking opportunities to focus benefits on the most disadvantaged communities (South Coast AQMD 2022).

Lead State Implementation Plan

In 2008, EPA designated the Los Angeles County portion of the SoCAB nonattainment under the federal lead (Pb) classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the new standard. The rest of the SoCAB, outside the Los Angeles County nonattainment area remains in attainment of the new standard. On May 24, 2012, CARB approved the SIP revision for the federal lead standard, which the EPA revised in 2008. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The SIP revision was submitted to EPA for approval.

South Coast AQMD PM2.5 Redesignation Request and Maintenance Plan

In 1997, the EPA adopted the 24-hour fine $PM_{2.5}$ standard of 65 micrograms per cubic meter ($\mu g/m^3$). In 2006, this standard was lowered to a more health-protective level of 35 $\mu g/m^3$. The SoCAB is designated nonattainment for both the 65 and 35 $\mu g/m^3$ 24-hour $PM_{2.5}$ standards (24-hour $PM_{2.5}$ standards). In 2020, monitored data demonstrated that the SoCAB attained both 24-hour $PM_{2.5}$ standards. The South Coast AQMD has developed the 2021 Redesignation Request and Maintenance Plan for the 1997 and 2006 24-hour $PM_{2.5}$ Standards demonstrating that the SoCAB has met the requirements to be redesignated to attainment for the 24-hour $PM_{2.5}$ standards (South Coast AQMD 2021a).

AB 617, Community Air Protection Program

Assembly Bill (AB) 617 (C. Garcia, Chapter 136, Statutes of 2017) requires local air districts to monitor and implement air pollution control strategies that reduce localized air pollution in communities that bear the greatest burdens. In response to AB 617, CARB has established the Community Air Protection Program.

Air districts are required to host workshops to help identify disadvantaged communities disproportionately affected by poor air quality. Once the criteria for identifying the highest priority locations have been identified and the communities have been selected, new community monitoring systems would be installed to track and monitor community-specific air pollution goals. In 2018 CARB prepared an air monitoring plan (Community Air Protection Blueprint), that evaluates the availability and effectiveness of air monitoring technologies and

existing community air monitoring networks. Under AB 617, the Blueprint is required to be updated every five years.

Under AB 617, CARB is also required to prepare a statewide strategy to reduce TACs and criteria pollutants in impacted communities; provide a statewide clearinghouse for best available retrofit control technology; adopt new rules requiring the latest best available retrofit control technology for all criteria pollutants for which an area has not achieved attainment of California AAQS; and provide uniform, statewide reporting of emissions inventories. Air districts are required to adopt a community emissions reduction program to achieve reductions for the communities impacted by air pollution that CARB identifies.

1.1.2 Existing Conditions

CLIMATE/METEOROLOGY

South Coast Air Basin

The project site lies in the South Coast Air Basin (SoCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds (South Coast AQMD 2005).

Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. In unincorporated French Valley, Riverside County, the lowest average temperature is reported at 41°F in December, and the highest average temperature is 93°F in August. Rainfall averages 2.5 inches in February (Weatherspark 2026).

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent. Low clouds, often referred to as

high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the (South Coast AQMD 2005).

Wind

Wind patterns across the south coastal region are characterized by westerly or southwesterly onshore winds during the day and by easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season.

Between periods of wind, periods of air stagnation may occur, both in the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the transport and diffusion of pollutants by inhibiting their eastward transport. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (South Coast AQMD 2005).

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These are the marine/subsidence inversion and the radiation inversion. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the project area (South Coast AQMD 2005).

AREA DESIGNATIONS

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards through the State Implementation Plan (SIP). Areas are classified as attainment or nonattainment areas for particular pollutants, depending on whether they meet ambient air quality standards. Severity classifications for ozone nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

- ***Unclassified:*** a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
- ***Attainment:*** a pollutant is in attainment if the CAAQS for that pollutant was not violated at any site in the area during a three-year period.

- ***Nonattainment:*** a pollutant is in nonattainment if there was at least one violation of a state AAQS for that pollutant in the area.
- ***Nonattainment/Transitional:*** a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

The attainment status for the SoCAB is shown in Table 3, *Attainment Status of Criteria Pollutants in the South Coast Air Basin*.

Table 3 Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM_{10}	Serious Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment [1]
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only) [2]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2025a.

1 The SoCAB is pending a resignation request from nonattainment to attainment for the 24-hour federal $PM_{2.5}$ standards. The 2021 $PM_{2.5}$ Redesignation Request and Maintenance Plan demonstrates that the South Coast meets the requirements of the CAA to allow US EPA to redesignate the SoCAB to attainment for the 65 µg/m^3 and 35 µg/m^3 24-hour $PM_{2.5}$ standards. CARB submitted the 2021 $PM_{2.5}$ Redesignation Request to the US EPA as a revision to the California SIP (CARB 2021).

2 In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new 2008 federal AAQS as a result of large industrial emitters. Remaining areas for lead in the SoCAB are unclassified. However, lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011 (South Coast AQMD 2012). CARB's SIP revision was submitted to the US EPA for approval.

MULTIPLE AIR TOXICS EXPOSURE STUDY V

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on existing ambient concentrations of TACs and the potential health risks from air toxics in the SoCAB. In April 2021, South Coast AQMD released the latest update to the MATES study, MATES V. The first MATES analysis, MATES I, began in 1986 but was limited because of the technology available at the time. Conducted in 1998, MATES II was the first MATES iteration to include a comprehensive monitoring program, an air toxics emissions inventory, and a modeling component. MATES III was conducted in 2004 to 2006, with MATES IV following in 2012 to 2013.

MATES V uses measurements taken during 2018 and 2019, with a comprehensive modeling analysis and emissions inventory based on 2018 data. The previous MATES studies quantified the cancer risks based on the inhalation pathway only. MATES V includes information on the chronic noncancer risks from inhalation and non-inhalation pathways for the first time. Cancer risks and chronic noncancer risks from MATES II through IV measurements have been re-examined using current Office of Environmental Health Hazards Assessment (OEHHA) and CalEPA risk assessment methodologies and modern statistical methods to examine the trends over time.

The MATES V study showed that cancer risk in the SoCAB decreased to 454 in a million from 997 in a million in the MATES IV study. Overall, air toxics cancer risk in the SoCAB decreased by 54 percent since 2012 when MATES IV was conducted. MATES V showed the highest risk locations near the Los Angeles International Airport and the Ports of Long Beach and Los Angeles. Diesel particulate matter continues to be the major contributor to air toxics cancer risk (approximately 72 percent of the total cancer risk). Goods movement and transportation corridors have the highest cancer risk. Transportation sources account for 88 percent of carcinogenic air toxics emissions, and the remainder is from stationary sources, which include large industrial operations such as refineries and power plants as well as smaller businesses such as gas stations and chrome-plating facilities. (South Coast AQMD 2021b).

SENSITIVE RECEPTORS

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are also considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Schools are also considered sensitive receptors, as children are present for extended durations and engage in regular outdoor activities. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can

be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public. The nearest sensitive receptors to the project site are the residences to the north across Benton Way along Woodbank Way and the residences across Pourroy Road along Chantecler Road.

1.1.3 Thresholds of Significance

The analysis of the proposed project's air quality impacts follows the guidance and methodologies recommended in South Coast AQMD's *CEQA Air Quality Handbook* and the significance thresholds on South Coast AQMD's website (South Coast AQMD 1993). CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. South Coast AQMD has established thresholds of significance for regional air quality emissions for construction activities and project operation. In addition to the daily thresholds listed above, projects are also subject to the AAQS. These are addressed though an analysis of localized CO impacts and localized significance thresholds (LSTs).

REGIONAL SIGNIFICANCE THRESHOLDS

The South Coast AQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB. Table 4, *South Coast AQMD Significance Thresholds*, lists South Coast AQMD's regional significance thresholds that are applicable for all projects uniformly regardless of size or scope. There is growing evidence that although ultrafine particulates contribute a very small portion of the overall atmospheric mass concentration, they represent a greater proportion of the health risk from PM. However, the US EPA or CARB have not yet adopted AAQS to regulate ultrafine particulates; therefore, South Coast AQMD has not developed thresholds for them.

Table 4 South Coast AQMD Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/ Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO_X)	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO_X)	150 lbs/day	150 lbs/day
Particulates (PM_{10})	150 lbs/day	150 lbs/day
Particulates ($PM_{2.5}$)	55 lbs/day	55 lbs/day

Source: South Coast AQMD 2023.

Projects that exceed the regional significance threshold contribute to the nonattainment designation of the SoCAB. The attainment designations are based on the AAQS, which are set at levels of exposure that are determined to not result in adverse health. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems:

- Linked to increased cancer risk ($PM_{2.5}$, TACs)
- Aggravates respiratory disease (O_3, $PM_{2.5}$)
- Increases bronchitis (O_3, $PM_{2.5}$)
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O_3)
- Reduces resistance to infections and increases fatigue (O_3)
- Reduces lung growth in children ($PM_{2.5}$)
- Contributes to heart disease and heart attacks ($PM_{2.5}$)
- Contributes to premature death (O_3, $PM_{2.5}$)
- Linked to lower birth weight in newborns ($PM_{2.5}$) (South Coast AQMD 2015a)

Exposure to fine particulates and ozone aggravates asthma attacks and can amplify other lung ailments such as emphysema and chronic obstructive pulmonary disease. Exposure to current levels of $PM_{2.5}$ is responsible for an estimated 4,300 cardiopulmonary-related deaths per year in the SoCAB. In addition, University of Southern California scientists responsible for a landmark children's health study found that lung growth improved as air pollution declined for children aged 11 to 15 in five communities in the SoCAB (South Coast AQMD 2015b).

South Coast AQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals exposed to elevated concentrations of air pollutants in the SoCAB and has established thresholds that would be protective of these individuals. To achieve the health-based standards established by the EPA, South Coast AQMD prepares an AQMP that details regional programs to attain the AAQS. Mass emissions thresholds shown in Table 4 are not correlated with concentrations of air pollutants but contribute to the cumulative air quality impacts in the SoCAB. These thresholds are based on the trigger levels for the federal New Source Review Program, which was created to ensure projects are consistent with attainment of health-based federal AAQS. Regional emissions from a single project do not trigger a regional health impact, and it is speculative to identify how many more individuals in the air basin would be affected by the health effects listed previously. Projects that do not exceed the South Coast AQMD regional significance thresholds in Table 4 would not violate any air quality standards or contribute substantially to an existing or projected air quality violation.

If projects exceed the emissions levels presented in Table 4, then those emissions would cumulatively contribute to the nonattainment status of the air basin and would contribute to elevating health effects associated with these criteria air pollutants. Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in

lung function. Health effects associated with particulate matter include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would contribute to reducing possible health effects related to criteria air pollutants. However, for projects that exceed the emissions in Table 4, it is speculative to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment, because mass emissions are not correlated with concentrations of emissions or how many additional individuals in the air basin would be affected by the health effects cited previously.

South Coast AQMD has not provided methodology to assess the specific correlation between mass emissions generated and the effect on health to address the issue raised in *Sierra Club v. County of Fresno* (Friant Ranch, L.P.) (2018) 6 Cal.5th 502, Case No. S21978. South Coast AQMD currently does not have methodologies that would provide the City with a consistent, reliable, and meaningful analysis to correlate specific health impacts that may result from a proposed project's mass emissions.[7] Ozone concentrations are dependent on a variety of complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground-level ozone concentrations in relation to the National and California AAQS, and the absence of modeling tools that could provide statistically valid data and meaningful additional information regarding health effects from criteria air pollutants generated by individual projects, it is not possible to link specific health risks to the magnitude of emissions exceeding the significance thresholds. However, if a project in the SoCAB exceeds the regional significance thresholds, the project could contribute to an increase in health effects in the basin until the attainment standards are met in the SoCAB.

CO HOTSPOTS

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is

[7] In April 2019, the Sacramento Metropolitan Air Quality Management District (SMAQMD) published an Interim Recommendation on implementing Sierra Club v. County of Fresno (2018) 6 Cal.5th 502 ("Friant Ranch") in the review and analysis of the proposed project under CEQA in Sacramento County. Consistent with the expert opinions submitted to the court in Friant Ranch by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and South Coast AQMD, the SMAQMD guidance confirms the absence of an acceptable or reliable quantitative methodology that would correlate the expected criteria air pollutant emissions of projects to likely health consequences for people from project-generated criteria air pollutant emissions. The SMAQMD guidance explains that while it is in the process of developing a methodology to assess these impacts, lead agencies should follow the Friant Court's advice to explain in meaningful detail why this analysis is not yet feasible. Since this interim memorandum SMAQMD has provided methodology to address health impacts. However, a similar analysis is not available for projects within the South Coast AQMD region.

typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the SoCAB and in the state have steadily declined.

In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hotspot analysis conducted for the attainment by the South Coast AQMD for busiest intersections in Los Angeles during the peak morning and afternoon periods plan did not predict a violation of CO standards.[8] As identified in the South Coast AQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB in previous years, prior to redesignation, were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection. Since South Coast AQMD does not currently have an adopted CO hotspot screening criteria, Bay Area Air District's recommended threshold was used in this analysis. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection to more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (Bay Area Air District 2023).

LOCALIZED SIGNIFICANCE THRESHOLDS

The South Coast AQMD developed LSTs for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at the project site (offsite mobile-source emissions are not included in the LST analysis). LSTs represent the maximum emissions at a project site that are not expected to cause or contribute to an exceedance of the most stringent federal or state AAQS and are shown in Table 5, *South Coast AQMD Localized Significance Thresholds*.

[8] The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

Table 5 South Coast AQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO_2 Standard (CAAQS)	0.18 ppm
Annual NO_2 Standard (CAAQS)	0.03 ppm
24-Hour PM_{10} Standard – Construction (South Coast AQMD) [1]	10.4 µg/m^3
24-Hour $PM_{2.5}$ Standard – Construction (South Coast AQMD) [1]	10.4 µg/m^3
24-Hour PM_{10} Standard – Operation (South Coast AQMD) [1]	2.5 µg/m^3
24-Hour $PM_{2.5}$ Standard – Operation (South Coast AQMD) [1]	2.5 µg/m^3

Source: South Coast AQMD 2023.

ppm – parts per million; µg/m^3 – micrograms per cubic meter

1 Threshold is based on South Coast AQMD Rule 403. Since the SoCAB is in nonattainment for PM_{10} and $PM_{2.5}$, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

To assist lead agencies, South Coast AQMD developed screening-level LSTs to back-calculate the mass amount (lbs. per day) of emissions generated onsite that would trigger the levels shown in Table 5 for projects under 5-acres. These "screening-level" LSTs tables are the localized significance thresholds for all projects of five acres and less; however, it can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required to compare concentrations of air pollutants generated by the project to the localized concentrations shown in Table 5.

In accordance with South Coast AQMD's LST methodology, the screening-level construction LSTs are based on the acreage disturbed per day based on equipment use and SRA. The screening-level construction LSTs for the project site in SRA 34 are shown in Table 6, *South Coast AQMD Screening-Level Localized Significance Thresholds,* for sensitive receptors within minimum reference distance of 82 feet (25 meters) for NO_X, CO, PM_{10} and $PM_{2.5}$..

Table 6 South Coast AQMD Screening-Level Localized Significance Thresholds

Acreage Disturbed	Threshold (lbs/day)[1]			
	Nitrogen Oxides (NO_X)	Carbon Monoxide (CO)	Coarse Particulates (PM_{10})	Fine Particulates ($PM_{2.5}$)
5 Acres	270	1,746	14	8

Source: South Coast AQMD 2008, 2011, and 2023a.

1 LSTs are based on sensitive receptors within 82 feet (25 meters) for NO_X, CO, PM_{10} and $PM_{2.5}$.

HEALTH RISK

Whenever a project would require use of chemical compounds that have been identified in South Coast AQMD Rule 1401, placed on CARB's air toxics list pursuant to AB 1807, or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by the South Coast AQMD. Table 7, *South Coast AQMD Toxic Air Contaminants Incremental Risk Thresholds*, lists the TAC incremental risk thresholds for operation of a project. The type of land uses that typically generate substantial quantities of criteria air pollutants and TACs from operations include industrial (stationary sources) and warehousing (truck idling) land uses (CARB 2005). As beach uses do not use substantial quantities of TACs, these thresholds are typically applied to new industrial projects only. Additionally, the purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment, not the significant effects of the environment on the proposed project (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 (Case No. S213478)).

Table 7 South Coast AQMD Toxic Air Contaminants Incremental Risk Thresholds

Maximum Incremental Cancer Risk	≥ 10 in 1 million
Hazard Index (project increment)	≥ 1.0
Cancer Burden in areas ≥ 1 in 1 million	> 0.5 excess cancer cases

Source: South Coast AQMD 2023.

Draft Operational Cumulative Health Risk Thresholds

South Coast AQMD initiated a Working Group to identify cumulative health risk thresholds for development projects in order to address community concerns of health risk impacts of new projects being developed in areas where there is a higher pollution burden. The cumulative health risk threshold methodology first utilizes a screening approach to identify whether projects can qualitatively address cumulative health risk or quantitatively address health risk:

- **Low Cancer Risk Project Types**: Residential, commercial, recreational, educational, and retail.

- **Medium Cancer Risk Project Types**: Truck yards, gas stations, small industrial projects, and linear projects.
- **High Cancer Risk Project Types**. Industrial, major transportation projects (airports, port, railyard, bus/train station), and major planning projects.

For projects with low and medium cancer risks, like the proposed project, a quantitative analysis is not warranted. For projects with the potential to cause high cancer risk impacts, a quantitative is recommended. The initial cumulative threshold is based on MATES V cancer risk percentile, which identifies a gradient of the effects of air pollution on cancer risk in the South Coast AQMD Region. If the project triggers additional criteria, then the initial cumulative threshold should be adjusted as shown in Table 8, *MATES V Adjusted Cumulative Significant Cancer Risk Thresholds*.

Table 8 MATES V Adjusted Cumulative Significant Cancer Risk Thresholds

Project's Background MATES V Cancer Risk[1]	Revised Initial Thresholds based on Cancer Risk
Most Stringent	≥ 1 in 1 million
>90th Percentile	≥ 3 in 1 million
90th Percentile to 50th Percentile	≥ 5 in 1 million
50th Percentile to 30th Percentile	≥ 7 in 1 million
< 30th Percentile	≥ 10 in 1 million

Source: South Coast AQMD 2024.

1 Most current MATES V is based on 2018 data.

As stated previously, South Coast AQMD has identified that the initial thresholds in Table 8 should be adjusted if any of the following criteria apply:

- **Criteria #1 – Post-2018 Projects with High Volume Diesel Fueled Trucks**. Post-2018 projects are not accounted for in MATES V. Therefore, if new warehousing projects along the truck route[9] have been constructed, then the initial thresholds will be adjusted to the next, more stringent level (e.g., cumulative threshold will adjust from 10 in one million to 7 in one million).
- **Criteria #2 – Health Sensitive Population**. If the project site is within SB 535 or AB 617 community, then the initial thresholds will be adjusted to the next, more stringent level (e.g., cumulative threshold will adjust from 7 in one million to 5 in one million).

This type of project would be considered low to medium cancer risks; thus, an operational cancer risk analysis for the proposed project would not be warranted.

9 Truck route is from the project site to major freeway, within certain distance to sensitive receptors, add all diesel-fueled trucks from post-2018 projects.

1.2 GREENHOUSE GAS EMISSIONS

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. Climate change is the variation of Earth's climate over time, whether due to natural variability or as a result of human activities. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHG—water vapor,[10] carbon (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).[11] The major GHG are briefly described below.

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g. manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.
- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.
- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global-warming-potential (GWP) gases.
    - ***Chlorofluorocarbons (CFCs***) are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or

[10] Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant, but part of the feedback loop rather than a primary cause of change.

[11] Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2017). However, state and national GHG inventories do not yet include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are also ozone-depleting gases and are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.

- ***Perfluorocarbons (PFCs)*** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.
- ***Sulfur Hexafluoride (SF_6)*** is a colorless gas soluble in alcohol and ether, slightly soluble in water. SF_6 is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.
- ***Hydrochlorofluorocarbons (HCFCs)*** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs.
- ***Hydrofluorocarbons (HFCs)*** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs (IPCC 2001; US EPA 2025b).

GHGs are dependent on the lifetime or persistence of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 9, *GHG Emissions and Their Relative Global Warming Potential Compared to CO_2*. The GWP is used to convert GHGs to CO_2-equivalence (CO_2e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Fifth Assessment Report (AR5) GWP values for CH_4, a project that generates 10 MT of CH_4 would be equivalent to 280 MT of CO_2.[12]

[12] The global warming potential of a GHG is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

Table 9 GHG Emissions and Their Relative Global Warming Potential Compared to CO_2

GHGs	Fourth Assessment Report (AR4) Global Warming Potential Relative to CO_2 [1]	Fifth Assessment Report (AR5) Global Warming Potential Relative to CO_2 [1]	Sixth Assessment Report (AR6) Global Warming Potential Relative to CO_2 [1]
Carbon Dioxide (CO_2)	1	1	1
Methane[2] (CH_4)	25	28	30
Nitrous Oxide (N_2O)	298	265	273

Source: IPCC 2007, 2013, and 2023.

Notes: The IPCC published updated GWP values in its Sixth Assessment Report (AR6) that reflect latest information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. However, GWP values identified in AR5 are used by the 2022 Scoping Plan for long-term emissions forecasting.

1 Based on 100-year time horizon of the GWP of the air pollutant compared to CO_2.

2 The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

1.2.1 GHG Regulatory Setting

REGULATION OF GHG EMISSIONS ON A NATIONAL LEVEL

The US Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements but allow the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation (US EPA 2009).

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identifies emissions of six key GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the project's GHG emissions inventory because they constitute the majority of GHG emissions and, per South Coast AQMD guidance, are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

US Mandatory Report Rule for GHGs (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 MT or more of CO_2 per year are required to submit an annual report.

EPA Regulation of Stationary Sources under the Clean Air Act (Ongoing)

Pursuant to its authority under the Clean Air Act, the EPA has developed regulations for new, large, stationary sources of emissions, such as power plants and refineries. Under former President Obama's 2013 Climate Action Plan, the EPA was directed to develop regulations for existing stationary sources as well. On June 19, 2019, the EPA issued the final Affordable Clean Energy (ACE) rule, which became effective on August 19, 2019. The ACE rule was crafted under the direction of President Trump's Energy Independence EO. It officially rescinded the Clean Power Plan rule issued during the Obama Administration and set emissions guidelines for states in developing plans to limit CO_2 emissions from coal-fired power plants. The Affordable Clean Energy rule was vacated by the United States Court of Appeals for the District of Columbia Circuit on January 19, 2021. The Biden Administration is assessing options on potential future regulations.

REGULATION OF GHG EMISSIONS ON A STATE LEVEL

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in EO S-03-05 and EO B-30-15, EO B-55-18, Assembly Bill 32 (AB 32), Senate Bill 32 (SB 32), and SB 375.

Executive Order S-3-05

Executive Order S-3-05, signed June 1, 2005. Executive Order S-3-05 set the following GHG reduction targets for the State:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

Assembly Bill 32, the Global Warming Solutions Act (2006)

AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in EO S-03-05. CARB prepared the 2008 Scoping Plan to outline a plan to achieve the GHG emissions reduction targets of AB 32.

Executive Order B-30-15

EO B-30-15, signed April 29, 2015, set a goal of reducing GHG emissions within the state to 40 percent of 1990 levels by year 2030. EO B-30-15 also directed CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the state and requires state agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in EO S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaption strategy, "Safeguarding California", in order to ensure climate change is accounted for in state planning and investment decisions.

Senate Bill 32 and Assembly Bill 197

In September 2016, Governor Brown signed SB 32 and AB 197 into law, making the Executive Order goal for year 2030 into a statewide mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires the CARB to prioritize direction emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources.

Executive Order B-55-18

Executive Order B-55-18, signed September 10, 2018, set a goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." Executive Order B-55-18 directs CARB to work with relevant state agencies to ensure that future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning that not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions should be offset by equivalent net removals of CO_2e from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

Assembly Bill 1279

AB 1279, signed by Governor Newsom in September 2022, codified the carbon neutrality targets of EO B-55-18 for year 2045 and sets a new legislative target for year 2045 of 85 percent below 1990 levels for anthropogenic GHG emissions. SB 1279 also requires CARB to update the Scoping Plan to address these new targets.

2022 Climate Change Scoping Plan

CARB adopted the *2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) on December 15, 2022, which lays out a path to achieve carbon neutrality by 2045 or earlier and to reduce the State's anthropogenic GHG emissions (CARB 2022). The Scoping Plan provides updates to the previously adopted 2017 Scoping Plan and addresses the carbon neutrality goals of EO B-55-18 (discussed below) and the ambitious GHG reduction target as directed by AB 1279. Previous Scoping Plans focused on specific GHG reduction targets for our industrial,

energy, and transportation sectors—to meet 1990 levels by 2020, and then the more aggressive 40 percent below that for the 2030 target. The 2022 Scoping Plan updates the target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045. Carbon neutrality takes it one step further by expanding actions to capture and store carbon including through natural and working lands and mechanical technologies, while drastically reducing anthropogenic sources of carbon pollution at the same time.

The path forward was informed by the recent Sixth Assessment Report (AR6) of the IPCC and the measures would achieve 85 percent below 1990 levels by 2045 in accordance AB 1279. CARB's 2022 Scoping Plan identifies strategies as shown in Table 10, *Priority Strategies for Local Government Climate Action Plans*, that would be most impactful at the local level for ensuring substantial process towards the State's carbon neutrality goals.

Table 10 Priority Strategies for Local Government Climate Action Plans

Priority Area	Priority Strategies
Transportation Electrification	Convert local government fleets to zero-emission vehicles (ZEV) and provide EV charging at public sites.
	Create a jurisdiction-specific ZEV ecosystem to support deployment of ZEVs statewide (such as building standards that exceed state building codes, permit streamlining, infrastructure siting, consumer education, preferential parking policies, and ZEV readiness plans).
VMT Reduction	Reduce or eliminate minimum parking standards.
	Implement Complete Streets policies and investments, consistent with general plan circulation element requirements.
	Increase access to public transit by increasing density of development near transit, improving transit service by increasing service frequency, creating bus priority lanes, reducing or eliminating fares, microtransit, etc.
	Increase public access to clean mobility options by planning for and investing in electric shuttles, bike share, car share, and walking
	Implement parking pricing or transportation demand management pricing strategies.
	Amend zoning or development codes to enable mixed-use, walkable, transit-oriented, and compact infill development (such as increasing allowable density of the neighborhood).
	Preserve natural and working lands by implementing land use policies that guide development toward infill areas and do not convert "greenfield" land to urban uses (e.g., green belts, strategic conservation easements)
Building Decarbonization	Adopt all-electric new construction reach codes for residential and commercial uses.
	Adopt policies and incentive programs to implement energy efficiency retrofits for existing buildings, such as weatherization, lighting upgrades, and replacing energy-intensive appliances and equipment with more efficient systems (such as Energy Star-rated equipment and equipment controllers).

Priority Area	Priority Strategies
	Adopt policies and incentive programs to electrify all appliances and equipment in existing buildings such as appliance rebates, existing building reach codes, or time of sale electrification ordinances.
	Facilitate deployment of renewable energy production and distribution and energy storage on privately owned land uses (e.g., permit streamlining, information sharing).
	Deploy renewable energy production and energy storage directly in new public projects and on existing public facilities (e.g., solar photovoltaic systems on rooftops of municipal buildings and on canopies in public parking lots, battery storage systems in municipal buildings).

Source: CARB 2022.

Based on Appendix D of the 2022 CARB Climate Change Scoping Plan, for residential and mixed-use development projects, CARB recommends first demonstrating that these land use development projects are aligned with State climate goals based on the attributes of land use development that reduce operational GHG emissions while simultaneously advancing fair housing. Attributes that accommodate growth in a manner consistent with the GHG and equity goals of SB 32 have all the following attributes:

- Transportation Electrification
  - Provide EV charging infrastructure that, at a minimum, meets the most ambitious voluntary standards in the California Green Building Standards Code at the time of project approval.

- VMT Reduction
  - Is located on infill sites that are surrounded by existing urban uses and reuses or redevelops previously undeveloped or underutilized land that is presently served by existing utilities and essential public services (e.g., transit, streets, water, sewer).
  - Does not result in the loss or conversion of the State's natural and working lands;
  - Consists of transit-supportive densities (minimum of 20 residential dwelling units/acre), or is in proximity to existing transit stops (within a half mile), or satisfies more detailed and stringent criteria specified in the region's Sustainable Communities Strategy (SCS);
  - Reduces parking requirements by:
    - Eliminating parking requirements or including maximum allowable parking ratios (i.e., the ratio of parking spaces to residential units or square feet); or
    - Providing residential parking supply at a ratio of <1 parking space per dwelling unit; or
    - For multifamily residential development, requiring parking costs to be unbundled from costs to rent or own a residential unit.

  - At least 20 percent of the units are affordable to lower-income residents;
  - Result in no net loss of existing affordable units.

- Building Decarbonization
  - Use all electric appliances without any natural gas connections and does not use propane or other fossil fuels for space heating, water heating, or indoor cooking (CARB 2022).

If the first approach to demonstrating consistency is not applicable (such as in the case of this school modernization project), the second approach to project-level alignment with state climate goals is to achieve net zero GHG emissions. The third approach to demonstrating project-level alignment with state climate goals is to align with GHG thresholds of significance, which many local air quality management (AQMDs) and air pollution control districts (APCDs) have developed or adopted (CARB 2022).

Senate Bill 375

In 2008, SB 375, the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPO). The SCAG is the MPO for the Southern California region, which includes the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010). The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 is defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's transportation network. The targets would result in 3 $MMTCO_2e$ of reductions by 2020 and 15 $MMTCO_2e$ of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

2017 Update to the SB 375 Targets

CARB is required to update the targets for the MPOs every eight years. CARB adopted revised SB 375 targets for the MPOs in March 2018. The updated targets became effective in October2018. All SCSs adopted after October 1, 2018, are subject to these new targets. CARB's updated SB 375 targets for the SCAG region were an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent) (CARB 2018).

The targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update (for SB 32), while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of "percent per capita" reductions in GHG emissions from automobiles and light trucks relative to 2005; this excludes reductions anticipated from implementation of state technology and fuels strategies and any potential future state strategies, such as statewide road user pricing. The proposed targets call for greater per-capita GHG emission reductions from SB 375 than are currently in place, which for 2035 translate into proposed targets that either match or exceed the emission reduction levels in the MPOs' currently adopted SCSs to achieve the SB 375 targets. CARB foresees that the additional GHG emissions reductions in 2035 may be achieved from land use changes, transportation investment, and technology strategies (CARB 2018).

SCAG's Regional Transportation Plan / Sustainable Communities Strategy

SB 375 requires each MPO to prepare a sustainable communities strategy in its regional transportation plan (RTP/SCS). For the SCAG region, the 2024-2050 RTP/SCS, Connect SoCal, was adopted on April 4, 2024, and is an update to the 2020-2045 RTP/SCS. In general, the RTP/SCS outlines a development pattern for the region that, when integrated with the transportation network and other transportation measures and policies, would reduce VMT from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

Connect SoCal focuses on the continued efforts of the previous RTP/SCSs to integrate transportation and land use strategies in development of the SCAG region through the horizon year 2050 (SCAG 2024). Connect SoCal forecasts that the SCAG region will meet its GHG per capita reduction targets of 8 percent by 2020 and 19 percent by 2035. It also forecasts that implementation of the plan will reduce VMT per capita in year 2050 by 6.3 percent compared to baseline conditions for that year. Connect SoCal includes a "Core Vision" that centers on maintaining and better managing the transportation network for moving people and goods, while expanding mobility choices by locating housing, jobs, and transit closer together; and increasing investments in transit and complete streets (SCAG 2024).

Transportation Sector Specific Regulations

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model years 2017 through 2025 light-duty vehicles. (See also the discussion on the update to the Corporate Average Fuel Economy standards at the beginning of this Section 5.5.2 under "Federal.") In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of ZE vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025 new automobiles will emit 34 percent less GHG emissions and 75 percent less smog-forming emissions.

Executive Order S-01-07

On January 18, 2007, the state set a new LCFS for transportation fuels sold in the state. Executive Order S-01-07 sets a declining standard for GHG emissions measured in CO_2e gram per unit of fuel energy sold in California. The LCFS required a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and uses market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods.

Executive Order B-16-2012

On March 23, 2012, the state identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate ZE vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directed the number of ZE vehicles in California's state vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are ZE by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions to 80 percent below 1990 levels.

Executive Order N-79-20

On September 23, 2020, Governor Newsom signed Executive Order N-79-20, whose goal is that 100 percent of in-state sales of new passenger cars and trucks will be ZE by 2035. Additionally, the fleet goals for trucks are that 100 percent of drayage trucks are ZE by 2035, and 100 percent of medium- and heavy-duty vehicles in the state are ZE by 2045, where feasible. The Executive Order's goal for the State is to transition to 100 percent ZE off-road vehicles and equipment by 2035, where feasible.

Renewables Portfolio: Carbon Neutrality Regulations

Senate Bills 1078, 107, and X1-2 and Executive Order S-14-08

A major component of California's Renewable Energy Program is the renewables portfolio standard established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08, signed in November 2008, expanded the state's renewable energy standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

Senate Bill 350

Senate Bill 350 (de Leon) was signed into law September 2015 and establishes tiered increases to the RPS—40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100. Under SB 100, the RPS for public-owned facilities and retail sellers consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. SB 100 also established a new RPS requirement of 50 percent by 2026. Furthermore, the bill establishes an overall state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Energy Efficiency Regulations

California Building Energy Code: Energy Efficiency Standards

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2024 (California Code of Regulations [CCR] Title 24, Part 6). Title 24 Part 6 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods.

In 2024, the CEC adopted the 2025 Building Energy Efficiency Standards, which were subsequently approved by the California Building Standards Commission. The 2025 standards become effective and replace the existing 2022 standards on January 1, 2026. The 2025 standards would require mixed-fuel single-family homes to be electric-ready to accommodate replacement of gas appliances with electric appliances. In addition, the new standards also include prescriptive photovoltaic system and battery requirements for high-rise, multifamily buildings (i.e., more than three stories) and noncommercial buildings such as hotels, offices, medical offices, restaurants, retail stores, schools, warehouses, theaters, and convention centers.[13] The Building Energy and Efficiency Standards and CALGreen undergo a triennial update with a goal to achieve zero net energy for new buildings by 2030.

California Building Code: Green Building Standards (CALGreen)

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[14] The mandatory provisions of CALGreen became effective January 1, 2011, and were most recently updated in 2024 (2025 CALGreen update). The 2025 CALGreen update becomes effective on January 1, 2026, and provides updates to the residential and non-residential voluntary measures.

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (20 CCR §§ 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–

[13] California Energy Commission, 2021, Amendments to the Building Energy Efficiency Standards (2022 Energy Code) Draft Environmental Report. CEC-400-2021-077-D.

[14] The green building standards became mandatory in the 2010 edition of the code.

federally regulated appliances. Though these regulations are now often viewed as "business as usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

Solid Waste Diversion Regulations

AB 939: Integrated Waste Management Act of 1989

California's Integrated Waste Management Act of 1989 (AB 939, Public Resources Code §§ 40050 et seq.) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

AB 341

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses. Section 5.408 of CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

AB 1327

The California Solid Waste Reuse and Recycling Access Act (AB 1327, Public Resources Code §§ 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

AB 1826

In October of 2014, Governor Brown signed AB 1826 requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses and multifamily residential dwellings with five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed with food waste.

Water Efficiency Regulations

SBX7-7

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to Senate Bill 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed "SBX7-7." SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 required urban water providers to adopt a water conservation target of 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

AB 1881: Water Conservation in Landscaping Act

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or an equivalent. AB 1881 also requires the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

Short-Lived Climate Pollutant Reduction Strategy

Senate Bill 1383

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and CH_4. Black carbon is the light-absorbing component of fine particulate matter produced during the incomplete combustion of fuels. SB 1383 required the state board, no later than January 1, 2018, to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The bill also established targets for reducing organic waste in landfills. On March 14, 2017, CARB adopted the Short-Lived Climate Pollutant Reduction Strategy, which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s, despite the tripling of diesel fuel use (CARB 2017). In-use on-road rules were expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020. South Coast AQMD is one of the air districts that requires air pollution control

technologies for chain-driven broilers, which reduces particulate emissions from these charbroilers by over 80 percent (CARB 2017). Additionally, South Coast AQMD Rule 445 limits installation of new fireplaces in the South Coast Air Basin.

CALIFORNIA'S GHG SOURCES AND RELATIVE CONTRIBUTION

In 2024, the statewide GHG emissions inventory was updated for 2000 to 2022 emissions using the GWPs in IPCC's AR4 and reported that California produced 371.1 $MMTCO_2e$ GHG emissions in 2022 (2.4 percent lower than 2021 levels). The 2022 emissions data shows that California is continuing its established long-term trend of GHG emissions declines, despite the anomalous emissions trends from 2019 through 2021, due in large part to the impacts of the COVID-19 pandemic. In 2014, statewide GHG emissions dropped below the 2020 GHG Limit (AB 32 target for year 2020) and have remained below the Limit since that time. Additionally, the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross state product (GSP)) is declining (CARB 2024b).

California's transportation sector was the single-largest generator of GHG emissions, producing 37.7 percent of the state's total emissions. Industrial sector emissions made up 19.6 percent, and electric power generation made up 16.1 percent of the state's emissions inventory. Other major sectors of GHG emissions include residential and commercial (10.6 percent), agriculture and forestry (8.0 percent), high GWP (5.7 percent), and recycling and waste (2.2 percent).

Emissions from transportation sector decreased compared to 2021, primarily due to a greater share of fuels used for on-road transportation being produced from non-fossil resources. Industrial sector decreases from 2021 to 2022, most notably in the oil and gas production sector. Electricity emissions also decreased compared to 2021 from the continued growth of in-state solar generation and increases to in-state hydropower and imported wind power. High-GWP gases continue to replace ozone-depleting substances (ODS) being phased out under the 1987 Montreal Protocol and emissions from this sector have been stable from 2020 to 2022 (CARB 2024b).

1.2.2 Thresholds of Significance

The CEQA Guidelines recommend that a lead agency consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase (or reduce) GHG emissions as compared to the existing environmental setting;
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;

3. The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions.[15]

SOUTH COAST AQMD WORKING GROUP

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, South Coast AQMD convened a GHG CEQA Significance Threshold Working Group (Working Group). The South Coast AQMD Working Group (Meeting No. 15) identified a tiered approach for evaluating GHG emissions for development projects where South Coast AQMD is not the lead agency (South Coast AQMD 2010):

- **Tier 1.** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.
- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.

  For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, South Coast AQMD requires an assessment of GHG emissions. The South Coast AQMD Working Group identified a screening-level threshold of 3,000 $MTCO_2e$ annually for all land use types or the following land-use-specific thresholds: 1,400 $MTCO_2e$ for commercial projects, 3,500 $MTCO_2e$ for residential projects, or 3,000 $MTCO_2e$ for mixed-use projects. These bright-line thresholds are based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal, and therefore, less than cumulatively considerable impact on GHG emissions:
- **Tier 4.** If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.

  The South Coast AQMD Working Group has identified an efficiency target for projects that exceed the screening threshold of 4.8 $MTCO_2e$ per year per service population ($MTCO_2e$/year/SP) for project-level analyses and 6.6 $MTCO_2e$/year/SP for plan level projects

[15] The Governor's Office of Planning and Research recommendations include a requirement that such a plan must be adopted through a public review process and include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable, notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

(e.g., program-level projects such as general plans) for the year 2020.[16] The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.

The bright-line screening-level criterion of 3,000 $MTCO_2e$/yr is used as the significance threshold for this project. Therefore, if the project operation-phase emissions exceed the 3,000 $MTCO_2e$/yr threshold, GHG emissions would be considered potentially significant in the absence of mitigation measures.

[16] It should be noted that the Working Group also considered efficiency targets for 2035 for the first time in this Working Group meeting.

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CalEEMod Inputs

Name: Summit High School Stadium Improvements Project
Project Number: FSD-47
Project Location: 15551 Summit Avenue, Fontana, CA
County/Air Basin: San Bernardino County
Land Use Setting: Urban
Gas Utility: SoCalGas
Electric Utility: SCE
Air Basin: South Coast
Air District: South Coast AQMD

Disturbed Site Acreage 6.1

Project Components	SQFT	Building Footprint	Acres	Number of Stories	Number of Units
Construction					
Building T1	4,592	4,592	0.11	1	NA
Building T2	1,370	1,370	0.03	1	NA
Building T3	2,567	2,567	0.06	1	NA
Building T6	3,591	3,591	0.08	1	NA
Surface Work					
Other Asphalt Surfaces		126,798	2.91	NA	NA

Notes
[1] Other asphalt surfaces represents 50% of the remaining site disturbance after accounting for the proposed buildings. The other 50% is accounted for in Building T1 landscaping.

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage
Educational	High School	12.12	1000 sqft	3.2
Parking	Other Asphalt Surfaces	2.91	Acres	2.9
				6.1

Construction Activity	CalEEMod Default Duration (total workdays)	Modified Duration (total workdays)	Proportion
Site Preparation	31	19	10%
Grading	20	12	6%
Building Construction	230	140	72%
Paving	20	12	6%
Architectural Coating	20	12	6%

Note: Modified schedule for the project assumes 261 workdays per year and a 9-month duration.

CalEEMod Construction Measures

SCAQMD Rule 403	Water Exposed Surfaces	Frequency per day:	2	
		PM10:	61	% Reduction
		PM2.5:	61	% Reduction
Unpaved Roads	Limit Vehicle Speeds	Vehicle Speed:	25	mph
		PM10:	44	% Reduction
		PM25:	44	% Reduction
SCAQMD Rule 1186	Sweep Paved Roads	PM10:	9	% Reduction
		PM25:	9	% Reduction

Summit HS Stadium Improvements Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Summit HS Stadium Improvements
Construction Start Date	1/1/2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80000
Precipitation (days)	6.40000
Location	15551 Summit Ave, Fontana, CA 92336, USA
County	San Bernardino-South Coast
City	Fontana
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5303
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.41

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
High School	12.1200	1000sqft	3.20000	12,120.0	126,798	0.00000	—	—
Other Asphalt Surfaces	2.91000	Acre	2.91000	0.00000	0.00000	0.00000	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.4457	12.4214	9.47093	13.3130	0.02384	0.33747	0.19606	0.49419	0.31054	0.04596	0.33083	—	2,525.06	2,525.06	0.10224	0.03070	0.63777	2,537.12
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.70797	3.11922	28.0415	29.1631	0.04891	1.17173	7.89497	9.06671	1.07799	3.99357	5.07157	—	5,514.93	5,514.93	0.21799	0.05128	0.01929	5,535.68
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.20104	1.07493	5.82357	7.58530	0.01310	0.22051	0.54692	0.76743	0.20290	0.26265	0.46554	—	1,418.13	1,418.13	0.05693	0.01616	0.09479	1,424.46
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.21919	0.19617	1.06280	1.38432	0.00239	0.04024	0.09981	0.14006	0.03703	0.04793	0.08496	—	234.788	234.788	0.00943	0.00267	0.01569	235.836

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	12.4457	12.4214	9.47093	13.3130	0.02384	0.33747	0.19606	0.49419	0.31054	0.04596	0.33083	—	2,525.06	2,525.06	0.10224	0.03070	0.63777	2,537.12
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.70797	3.11922	28.0415	29.1631	0.04891	1.17173	7.89497	9.06671	1.07799	3.99357	5.07157	—	5,514.93	5,514.93	0.21799	0.05128	0.01929	5,535.68
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.20104	1.07493	5.82357	7.58530	0.01310	0.22051	0.54692	0.76743	0.20290	0.26265	0.46554	—	1,418.13	1,418.13	0.05693	0.01616	0.09479	1,424.46
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.21919	0.19617	1.06280	1.38432	0.00239	0.04024	0.09981	0.14006	0.03703	0.04793	0.08496	—	234.788	234.788	0.00943	0.00267	0.01569	235.836

2.2.2. Onsite 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	12.4410	12.4172	9.39093	12.9379	0.02340	0.33657	0.00000	0.33657	0.30965	0.00000	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	0.00000	2,405.30
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.63178	3.05170	27.9724	28.2794	0.04891	1.17173	7.66623	8.83797	1.07799	3.93995	5.01795	—	5,297.82	5,297.82	0.21490	0.04298	0.00000	5,316.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.18195	1.05940	5.78164	7.36673	0.01293	0.22017	0.48988	0.71005	0.20255	0.24901	0.45156	—	1,346.59	1,346.59	0.05462	0.01092	0.00000	1,351.21
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.21571	0.19334	1.05515	1.34443	0.00236	0.04018	0.08940	0.12958	0.03697	0.04544	0.08241	—	222.944	222.944	0.00904	0.00181	0.00000	223.709

2.2.3. Offsite 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.06895	0.06184	0.08000	1.00547	0.00045	0.00089	0.19606	0.19606	0.00089	0.04596	0.04596	—	202.882	202.882	0.00501	0.01125	0.63777	205.696
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.07620	0.06752	0.08537	0.88370	0.00045	0.00089	0.22874	0.22874	0.00089	0.05362	0.05362	—	217.114	217.114	0.00512	0.01125	0.01929	219.683
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.01909	0.01552	0.04193	0.21857	0.00017	0.00034	0.05705	0.05739	0.00034	0.01364	0.01398	—	71.5386	71.5386	0.00230	0.00523	0.09479	73.2497
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.00348	0.00283	0.00765	0.03989	0.00003	0.00006	0.01041	0.01047	0.00006	0.00249	0.00255	—	11.8440	11.8440	0.00038	0.00087	0.01569	12.1273

3. Construction Emissions Details

3.1. Site Preparation (2027)

3.1.1. Onsite - 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
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	3.63178	3.05170	27.9724	28.2794	0.04891	1.17173	—	1.17173	1.07799	—	1.07799	—	5,297.82	5,297.82	0.21490	0.04298	—	5,316.00
Dust From Material Movement	—	—	—	—	—	—	7.66623	7.66623	—	3.93995	3.93995	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18905	0.15886	1.45610	1.47208	0.00255	0.06099	—	0.06099	0.05611	—	0.05611	—	275.777	275.777	0.01119	0.00224	—	276.723
Dust From Material Movement	—	—	—	—	—	—	0.39906	0.39906	—	0.20509	0.20509	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03450	0.02899	0.26574	0.26865	0.00046	0.01113	—	0.01113	0.01024	—	0.01024	—	45.6580	45.6580	0.00185	0.00037	—	45.8147
Dust From Material Movement	—	—	—	—	—	—	0.07283	0.07283	—	0.03743	0.03743	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - 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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07620	0.06752	0.06906	0.88370	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	217.114	217.114	0.00309	0.00829	0.01929	219.683
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00399	0.00353	0.00397	0.04821	0.00000	0.00000	0.01186	0.01186	0.00000	0.00278	0.00278	—	11.4604	11.4604	0.00016	0.00043	0.01674	11.6099
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00073	0.00065	0.00072	0.00880	0.00000	0.00000	0.00216	0.00216	0.00000	0.00051	0.00051	—	1.89741	1.89741	0.00003	0.00007	0.00277	1.92215
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2. Grading (2027)

3.2.1. Onsite - 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
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	1.88795	1.58640	14.2321	17.2743	0.02733	0.59767	—	0.59767	0.54986	—	0.54986	—	2,960.07	2,960.07	0.12007	0.02401	—	2,970.23
Dust From Material Movement	—	—	—	—	—	—	2.76221	2.76221	—	1.33565	1.33565	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06207	0.05216	0.46790	0.56792	0.00090	0.01965	—	0.01965	0.01808	—	0.01808	—	97.3175	97.3175	0.00395	0.00079	—	97.6514
Dust From Material Movement	—	—	—	—	—	—	0.09081	0.09081	—	0.04391	0.04391	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01133	0.00952	0.08539	0.10365	0.00016	0.00359	—	0.00359	0.00330	—	0.00330	—	16.1120	16.1120	0.00065	0.00013	—	16.1673
Dust From Material Movement	—	—	—	—	—	—	0.01657	0.01657	—	0.00801	0.00801	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - 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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06531	0.05787	0.05919	0.75745	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	186.098	186.098	0.00265	0.00711	0.01653	188.299
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00216	0.00191	0.00215	0.02610	0.00000	0.00000	0.00642	0.00642	0.00000	0.00150	0.00150	—	6.20415	6.20415	0.00009	0.00023	0.00906	6.28504
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00039	0.00035	0.00039	0.00476	0.00000	0.00000	0.00117	0.00117	0.00000	0.00027	0.00027	—	1.02717	1.02717	0.00001	0.00004	0.00150	1.04056
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3. Building Construction (2027)

3.3.1. Onsite - 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
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23076	1.02988	9.39093	12.9379	0.02340	0.33657	—	0.33657	0.30965	—	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	—	2,405.30

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23076	1.02988	9.39093	12.9379	0.02340	0.33657	—	0.33657	0.30965	—	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	—	2,405.30
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47207	0.39502	3.60200	4.96250	0.00897	0.12910	—	0.12910	0.11877	—	0.11877	—	919.427	919.427	0.03730	0.00746	—	922.582
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08615	0.07209	0.65737	0.90566	0.00164	0.02356	—	0.02356	0.02168	—	0.02168	—	152.222	152.222	0.00617	0.00123	—	152.744
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - 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
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02340	0.02099	0.01779	0.34122	0.00000	0.00000	0.06654	0.06654	0.00000	0.01560	0.01560	—	68.8500	68.8500	0.00079	0.00241	0.21643	69.8051
Vendor	0.00550	0.00123	0.06221	0.03384	0.00045	0.00089	0.01700	0.01789	0.00089	0.00470	0.00559	—	59.1290	59.1290	0.00422	0.00884	0.14181	62.0100

Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02216	0.01964	0.02009	0.25705	0.00000	0.00000	0.06654	0.06654	0.00000	0.01560	0.01560	—	63.1542	63.1542	0.00090	0.00241	0.00561	63.9012
Vendor	0.00541	0.00115	0.06528	0.03433	0.00045	0.00089	0.01700	0.01789	0.00089	0.00470	0.00559	—	59.1644	59.1644	0.00422	0.00884	0.00367	61.9072
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00854	0.00758	0.00850	0.10333	0.00000	0.00000	0.02542	0.02542	0.00000	0.00596	0.00596	—	24.5635	24.5635	0.00034	0.00093	0.03587	24.8837
Vendor	0.00209	0.00046	0.02503	0.01307	0.00017	0.00034	0.00650	0.00684	0.00034	0.00180	0.00214	—	22.6853	22.6853	0.00162	0.00339	0.02345	23.7594
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00156	0.00138	0.00155	0.01886	0.00000	0.00000	0.00464	0.00464	0.00000	0.00109	0.00109	—	4.06676	4.06676	0.00006	0.00015	0.00594	4.11979
Vendor	0.00038	0.00008	0.00457	0.00238	0.00003	0.00006	0.00119	0.00125	0.00006	0.00033	0.00039	—	3.75582	3.75582	0.00027	0.00056	0.00388	3.93364
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4. Paving (2027)

3.4.1. Onsite - 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
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.87761	0.73744	6.94439	9.95313	0.01395	0.29813	—	0.29813	0.27428	—	0.27428	—	1,511.11	1,511.11	0.06130	0.01226	—	1,516.29
Paving	0.63535	0.63535	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02885	0.02424	0.22831	0.32723	0.00046	0.00980	—	0.00980	0.00902	—	0.00902	—	49.6802	49.6802	0.00202	0.00040	—	49.8507
Paving	0.02089	0.02089	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00527	0.00442	0.04167	0.05972	0.00008	0.00179	—	0.00179	0.00165	—	0.00165	—	8.22513	8.22513	0.00033	0.00007	—	8.25335
Paving	0.00381	0.00381	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - 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
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06895	0.06184	0.05241	1.00547	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	202.882	202.882	0.00231	0.00711	0.63777	205.696
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00216	0.00191	0.00215	0.02610	0.00000	0.00000	0.00642	0.00642	0.00000	0.00150	0.00150	—	6.20415	6.20415	0.00009	0.00023	0.00906	6.28504
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00039	0.00035	0.00039	0.00476	0.00000	0.00000	0.00117	0.00117	0.00000	0.00027	0.00027	—	1.02717	1.02717	0.00001	0.00004	0.00150	1.04056
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5. Architectural Coating (2027)

3.5.1. Onsite - 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
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13715	0.11335	0.83116	1.12539	0.00173	0.01905	—	0.01905	0.01752	—	0.01752	—	133.513	133.513	0.00542	0.00108	—	133.971
Architectural Coatings	12.3039	12.3039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.00451	0.00373	0.02733	0.03700	0.00006	0.00063	—	0.00063	0.00058	—	0.00058	—	4.38946	4.38946	0.00018	0.00004	—	4.40452
Architectural Coatings	0.40451	0.40451	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00082	0.00068	0.00499	0.00675	0.00001	0.00011	—	0.00011	0.00011	—	0.00011	—	0.72673	0.72673	0.00003	0.00001	—	0.72922
Architectural Coatings	0.07382	0.07382	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.2. Offsite - 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
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00468	0.00420	0.00356	0.06824	0.00000	0.00000	0.01331	0.01331	0.00000	0.00312	0.00312	—	13.7700	13.7700	0.00016	0.00048	0.04329	13.9610
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00015	0.00013	0.00015	0.00177	0.00000	0.00000	0.00044	0.00044	0.00000	0.00010	0.00010	—	0.42109	0.42109	0.00001	0.00002	0.00061	0.42658
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00003	0.00002	0.00003	0.00032	0.00000	0.00000	0.00008	0.00008	0.00000	0.00002	0.00002	—	0.06972	0.06972	< 0.000005	< 0.000005	0.00010	0.07062
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/1/2027	1/27/2027	5.00000	19.0000	—
Grading	Grading	1/28/2027	2/12/2027	5.00000	12.0000	—
Building Construction	Building Construction	2/13/2027	8/27/2027	5.00000	140.000	—
Paving	Paving	8/28/2027	9/14/2027	5.00000	12.0000	—
Architectural Coating	Architectural Coating	9/15/2027	9/30/2027	5.00000	12.0000	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Grading	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Grading	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Grading	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00000	8.00000	84.0000	0.37000
Building Construction	Cranes	Diesel	Average	1.000000	7.00000	367.000	0.29000
Building Construction	Forklifts	Diesel	Average	3.00000	8.00000	82.0000	0.20000
Building Construction	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00000	7.00000	84.0000	0.37000
Building Construction	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000
Paving	Pavers	Diesel	Average	2.00000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	2.00000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Architectural Coating	Air Compressors	Diesel	Average	1.000000	6.00000	37.0000	0.48000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	Worker	17.5000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT

Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	0.00000	20.0000	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	Worker	5.09040	18.5000	LDA,LDT1,LDT2
Building Construction	Vendor	1.98647	10.2000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	1.01808	18.5000	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2000	HHDT,MHDT
Architectural Coating	Hauling	0.00000	20.0000	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00000	0.00000	18,180.0	6,060.00	7,605.58

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00000	0.00000	28.5000	0.00000	0.00000
Grading	0.00000	0.00000	12.0000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	2.91000

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	High School	0.00000	0%
Paving	Other Asphalt Surfaces	2.91000	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00000	531.983	0.03300	0.00400

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	23.8900	annual days of extreme heat
Extreme Precipitation	8.00000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	19.1600	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A

Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	97.5980
AQ-PM	90.9894
AQ-DPM	33.2047
Drinking Water	66.4668
Lead Risk Housing	8.35539
Pesticides	0.00000
Toxic Releases	69.7174
Traffic	69.1500
Effect Indicators	—
CleanUp Sites	37.5513
Groundwater	0.00000

Haz Waste Facilities/Generators	85.7181
Impaired Water Bodies	0.00000
Solid Waste	0.00000
Sensitive Population	—
Asthma	39.1326
Cardio-vascular	81.3435
Low Birth Weights	73.3256
Socioeconomic Factor Indicators	—
Education	36.9021
Housing	13.9037
Linguistic	33.3063
Poverty	27.8518
Unemployment	17.1135

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	76.79969203
Employed	78.49351983
Median HI	81.94533556
Education	—
Bachelor's or higher	52.02104453
High school enrollment	100
Preschool enrollment	15.03913769
Transportation	—
Auto Access	90.86359553
Active commuting	24.89413576

Social	—
2-parent households	85.23033492
Voting	53.0347748
Neighborhood	—
Alcohol availability	76.72269986
Park access	48.8387014
Retail density	30.45040421
Supermarket access	35.68587194
Tree canopy	5.543436417
Housing	—
Homeownership	76.49172334
Housing habitability	94.3282433
Low-inc homeowner severe housing cost burden	71.93635314
Low-inc renter severe housing cost burden	97.11279353
Uncrowded housing	57.46182471
Health Outcomes	—
Insured adults	57.69280123
Arthritis	89.6
Asthma ER Admissions	54.5
High Blood Pressure	86.5
Cancer (excluding skin)	77.2
Asthma	61.7
Coronary Heart Disease	93.8
Chronic Obstructive Pulmonary Disease	91.4
Diagnosed Diabetes	78.0
Life Expectancy at Birth	48.3
Cognitively Disabled	82.5
Physically Disabled	76.0

Heart Attack ER Admissions	16.4
Mental Health Not Good	66.0
Chronic Kidney Disease	90.3
Obesity	55.2
Pedestrian Injuries	39.2
Physical Health Not Good	78.6
Stroke	88.3
Health Risk Behaviors	—
Binge Drinking	16.3
Current Smoker	66.4
No Leisure Time for Physical Activity	72.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	51.6
Elderly	95.7
English Speaking	50.3
Foreign-born	31.5
Outdoor Workers	70.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	47.9
Traffic Density	70.5
Traffic Access	23.0
Other Indices	—
Hardship	29.9
Other Decision Support	—
2016 Voting	64.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	50.0000
Healthy Places Index Score for Project Location (b)	69.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Land Use	HS land use includes assumed landscaped areas, which assumes 50% of balance of disturbance site. Other asphalt surfaces includes 50% of balance of site disturbance is paved.
Construction: Construction Phases	Schedule modified for 9-month duration.

8.3. Land Use

Model Parameter	Units	Default Value	New Value

Lot Area	acre	0.27824	3.20000
Landscape Area	sq. ft	—	126,798
Special Landscape Area	sq. ft	126,798	0.00000

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Site Preparation	Site Preparation	Start Date	1/30/2027	1/1/2027
Site Preparation	Site Preparation	End Date	2/13/2027	1/27/2027
Site Preparation	Site Preparation	Work Days per Phase	10.00000	19.0000
Grading	Grading	Start Date	2/14/2027	1/28/2027
Grading	Grading	End Date	3/14/2027	2/12/2027
Grading	Grading	Work Days per Phase	20.0000	12.0000
Building Construction	Building Construction	Start Date	3/15/2027	2/13/2027
Building Construction	Building Construction	End Date	1/31/2028	8/27/2027
Building Construction	Building Construction	Work Days per Phase	230.000	140.000
Paving	Paving	Start Date	2/1/2028	8/28/2027
Paving	Paving	End Date	2/29/2028	9/14/2027
Paving	Paving	Work Days per Phase	20.0000	12.0000
Architectural Coating	Architectural Coating	Start Date	3/1/2028	9/15/2027
Architectural Coating	Architectural Coating	End Date	3/29/2028	9/30/2027
Architectural Coating	Architectural Coating	Work Days per Phase	20.0000	12.0000

Appendix C Noise and Vibration Analysis

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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.

NOISE MONITORING DATA

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Long-Term 24 Hour Continuous Noise Monitoring

Calculation Input Sheet

Project: FSD-47.0

Date: March 5-6, 2026

Site: LT-1

Hour	Leq	Lmax	L50	L90
15:00	67.2	90.6	61.5	56.1
16:00	65.1	91.5	59.7	53.5
17:00	64.8	84.6	60.1	51.8
18:00	64.1	83.2	57.9	51.3
19:00	68.0	98.1	57.6	52.6
20:00	62.5	76.9	58.2	53.7
21:00	63.0	85.9	58.3	55.5
22:00	61.8	82.4	54.3	51.4
23:00	57.5	77.8	53.3	51.4
0:00	55.3	72.8	52.3	50.5
1:00	58.3	77.6	55.8	51.8
2:00	62.1	74.5	60.8	56.9
3:00	62.0	73.5	60.3	56.7
4:00	64.4	75.5	62.9	57.4
5:00	66.4	76.6	64.9	61.1
6:00	64.6	83.6	62.4	58.5
7:00	65.7	78.3	63.5	58.6
8:00	64.8	87.4	61.1	54.8
9:00	62.9	83.4	56.8	52.4
10:00	62.0	82.1	56.0	52.0
11:00	62.8	81.1	57.2	53.1
12:00	72.6	105.7	58.0	53.2
13:00	63.6	85.6	58.3	53.1
14:00	65.2	88.3	59.8	54.5

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 7 p.m.)	66.2	86.8	59.2	53.7
Evening (7 p.m. - 9 p.m.)	65.3	87.0	58.0	53.9
Nighttime (9 p.m. - 7 a.m.)	62.6	77.1	58.6	55.1

Percentage of Energy

Daytime	65%
Evening	13%
Nighttime	21%

Calculated CNEL, dBA

70.1

Project: FSD-47
User: AC
Location: LT-1

No.	Start Date	Start Time	End Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_2	L_5	L_8	L_{10}	L_{25}	L_{50}	L_{90}	L_{95}	L_{99}
1	3/5/2026	3:00 PM	4:00 PM	1:00	67.2	90.6	50.9	78.3	74.7	70.3	68.5	67.8	64.7	61.5	56.1	54.8	52.9
2	3/5/2026	4:00 PM	5:00 PM	1:00	65.1	91.5	49.7	72.4	71.2	69.6	68.6	68.0	64.7	59.7	53.5	52.4	51.1
3	3/5/2026	5:00 PM	6:00 PM	1:00	64.8	84.6	48.4	73.3	72.1	70.3	69.5	68.8	65.6	60.1	51.8	50.5	49.5
4	3/5/2026	6:00 PM	7:00 PM	1:00	64.1	83.2	48.5	73.9	71.9	69.8	68.6	68.1	64.4	57.9	51.3	50.6	49.6
5	3/5/2026	7:00 PM	8:00 PM	1:00	68.0	98.1	50.5	74.1	72.0	69.6	68.4	67.7	63.5	57.6	52.6	52.1	51.2
6	3/5/2026	8:00 PM	9:00 PM	1:00	62.5	76.9	50.3	71.7	70.7	68.9	67.7	66.9	61.4	58.2	53.7	52.1	51.0
7	3/5/2026	9:00 PM	10:00 PM	1:00	63.0	85.9	53.3	72.0	70.6	68.3	66.6	65.6	60.8	58.3	55.5	55.0	54.2
8	3/5/2026	10:00 PM	11:00 PM	1:00	61.8	82.4	49.6	71.4	69.8	67.4	66.6	66.4	58.2	54.3	51.4	51.0	50.4
9	3/5/2026	11:00 PM	12:00 AM	1:00	57.5	77.8	49.9	69.4	67.6	62.7	59.4	58.1	54.6	53.3	51.4	51.0	50.4
10	3/5/2026	12:00 AM	1:00 AM	1:00	55.3	72.8	48.0	66.6	63.4	58.6	57.0	56.2	53.9	52.3	50.5	50.1	49.1
11	3/6/2026	1:00 AM	2:00 AM	1:00	58.3	77.6	50.0	66.5	63.9	63.0	62.5	61.8	58.1	55.8	51.8	51.2	50.5
12	3/6/2026	2:00 AM	3:00 AM	1:00	62.1	74.5	51.5	68.8	67.8	66.1	65.3	64.9	62.9	60.8	56.9	55.9	53.5
13	3/6/2026	3:00 AM	4:00 AM	1:00	62.0	73.5	52.8	69.6	68.1	66.4	65.5	65.0	62.7	60.3	56.7	55.8	54.0
14	3/6/2026	4:00 AM	5:00 AM	1:00	64.4	75.5	53.2	71.1	70.3	69.0	68.2	67.7	65.5	62.9	57.4	55.9	54.0
15	3/6/2026	5:00 AM	6:00 AM	1:00	66.4	76.6	56.2	72.9	72.0	70.5	69.8	69.3	67.3	64.9	61.1	60.1	58.6
16	3/6/2026	6:00 AM	7:00 AM	1:00	64.6	83.6	55.1	72.3	70.7	69.1	68.0	67.4	64.8	62.4	58.5	57.6	56.2
17	3/6/2026	7:00 AM	8:00 AM	1:00	65.7	78.3	54.7	72.7	72.0	70.7	69.8	69.3	66.7	63.5	58.6	57.3	55.8
18	3/6/2026	8:00 AM	9:00 AM	1:00	64.8	87.4	51.9	73.9	71.7	69.5	68.3	67.6	64.4	61.1	54.8	53.7	52.7
19	3/6/2026	9:00 AM	10:00 AM	1:00	62.9	83.4	50.6	73.1	70.6	68.4	67.2	66.4	61.1	56.8	52.4	51.9	51.3
20	3/6/2026	10:00 AM	11:00 AM	1:00	62.0	82.1	50.2	72.6	70.9	68.5	66.7	65.7	60.1	56.0	52.0	51.4	50.7
21	3/6/2026	11:00 AM	12:00 PM	1:00	62.8	81.1	50.3	72.3	71.1	69.6	68.0	67.0	61.4	57.2	53.1	52.4	51.3
22	3/6/2026	12:00 PM	1:00 PM	1:00	72.6	105.7	50.9	74.2	71.4	69.2	67.8	67.1	62.9	58.0	53.2	52.6	51.7
23	3/6/2026	1:00 PM	2:00 PM	1:00	63.6	85.6	50.4	73.0	71.1	69.1	68.0	67.3	62.9	58.3	53.1	52.1	51.1
24	3/6/2026	2:00 PM	3:00 PM	1:00	65.2	88.3	50.7	74.2	72.2	70.0	68.5	67.9	64.1	59.8	54.5	53.5	52.0

LONG-TERM MEASURMENT DATA SHEET

Date: Drop off 3-5-26 **Pick up** 3-6-26

Project Number/Name: F80-470

Monitoring Personnel: AC

Meter Settings:

☐ Larson Davis Lxt ☐ Larson Davis 820 Meter Kit #: 1

☒ A-Weighted ☒ Slow ☐ Fast ☒ Windscreen

Calibration

LD CAL 200 ☐ SN-14280 ☒ SN-14279 1 kHz Tone Reference Level: ☒ 94 dB ☐ 114 dB

Calibration Offset Prior: 94.3 Offset After: 94.6

Time of meter mounted: 1:53 ☒ Photos: _____

Site Location/Address: South of 5830 Delaware Drive; near the ped-access gate; ele-Vehicle gate

Primary Noise Source: Roadway - norse (vehicles, school buss for sports enteave/ loadup area); private community elelec Vehicle gate

Traffic counts in both directions (15 minute)

Roadway	# Lanes	Posted Speed	Autos	MD	HD

Additional Notes:

Long-Term 24 Hour Continuous Noise Monitoring

Calculation Input Sheet

Project: FSD-47.0

Date: March 5-6, 2026

Site: LT-2

Hour	Leq	Lmax	L50	L90
15:00	70.2	87.8	63.8	57.7
16:00	71.4	90.7	66.9	59.2
17:00	70.3	87.7	62.9	56.0
18:00	71.3	89.8	63.9	55.6
19:00	72.1	98.9	62.1	56.1
20:00	70.4	87.8	61.9	58.1
21:00	68.7	83.5	61.2	58.2
22:00	68.3	85.6	61.9	59.4
23:00	66.3	83.5	58.4	55.9
0:00	63.6	80.6	57.7	56.0
1:00	61.1	81.7	56.8	54.7
2:00	62.4	81.5	59.0	56.0
3:00	65.7	82.5	62.9	59.8
4:00	65.0	81.7	62.5	59.3
5:00	68.5	85.7	64.9	60.8
6:00	69.7	84.8	67.0	62.6
7:00	69.3	86.4	65.2	62.0
8:00	72.2	86.2	66.4	61.1
9:00	71.7	86.3	67.3	58.3
10:00	69.6	86.7	60.3	56.7
11:00	68.7	87.2	59.7	56.4
12:00	69.5	85.2	61.1	57.2
13:00	78.1	109.8	62.4	57.3
14:00	70.7	91.0	61.9	57.2

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 7 p.m.)	72.0	89.6	63.5	57.9
Evening (7 p.m. - 9 p.m.)	70.6	90.1	61.7	57.5
Nighttime (9 p.m. - 7 a.m.)	66.4	83.1	61.2	58.3

Percentage of Energy

Daytime	72%
Evening	13%
Nighttime	15%

Calculated CNEL, dBA

74.6

Project: FSD-47
User: AC
Location: LT-2

No.	Start Date	Start Time	End Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_2	L_5	L_8	L_{10}	L_{25}	L_{50}	L_{90}	L_{95}	L_{99}
1	3/5/2026	3:00 PM	4:00 PM	1:00	70.2	87.8	54.8	79.2	78.0	76.4	75.4	74.8	70.5	63.8	57.7	56.9	55.6
2	3/5/2026	4:00 PM	5:00 PM	1:00	71.4	90.7	54.9	80.7	78.4	76.4	75.3	74.7	71.4	66.9	59.2	57.9	55.9
3	3/5/2026	5:00 PM	6:00 PM	1:00	70.3	87.7	52.5	79.0	78.0	76.6	75.6	75.0	71.1	62.9	56.0	55.0	53.5
4	3/5/2026	6:00 PM	7:00 PM	1:00	71.3	89.8	51.9	80.2	79.2	77.7	76.7	76.0	72.2	63.9	55.6	54.7	53.1
5	3/5/2026	7:00 PM	8:00 PM	1:00	72.1	98.9	52.8	80.7	79.2	77.5	76.3	75.7	71.1	62.1	56.1	55.3	53.9
6	3/5/2026	8:00 PM	9:00 PM	1:00	70.4	87.8	56.0	79.7	78.5	76.9	75.9	75.3	70.4	61.9	58.1	57.4	56.7
7	3/5/2026	9:00 PM	10:00 PM	1:00	68.7	83.5	55.5	78.9	78.0	76.1	74.7	73.7	65.9	61.2	58.2	57.6	56.5
8	3/5/2026	10:00 PM	11:00 PM	1:00	68.3	85.6	56.7	78.9	77.8	75.5	73.7	72.4	65.9	61.9	59.4	59.0	57.6
9	3/5/2026	11:00 PM	12:00 AM	1:00	66.3	83.5	52.7	78.2	76.8	73.7	70.4	68.2	60.9	58.4	55.9	55.4	54.5
10	3/6/2026	12:00 AM	1:00 AM	1:00	63.6	80.6	53.5	76.9	74.7	69.0	63.9	61.8	59.0	57.7	56.0	55.5	54.5
11	3/6/2026	1:00 AM	2:00 AM	1:00	61.1	81.7	51.0	73.7	69.8	63.1	60.8	60.0	57.9	56.8	54.7	54.2	52.4
12	3/6/2026	2:00 AM	3:00 AM	1:00	62.4	81.5	53.1	72.0	68.6	67.8	66.7	65.3	61.4	59.0	56.0	55.1	54.0
13	3/6/2026	3:00 AM	4:00 AM	1:00	65.7	82.5	56.8	75.0	73.2	70.4	69.1	68.4	65.4	62.9	59.8	59.0	57.6
14	3/6/2026	4:00 AM	5:00 AM	1:00	65.0	81.7	56.0	73.7	71.9	69.6	68.4	67.8	65.0	62.5	59.3	58.7	57.3
15	3/6/2026	5:00 AM	6:00 AM	1:00	68.5	85.7	58.5	77.7	76.3	73.9	72.3	71.7	68.4	64.9	60.8	60.1	59.4
16	3/6/2026	6:00 AM	7:00 AM	1:00	69.7	84.8	59.8	78.8	77.1	74.5	73.3	72.6	69.9	67.0	62.6	61.6	60.6
17	3/6/2026	7:00 AM	8:00 AM	1:00	69.3	86.4	57.6	79.6	78.4	75.4	73.1	71.8	67.8	65.2	62.0	61.1	59.7
18	3/6/2026	8:00 AM	9:00 AM	1:00	72.2	86.2	57.4	80.7	79.9	78.6	77.6	76.9	73.0	66.4	61.1	60.3	58.9
19	3/6/2026	9:00 AM	10:00 AM	1:00	71.7	86.3	54.8	80.3	79.2	77.4	76.5	75.9	72.7	67.3	58.3	57.5	55.9
20	3/6/2026	10:00 AM	11:00 AM	1:00	69.6	86.7	53.3	80.0	78.8	76.8	75.4	74.5	66.9	60.3	56.7	56.0	54.9
21	3/6/2026	11:00 AM	12:00 PM	1:00	68.7	87.2	53.3	79.7	78.4	75.9	74.3	73.3	65.3	59.7	56.4	55.8	54.4
22	3/6/2026	12:00 PM	1:00 PM	1:00	69.5	85.2	54.4	79.7	78.8	76.9	75.3	74.3	67.4	61.1	57.2	56.6	55.5
23	3/6/2026	1:00 PM	2:00 PM	1:00	78.1	109.8	54.0	80.5	78.9	77.2	76.0	75.2	69.5	62.4	57.3	56.3	55.4
24	3/6/2026	2:00 PM	3:00 PM	1:00	70.7	91.0	53.2	80.7	79.1	77.4	76.3	75.5	69.5	61.9	57.2	56.3	54.6

LONG-TERM MEASURMENT DATA SHEET

Date: Drop off 3-5-26 **Pick up** 3-6-26

Project Number/Name: FSD-47

Monitoring Personnel: AC

Meter Settings:

☐ Larson Davis Lxt ☐ Larson Davis 820 Meter Kit #: 2

☒ A-Weighted ☑ Slow ☐ Fast ☒ Windscreen

Calibration

LD CAL 200 ☐ SN-14280 ☒ SN-14279 1 kHz Tone Reference Level: ☒ 94 dB ☐ 114 dB

Calibration Offset Prior: 93.2 Offset After: 95.0

Time of meter mounted: 1:58 ☒ Photos: _____

Site Location/Address: At the rear of residence @ Joyce Knox Ave. across Summit HS Baseball Add

Primary Noise Source: School busy, school practice ROTC; ; Soft/baseball on soccer field)

Traffic counts in both directions (15 minute)

Roadway	# Lanes	Posted Speed	Autos	MD	HD

Additional Notes:

323m from Rear classRoom building w/ pyramid top

Long-Term 24 Hour Continuous Noise Monitoring

Calculation Input Sheet

Project: FSD-47.0

Date: March 5-6, 2026

Site: LT-3

Hour	Leq	Lmax	L50	L90
15:00	71.2	89.1	68.3	61.9
16:00	70.2	84.9	65.3	59.4
17:00	70.8	85.2	65.7	59.5
18:00	70.2	86.4	64.2	59.2
19:00	70.5	90.6	64.1	60.3
20:00	68.2	81.9	63.8	60.8
21:00	68.1	86.8	63.9	60.9
22:00	65.6	82.0	60.6	57.7
23:00	64.3	89.3	59.7	57.5
0:00	61.6	81.8	58.2	55.8
1:00	62.3	80.1	59.2	56.7
2:00	65.8	79.9	63.4	60.0
3:00	66.0	80.8	63.1	60.0
4:00	69.9	91.6	65.7	62.2
5:00	71.1	86.4	68.1	64.0
6:00	70.1	88.7	66.4	62.6
7:00	72.2	87.1	67.9	63.0
8:00	71.6	82.8	68.4	60.8
9:00	68.8	84.0	62.2	59.0
10:00	68.3	84.4	62.5	59.1
11:00	69.4	84.3	63.6	59.9
12:00	73.2	98.6	64.3	59.9
13:00	70.4	92.0	64.0	59.5
14:00	71.9	97.7	65.5	60.5

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 7 p.m.)	70.9	88.0	65.2	60.1
Evening (7 p.m. - 9 p.m.)	69.1	86.4	63.9	60.7
Nighttime (9 p.m. - 7 a.m.)	67.5	84.5	62.7	59.6

Percentage of Energy

Daytime	66%
Evening	11%
Nighttime	23%

Calculated CNEL, dBA

74.8

Project: FSD-47
User: AC
Location: LT-3

No.	Start Date	Start Time	End Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_2	L_5	L_8	L_{10}	L_{25}	L_{50}	L_{90}	L_{95}	L_{99}
1	3/5/2026	3:00 PM	4:00 PM	1:00	71.2	89.1	58.1	78.7	77.7	76.3	75.5	74.9	72.2	68.3	61.9	60.8	59.5
2	3/5/2026	4:00 PM	5:00 PM	1:00	70.2	84.9	54.0	78.3	77.3	76.1	75.2	74.7	71.3	65.3	59.4	58.4	56.6
3	3/5/2026	5:00 PM	6:00 PM	1:00	70.8	85.2	53.9	79.4	78.2	76.7	75.8	75.3	71.8	65.7	59.5	58.4	56.7
4	3/5/2026	6:00 PM	7:00 PM	1:00	70.2	86.4	54.7	79.2	77.8	76.1	75.1	74.5	70.7	64.2	59.2	58.4	56.4
5	3/5/2026	7:00 PM	8:00 PM	1:00	70.5	90.6	57.7	79.5	78.0	76.1	75.0	74.4	70.0	64.1	60.3	59.6	58.6
6	3/5/2026	8:00 PM	9:00 PM	1:00	68.2	81.9	57.1	77.4	76.4	74.8	73.5	72.7	67.0	63.8	60.8	60.1	58.6
7	3/5/2026	9:00 PM	10:00 PM	1:00	68.1	86.8	57.9	77.7	76.4	74.5	72.8	71.7	67.0	63.9	60.9	60.3	59.3
8	3/5/2026	10:00 PM	11:00 PM	1:00	65.6	82.0	55.1	76.6	75.4	72.4	69.5	67.8	63.0	60.6	57.7	57.1	56.2
9	3/5/2026	11:00 PM	12:00 AM	1:00	64.3	89.3	54.4	75.6	74.0	69.0	65.3	63.9	61.2	59.7	57.5	57.0	56.1
10	3/6/2026	12:00 AM	1:00 AM	1:00	61.6	81.8	49.7	73.5	69.7	63.7	62.0	61.5	59.7	58.2	55.8	55.3	53.6
11	3/6/2026	1:00 AM	2:00 AM	1:00	62.3	80.1	53.1	71.9	69.1	66.0	64.8	64.3	61.8	59.2	56.7	56.0	54.7
12	3/6/2026	2:00 AM	3:00 AM	1:00	65.8	79.9	57.2	74.7	73.2	70.8	69.3	68.6	65.9	63.4	60.0	59.1	58.2
13	3/6/2026	3:00 AM	4:00 AM	1:00	66.0	80.8	55.9	75.3	74.1	71.5	69.7	69.0	65.7	63.1	60.0	59.0	57.6
14	3/6/2026	4:00 AM	5:00 AM	1:00	69.9	91.6	59.2	79.5	77.8	74.7	73.2	72.5	69.0	65.7	62.2	61.5	60.4
15	3/6/2026	5:00 AM	6:00 AM	1:00	71.1	86.4	60.5	79.7	78.3	76.4	75.2	74.5	71.3	68.1	64.0	63.2	62.0
16	3/6/2026	6:00 AM	7:00 AM	1:00	70.1	88.7	59.4	79.8	78.2	75.6	73.8	72.9	69.4	66.4	62.6	61.9	60.8
17	3/6/2026	7:00 AM	8:00 AM	1:00	72.2	87.1	59.9	80.4	79.5	78.1	77.1	76.6	73.1	67.9	63.0	62.1	61.0
18	3/6/2026	8:00 AM	9:00 AM	1:00	71.6	82.8	57.1	79.0	78.2	76.9	76.1	75.7	73.3	68.4	60.8	59.8	58.2
19	3/6/2026	9:00 AM	10:00 AM	1:00	68.8	84.0	54.3	78.9	77.8	76.0	74.4	73.5	66.6	62.2	59.0	58.2	57.4
20	3/6/2026	10:00 AM	11:00 AM	1:00	68.3	84.4	55.3	78.6	77.6	75.3	73.7	72.8	66.3	62.5	59.1	58.4	57.1
21	3/6/2026	11:00 AM	12:00 PM	1:00	69.4	84.3	55.7	79.0	78.0	76.2	74.9	74.0	68.0	63.6	59.9	59.3	57.4
22	3/6/2026	12:00 PM	1:00 PM	1:00	73.2	98.6	56.0	82.4	79.4	76.8	75.5	74.9	69.4	64.3	59.9	59.1	57.8
23	3/6/2026	1:00 PM	2:00 PM	1:00	70.4	92.0	54.5	80.1	78.4	76.6	75.5	74.8	69.4	64.0	59.5	58.5	57.1
24	3/6/2026	2:00 PM	3:00 PM	1:00	71.9	97.7	55.7	80.3	78.8	76.8	75.6	75.1	71.3	65.5	60.5	59.3	57.3

LONG-TERM MEASURMENT DATA SHEET

Date: Drop off 3-5-26 **Pick up** 3-6-26

Project Number/Name: FSD-47

Monitoring Personnel: AC

Meter Settings:

☐ Larson Davis Lxt ☐ Larson Davis 820 Meter Kit #: 3

☒ A-Weighted ☒ Slow ☐ Fast ☒ Windscreen (L)

Calibration

LD CAL 200 ☐ SN-14280 ☐ SN-14279 1 kHz Tone Reference Level: ☐ 94 dB ☐ 114 dB

Calibration Offset Prior: 92.4 Offset After: 94.2

Time of meter mounted: 2:03 ☒ Photos: _____

Site Location/Address: At the Rear of of Rosslyn alley Knox Ave, across the track & field

Primary Noise Source: Passenger Vehicles (loud exhaust cars), Team Practice -> shouting (ROTC?)

Traffic counts in both directions (15 minute)

Roadway	# Lanes	Posted Speed	Autos	MD	HD

Additional Notes:

81m to Summit Street Sign, 192m to Student Crosswalk sign on Ruby Point Loop
43m To speed limit Sign on Knox Ave.

Measurement Report

Report Summary

Meter's File Name	LxT_Data.176.s	Computer's File Name	LxT_0005424-20260305 160044-LxT_Data.176.ldbin
Meter	LxT1 0005424	Firmware	2.404
User	AC	Location	ST-1
Job Description	FSD-47		
Note			

Start Time	2026-03-05 16:00:44	Duration	0:15:00.0		
End Time	2026-03-05 16:15:44	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2026-03-05 15:56:50	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	56.1 dB		
LAE	85.6 dB	SEA	--- dB
EA	40.7 µPa²h		
EA8	1.3 mPa²h		
EA40	6.5 mPa²h		
LAS_{peak}	89.1 dB	2026-03-05 16:01:10	
LAS_{max}	73.3 dB	2026-03-05 16:00:44	
LAS_{min}	50.3 dB	2026-03-05 16:10:17	
LA_{eq}	56.1 dB		
LC_{eq}	70.1 dB	LC_{eq} - LA_{eq}	14.0 dB
LAI_{eq}	57.8 dB	LAI_{eq} - LA_{eq}	1.7 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LASpk > 135.0 dB	0	0:00:00.0
LASpk > 137.0 dB	0	0:00:00.0
LASpk > 140.0 dB	0	0:00:00.0

Community Noise

L_{DN}	L_{Day}	L_{Night}
--- dB	--- dB	0.0 dB

L_{DEN}	L_{Day}	L_{Eve}	L_{Night}
--- dB	--- dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	56.0 dB		--- dB		--- dB	
$Ls_{(max)}$	73.3 dB	2026-03-05 16:00:44	--- dB	None	--- dB	None
$LS_{(min)}$	50.3 dB	2026-03-05 16:10:17	--- dB	None	--- dB	None
$L_{Peak(max)}$	89.1 dB	2026-03-05 16:01:10	--- dB	None	--- dB	None

Overloads

Count	Duration
0	0:00:00.0

Statistics

LAS 2.0	60.4 dB
LAS 8.0	59.8 dB
LAS 25.0	57.1 dB
LAS 50.0	54.1 dB
LAS 90.0	52.0 dB
LAS 99.0	50.9 dB

Time History



Project Name: _____ Date: 3-5-26

Project Number: FSD-47 Monitoring Personnel: AC

Monitoring Site #: ST #1 Time Start: 4:00 End: 4:15

Site Location/Address: Fontana Park; along the park walkway, between the play equipment & water fountain

Primary Noise Source: Cars on Roadways; Consistent noise from water fountain; distant icecream truck music, stress impairment from wind; kids @ playground

Measurement Results	
Percentiles	dBA
Leq	56.1
Lmax	73.3
Lmin	50.3
L2	60.4
L8	54.8
L25	57.1
L50	54.1
Other	
SEL/CNEL	

Observed Noise Sources/Events		
Time	Noise Source Event	dBA
11:45	Amount of water pumped out of fountain increases	60.1

Data File: 176 ☒ Photos: _____

Comments (sound walls, height, etc..) N/A 78m to flagpoles, 22m to center of fountain, 101m to residential uses

Max Wind Velocity (knots/hr)	Average Wind Velocity (knots/hr)	Temperature (F)	Relative Humidity (%)
	19mph ↓S	68°	12%

Traffic counts in both directions:

Roadway	# Lanes	Posted Speed	Autos	MD	HD

Measurement Report

Report Summary

Meter's File Name	LxT_Data.177.s	Computer's File Name	LxT_0005424-20260306 155200-LxT_Data.177.ldbin
Meter	LxT1 0005424	Firmware	2.404
User	AC	Location	ST-2
Job Description	FSD-47		
Note			

Start Time	2026-03-06 15:52:00	Duration	0:15:00.0		
End Time	2026-03-06 16:07:00	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2026-03-06 15:50:39	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	67.2 dB		
LAE	96.7 dB	SEA	--- dB
EA	524.8 µPa²h		
EA8	16.8 mPa²h		
EA40	84.0 mPa²h		
LAS_{peak}	103.9 dB	2026-03-06 15:54:02	
LAS_{max}	88.7 dB	2026-03-06 15:54:02	
LAS_{min}	49.1 dB	2026-03-06 16:03:53	
LA_{eq}	67.2 dB		
LC_{eq}	79.0 dB	LC_{eq} - LA_{eq}	11.8 dB
LAI_{eq}	69.4 dB	LAI_{eq} - LA_{eq}	2.2 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	1	0:00:03.4
LAS > 115.0 dB	0	0:00:00.0
LASpk > 135.0 dB	0	0:00:00.0
LASpk > 137.0 dB	0	0:00:00.0
LASpk > 140.0 dB	0	0:00:00.0

Community Noise

L_{DN}	L_{Day}	L_{Night}
--- dB	--- dB	0.0 dB

L_{DEN}	L_{Day}	L_{Eve}	L_{Night}
--- dB	--- dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	67.2 dB		--- dB		--- dB	
$L_{S(max)}$	88.7 dB	2026-03-06 15:54:02	--- dB	None	--- dB	None
$L_{S(min)}$	49.1 dB	2026-03-06 16:03:53	--- dB	None	--- dB	None
$L_{Peak(max)}$	103.9 dB	2026-03-06 15:54:02	--- dB	None	--- dB	None

Overloads

Count	Duration
0	0:00:00.0

Statistics

LAS 2.0	72.8 dB
LAS 8.0	69.7 dB
LAS 25.0	65.8 dB
LAS 50.0	60.3 dB
LAS 90.0	53.2 dB
LAS 99.0	50.4 dB

Time History



Project Name: _____ Date: 3-6-26

Project Number: FSD-47 Monitoring Personnel: AC

Monitoring Site #: ST-2 Time Start: 3:59 End: 4:07

Site Location/Address: At the north western portion of campus; West of the parking lot along Lytle Creek Road

Primary Noise Source: Pedestrian Vehicles (loud exhaust; Student pick-up time)

Measurement Results	
Percentiles	dBA
Leq	67.2
Lmax	88.7
Lmin	49.1
L2	72.8
L8	64.7
L25	65.8
L50	60.3
Other	
SEL/CNEL	

Observed Noise Sources/Events		
Time	Noise Source Event	dBA

Data File: 177 ☒ Photos: _____

Comments (sound walls, height, etc..) N/A

Max Wind Velocity (knots/hr)	Average Wind Velocity (knots/hr)	Temperature (F)	Relative Humidity (%)
	14 mph	70°	14%

Traffic counts in both directions:

Roadway	# Lanes	Posted Speed	Autos	MD	HD

Measurement Report

Report Summary

Meter's File Name	LxT_Data.175.s	Computer's File Name	LxT_0005424-20260305 153520-LxT_Data.175.ldbin
Meter	LxT1 0005424	Firmware	2.404
User	AC	Location	ST-3
Job Description	FSD-47		
Note			

Start Time	2026-03-05 15:35:20	Duration	0:15:00.0		
End Time	2026-03-05 15:50:20	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2026-03-05 15:33:00	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	67.1 dB		
LAE	96.6 dB	SEA	--- dB
EA	512.9 µPa²h		
EA8	16.4 mPa²h		
EA40	82.1 mPa²h		
LAS_{peak}	102.4 dB	2026-03-05 15:40:26	
LAS_{max}	84.2 dB	2026-03-05 15:40:03	
LAS_{min}	49.0 dB	2026-03-05 15:41:46	
LA_{eq}	67.1 dB		
LC_{eq}	77.7 dB	LC_{eq} - LA_{eq}	10.6 dB
LAI_{eq}	69.8 dB	LAI_{eq} - LA_{eq}	2.7 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LASpk > 135.0 dB	0	0:00:00.0
LASpk > 137.0 dB	0	0:00:00.0
LASpk > 140.0 dB	0	0:00:00.0

Community Noise

L_{DN}	L_{Day}	L_{Night}
--- dB	--- dB	0.0 dB

L_{DEN}	L_{Day}	L_{Eve}	L_{Night}
--- dB	--- dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	67.1 dB		--- dB		--- dB	
$L_{S(max)}$	84.2 dB	2026-03-05 15:40:03	--- dB	None	--- dB	None
$L_{S(min)}$	49.0 dB	2026-03-05 15:41:46	--- dB	None	--- dB	None
$L_{Peak(max)}$	102.4 dB	2026-03-05 15:40:26	--- dB	None	--- dB	None

Overloads

Count	Duration
0	0:00:00.0

Statistics

LAS 2.0	73.9 dB
LAS 8.0	70.3 dB
LAS 25.0	67.1 dB
LAS 50.0	64.0 dB
LAS 90.0	57.0 dB
LAS 99.0	52.8 dB

Time History



Project Name: _____ Date: 3-5-26

Project Number: FSD-47 Monitoring Personnel: AC

Monitoring Site #: ST #3 Time Start: 3:35 End: 3:50

Site Location/Address: At Rear of Campus

Primary Noise Source: Cars driving by (Student pickup); Idle cars, students walking + talking as they pass by; high winds ↔ / Trees / shrubs, Crows

Measurement Results	
Percentiles	dBA
Leq	67.1
Lmax	84.2
Lmin	49.0
L2	73.9
L8	70.3
L25	67.1
L50	64.0
Other	
SEL/CNEL	

Observed Noise Sources/Events		
Time	Noise Source Event	dBA
2:35	School bus pass-by	~~76.4~~
4:41	loud exhaust car	84

Data File: 175 ☑ Photos: _____

Comments (sound walls, height, etc..) 43 m to "School speed limit sign"; 93m to Stop sign @ Mt Pike Hwy & Knox Ave.

Max Wind Velocity (knots/hr)	Average Wind Velocity (knots/hr)	Temperature (F)	Relative Humidity (%)
	14mph ↓S	68°	12%

Traffic counts in both directions:

Roadway	# Lanes	Posted Speed	Autos	MD	HD

34 °N, **117.41** °W

Jurupa Valley, CA Weather History

78° FLABOB STATION (/DASHBOARD/PWS/KCAJURUP20?CM_VEN=LOCALWX_PWSDASH) | CHANGE

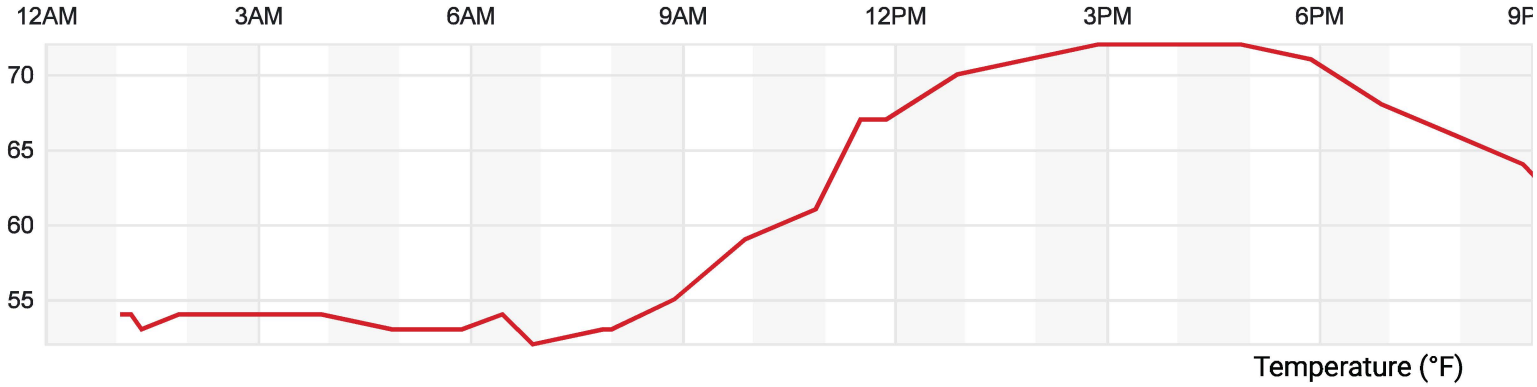
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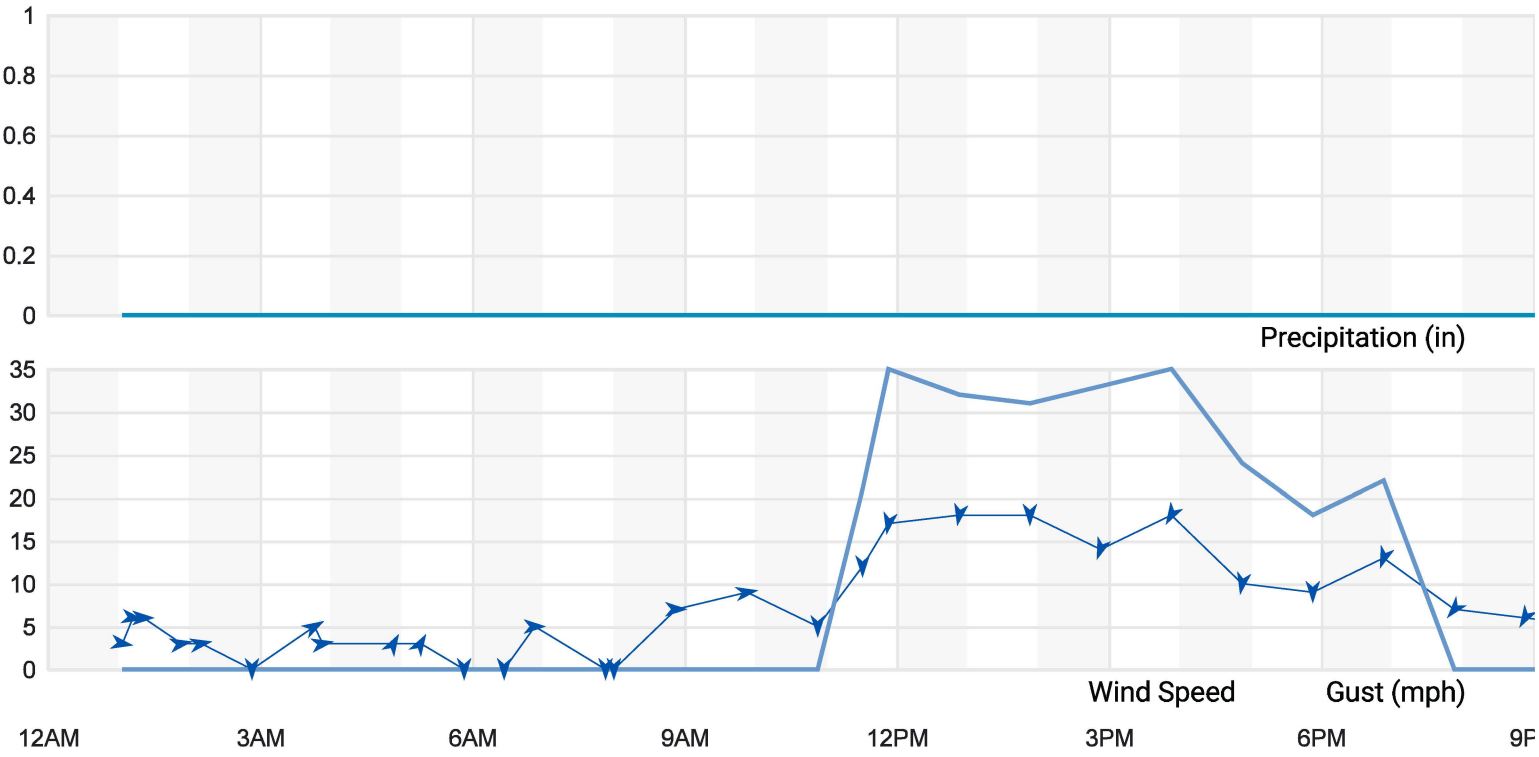
- TODAY (/WEATHER/US/CA/JURUPA-VALLEY/KRIR)
- HOURLY (/HOURLY/US/CA/JURUPA-VALLEY/KRIR)
- 10-DAY (/FORECAST/US/CA/JURUPA-VALLEY/KRIR)
- CALENDAR (/CALENDAR/US/CA/JURUPA-VALLEY/KRIR)
- HISTORY (/HISTORY/DAILY/US/CA/JURUPA-VALLEY/KRIR)
- WUNDERMAP (/WUNDERMAP?LAT=33.997&LON=-117.407)

Daily | Weekly | Monthly

(/history/daily/us/ca/jurupa-valley/KRIR/date/2026-3-5) (/history/weekly/us/ca/jurupa-valley/KRIR/date/2026-3-5) (/history/monthly/us/ca/jurupa-valley/KRIR/date/2026-3)

March | 5 | 2026 | View





Summary

Temperature (°F)	Actual	Historic Avg.	Record
High Temp	72	71	93
Low Temp	52	45.3	26
Day Average Temp	59.55	58.2	-
Precipitation (in)	Actual	Historic Avg.	Record
Precipitation (past 24 hours from 08:03:00)	0.00	5.50	-
Dew Point (°F)	Actual	Historic Avg.	Record
Dew Point	36.88	-	-
High	53	-	-
Low	9	-	-
Average	36.88	-	-
Wind (mph)	Actual	Historic Avg.	Record
Max Wind Speed	18	-	-

Temperature (°F)	Actual	Historic Avg.	Record
Visibility	10	-	-

Sea Level Pressure (in)	Actual	Historic Avg.	Record
Sea Level Pressure	29.11	-	-

Astronomy	Day Length	Rise	Set
Actual Time	11h 35m	6:14 AM	5:50 PM
Civil Twilight		5:49 AM	6:15 PM
Nautical Twilight		5:20 AM	6:44 PM
Astronomical Twilight		4:51 AM	7:13 PM
Moon: waning gibbous		8:22 PM	7:12 AM

Daily Observations

Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
1:03 AM	54 °F	52 °F	93 %	W	3 mph	0 mph	29.07 in	0.0 in	Mostly Cloudy
1:12 AM	54 °F	52 °F	93 %	W	6 mph	0 mph	29.07 in	0.0 in	Cloudy
1:21 AM	53 °F	52 °F	96 %	W	6 mph	0 mph	29.07 in	0.0 in	Cloudy
1:53 AM	54 °F	53 °F	97 %	W	3 mph	0 mph	29.06 in	0.0 in	Mist
2:10 AM	54 °F	53 °F	97 %	W	3 mph	0 mph	29.06 in	0.0 in	Cloudy
2:53 AM	54 °F	53 °F	97 %	CALM	0 mph	0 mph	29.04 in	0.0 in	Mist
3:46 AM	54 °F	52 °F	93 %	WSW	5 mph	0 mph	29.04 in	0.0 in	Cloudy
3:53 AM	54 °F	52 °F	93 %	W	3 mph	0 mph	29.03 in	0.0 in	Cloudy
4:53 AM	53 °F	51 °F	93 %	SSW	3 mph	0 mph	29.03 in	0.0 in	Cloudy
5:16 AM	53 °F	51 °F	93 %	SSW	3 mph	0 mph	29.02 in	0.0 in	Mostly Cloudy
5:53 AM	53 °F	51 °F	93 %	CALM	0 mph	0 mph	29.02 in	0.0 in	Cloudy

Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
6:27 AM	54 °F	51 °F	90 %	CALM	0 mph	0 mph	29.02 in	0.0 in	Partly Cloudy
6:53 AM	52 °F	50 °F	93 %	W	5 mph	0 mph	29.02 in	0.0 in	Fair
7:53 AM	53 °F	51 °F	93 %	CALM	0 mph	0 mph	29.04 in	0.0 in	Fair
8:00 AM	53 °F	50 °F	89 %	CALM	0 mph	0 mph	29.04 in	0.0 in	Mist
8:53 AM	55 °F	51 °F	86 %	W	7 mph	0 mph	29.07 in	0.0 in	Mist
9:53 AM	59 °F	50 °F	72 %	W	9 mph	0 mph	29.09 in	0.0 in	Partly Cloudy
10:53 AM	61 °F	48 °F	62 %	VAR	5 mph	0 mph	29.09 in	0.0 in	Fair
11:31 AM	67 °F	35 °F	31 %	N	12 mph	21 mph	29.09 in	0.0 in	Fair
11:53 AM	67 °F	28 °F	23 %	N	17 mph	35 mph	29.08 in	0.0 in	Fair
12:53 PM	70 °F	30 °F	23 %	N	18 mph	32 mph	29.05 in	0.0 in	Fair
1:53 PM	71 °F	24 °F	17 %	N	18 mph	31 mph	29.05 in	0.0 in	Fair
2:53 PM	72 °F	18 °F	13 %	NNE	14 mph	33 mph	29.04 in	0.0 in	Fair
3:53 PM	72 °F	16 °F	12 %	NNE	18 mph	35 mph	29.03 in	0.0 in	Fair
4:53 PM	72 °F	12 °F	10 %	N	10 mph	24 mph	29.02 in	0.0 in	Fair
5:53 PM	71 °F	12 °F	10 %	N	9 mph	18 mph	29.02 in	0.0 in	Fair
6:53 PM	68 °F	9 °F	10 %	NNE	13 mph	22 mph	29.04 in	0.0 in	Fair
7:53 PM	66 °F	11 °F	12 %	NE	7 mph	0 mph	29.05 in	0.0 in	Fair
8:53 PM	64 °F	12 °F	13 %	NNE	6 mph	0 mph	29.07 in	0.0 in	Fair
9:53 PM	59 °F	18 °F	20 %	ENE	5 mph	0 mph	29.10 in	0.0 in	Fair
10:53 PM	58 °F	18 °F	21 %	NNE	7 mph	0 mph	29.11 in	0.0 in	Fair
11:53 PM	58 °F	24 °F	27 %	NE	7 mph	0 mph	29.11 in	0.0 in	Fair
12:53 AM	53 °F	27 °F	37 %	ENE	5 mph	0 mph	29.10 in	0.0 in	Fair

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34 °N, **117.41** °W

Jurupa Valley, CA Weather History

77° FLABOB STATION (/DASHBOARD/PWS/KCAJURUP20?CM_VEN=LOCALWX_PWSDASH) | CHANGE

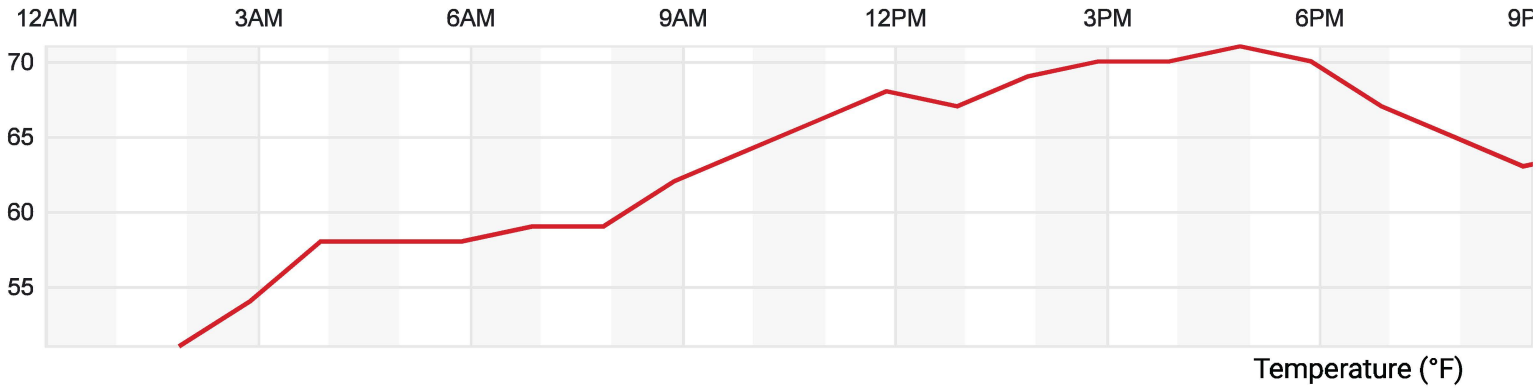
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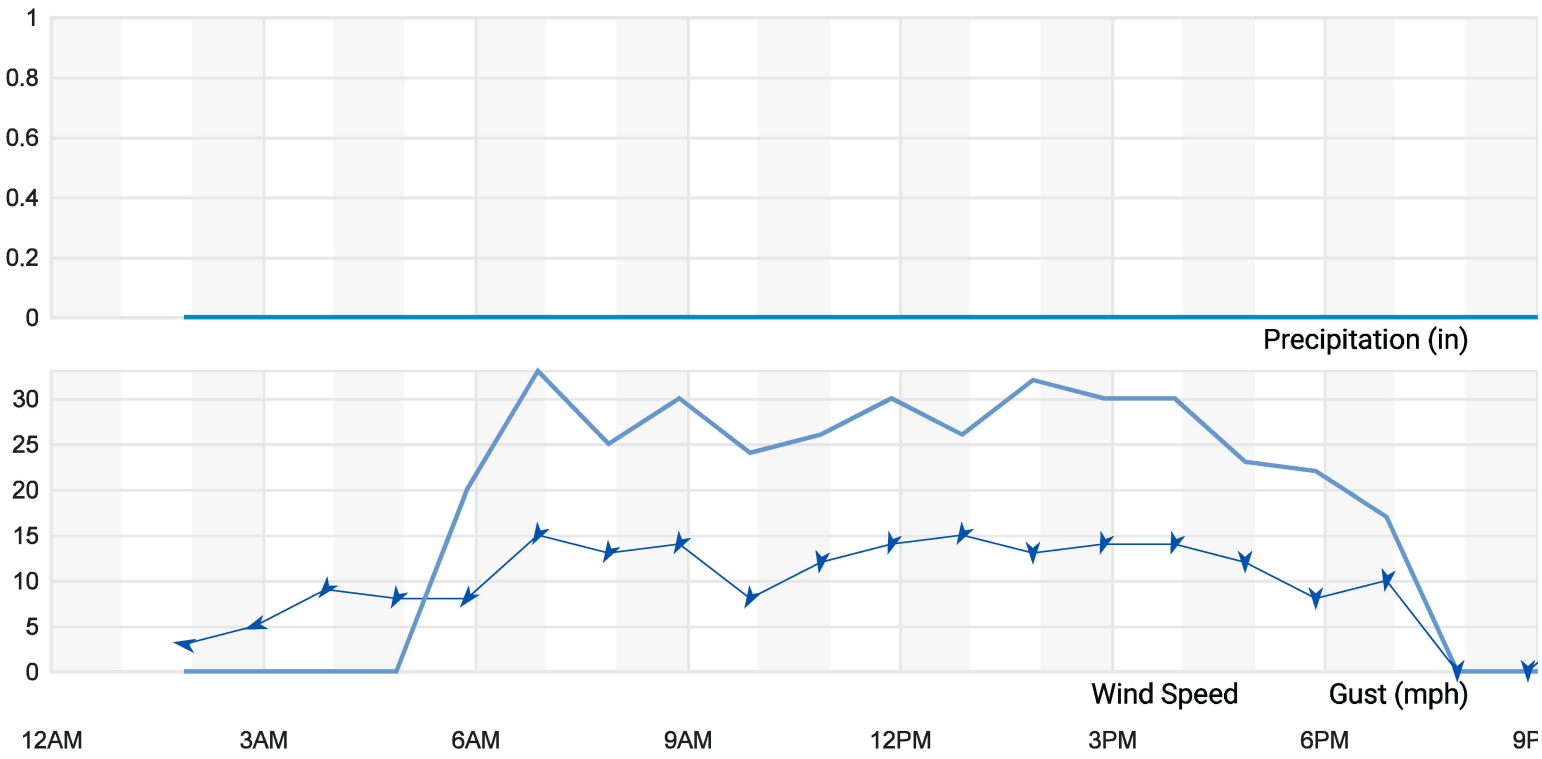
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- HOURLY (/HOURLY/US/CA/JURUPA-VALLEY/KRIR)
- 10-DAY (/FORECAST/US/CA/JURUPA-VALLEY/KRIR)
- CALENDAR (/CALENDAR/US/CA/JURUPA-VALLEY/KRIR)
- HISTORY (/HISTORY/DAILY/US/CA/JURUPA-VALLEY/KRIR)
- WUNDERMAP (/WUNDERMAP?LAT=33.997&LON=-117.407)

Daily | Weekly | Monthly

(/history/daily/us/ca/jurupa-valley/KRIR/date/2026-3-6) (/history/weekly/us/ca/jurupa-valley/KRIR/date/2026-3-6) (/history/monthly/us/ca/jurupa-valley/KRIR/date/2026-3)

March | 6 | 2026 | View





Summary

Temperature (°F)	Actual	Historic Avg.	Record
High Temp	71	71.2	88
Low Temp	51	45.4	28
Day Average Temp	62.96	58.3	-

Precipitation (in)	Actual	Historic Avg.	Record
Precipitation (past 24 hours from 08:53:00)	0.00	5.50	-

Dew Point (°F)	Actual	Historic Avg.	Record
Dew Point	19.71	-	-
High	29	-	-
Low	14	-	-
Average	19.71	-	-

Wind (mph)	Actual	Historic Avg.	Record
Max Wind Speed	15	-	-

Temperature (°F)	Actual	Historic Avg.	Record
Visibility	10	-	-

Sea Level Pressure (in)	Actual	Historic Avg.	Record
Sea Level Pressure	29.18	-	-

Astronomy	Day Length	Rise	Set
Actual Time	11h 37m	6:13 AM	5:51 PM
Civil Twilight		5:48 AM	6:16 PM
Nautical Twilight		5:19 AM	6:45 PM
Astronomical Twilight		4:50 AM	7:14 PM
Moon: waning gibbous		9:22 PM	7:39 AM

Daily Observations

Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
1:53 AM	51 °F	29 °F	43 %	E	3 mph	0 mph	29.09 in	0.0 in	Fair
2:53 AM	54 °F	28 °F	37 %	ENE	5 mph	0 mph	29.09 in	0.0 in	Fair
3:53 AM	58 °F	25 °F	28 %	NE	9 mph	0 mph	29.09 in	0.0 in	Fair
4:53 AM	58 °F	24 °F	27 %	NNE	8 mph	0 mph	29.11 in	0.0 in	Fair
5:53 AM	58 °F	23 °F	26 %	NE	8 mph	20 mph	29.13 in	0.0 in	Fair
6:53 AM	59 °F	21 °F	23 %	NNE	15 mph	33 mph	29.14 in	0.0 in	Fair
7:53 AM	59 °F	20 °F	22 %	NNE	13 mph	25 mph	29.16 in	0.0 in	Fair
8:53 AM	62 °F	20 °F	20 %	NNE	14 mph	30 mph	29.17 in	0.0 in	Fair
9:53 AM	64 °F	19 °F	18 %	NNE	8 mph	24 mph	29.18 in	0.0 in	Fair
10:53 AM	66 °F	19 °F	17 %	N	12 mph	26 mph	29.18 in	0.0 in	Fair
11:53 AM	68 °F	20 °F	16 %	NNE	14 mph	30 mph	29.18 in	0.0 in	Fair

Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
12:53 PM	67 °F	19 °F	16 %	NNE	15 mph	26 mph	29.16 in	0.0 in	Fair
1:53 PM	69 °F	18 °F	14 %	N	13 mph	32 mph	29.15 in	0.0 in	Fair
2:53 PM	70 °F	19 °F	14 %	NNE	14 mph	30 mph	29.13 in	0.0 in	Fair
3:53 PM	70 °F	18 °F	14 %	NNE	14 mph	30 mph	29.13 in	0.0 in	Fair
4:53 PM	71 °F	18 °F	13 %	N	12 mph	23 mph	29.12 in	0.0 in	Fair
5:53 PM	70 °F	17 °F	13 %	N	8 mph	22 mph	29.11 in	0.0 in	Fair
6:53 PM	67 °F	18 °F	15 %	N	10 mph	17 mph	29.12 in	0.0 in	Fair
7:53 PM	65 °F	16 °F	15 %	CALM	0 mph	0 mph	29.15 in	0.0 in	Fair
8:53 PM	63 °F	16 °F	16 %	CALM	0 mph	0 mph	29.14 in	0.0 in	Fair
9:53 PM	64 °F	14 °F	14 %	NE	7 mph	0 mph	29.15 in	0.0 in	Fair
10:53 PM	60 °F	16 °F	18 %	NE	3 mph	0 mph	29.16 in	0.0 in	Fair
11:53 PM	59 °F	18 °F	20 %	CALM	0 mph	0 mph	29.15 in	0.0 in	Fair
12:53 AM	59 °F	18 °F	20 %	NNE	6 mph	0 mph	29.15 in	0.0 in	Fair

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CONSTRUCTION MODELING RESULTS

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 03/25/2026
Case Description: FSD-47 Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor	Residential	80.0	80.0	80.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		50.0	0.0
Grader	No	40	85.0		50.0	0.0
Dozer	No	40		81.7	50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night 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
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
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: 03/25/2026
Case Description: FSD-47 Site Preparation

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor	Residential	80.0	80.0	80.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	50.0	0.0
Tractor	No	40	84.0		50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	Day		Evening		Night		Day		Evening		Night			
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
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	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: 03/25/2026
Case Description: FSD-47 Building Construction

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor	Residential	80.0	80.0	80.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Generator	No	50		80.6	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	80.6	72.6	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
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	84.0	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

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 03/25/2026
Case Description: FSD-47 Architectural Coating

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor	Residential	80.0	80.0	80.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) 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: 03/25/2026
Case Description: FSD-47 Paving

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor	Residential	80.0	80.0	80.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	50.0	0.0
Roller	No	20		80.0	50.0	0.0
Concrete Mixer Truck	No	40		78.8	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (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
Roller	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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
Total	80.0	78.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

FSD-47 - Summit HS Construction Noise Modeling Attenuation Calculations - Field Improvements

Levels in dBA Leq

Phase	RCNM Reference Noise Level	Receptor to North	Receptor to South	Receptor to East	Receptor to West
Distance in feet	*50*	*300*	*1100*	*150*	*600*
Site Prep	82	66	55	72	60
Grading	85	69	58	75	63
Distance in feet	*50*	*330*	*1100*	*150*	*570*
Building Construction	83	66	56	73	61
Architectural Coating	74	57	47	64	53
Distance in feet	*50*	*830*	*1100*	*900*	*470*
Paving	80	55	53	55	60

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006.

~~2~~ Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2018.

Leq(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

Attenuation calculated through Inverse Square Law: Lp(R2) = Lp(R1) - 20Log(R2/R1)

FSD-47 - Summit HS Vibration Damage Attenuation Calculations

Levels, PPV (in/sec)

Distance in feet	**Vibration Reference Level at *25 feet***	**Receptor to North** *185*	**Receptor to East** *110*	**Receptor to South** *1100*	**Receptor to West** *575*
Vibratory Roller (large)	0.210	0.010	0.023	0.001	0.002
Large Bulldozer	0.089	0.004	0.010	0.000	0.001
Loaded Trucks	0.076	0.004	0.008	0.000	0.001
Crane (Mobile)	0.051	0.003	0.006	0.000	0.000
Grader	0.051	0.003	0.006	0.000	0.000
Loader	0.051	0.003	0.006	0.000	0.000
Concrete Mixer	0.046	0.002	0.005	0.000	0.000
Paver	0.046	0.002	0.005	0.000	0.000

Source: FTA 2018, CalTrans 2020.

[1]As measured from the nearest equipment activity area to structure/building facade.

PPV= PPV ref * (25/D)^n (in/sec)

PPV = reference measurement at 25 feet from vibration source

D = distance from equipment to property line

N = vibration attenuation rate through ground

TRAFFIC MODELING RESULTS

Traffic Noise Calculator: FHWA 77-108

Summit High School Field Improvements Project (FSD-47) Existing 2026 Traffic Noise Traffic Conditions

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour				Segment														
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	From - To		ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	67.8	70.6	71.3	61	131	282	Summit Avenue	Knox Avenue	Lytle Creek Road	17,884	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
2	68.1	70.9	71.6	63	137	294	Summit Avenue	Lytle Creek Road	the West	19,118	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
3	55.6	58.4	59.1	9	20	44	Lytle Creek Road	Summit Avenue	Ford Way	3,871	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
4	56.0	58.7	59.4	10	21	46	Lytle Creek Road	Ford Way	the South	4,169	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20

Traffic Noise Calculator: FHWA 77-108 — **Summit High School Field Improvements Project (FSD-47) Existing 2026 With Project Traffic Noise Traffic Conditions**

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour				Segment														
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	From - To		ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	67.9	70.7	71.4	62	133	286	Summit Avenue	Knox Avenue	Lytle Creek Road	18,256	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
2	68.2	71.0	71.7	64	139	299	Summit Avenue	Lytle Creek Road	the West	19,583	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
3	56.1	58.9	59.6	10	22	47	Lytle Creek Road	Summit Avenue	Ford Way	4,336	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
4	56.1	58.8	60	10	22	47	Lytle Creek Road	Ford Way	the South	4,262	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20

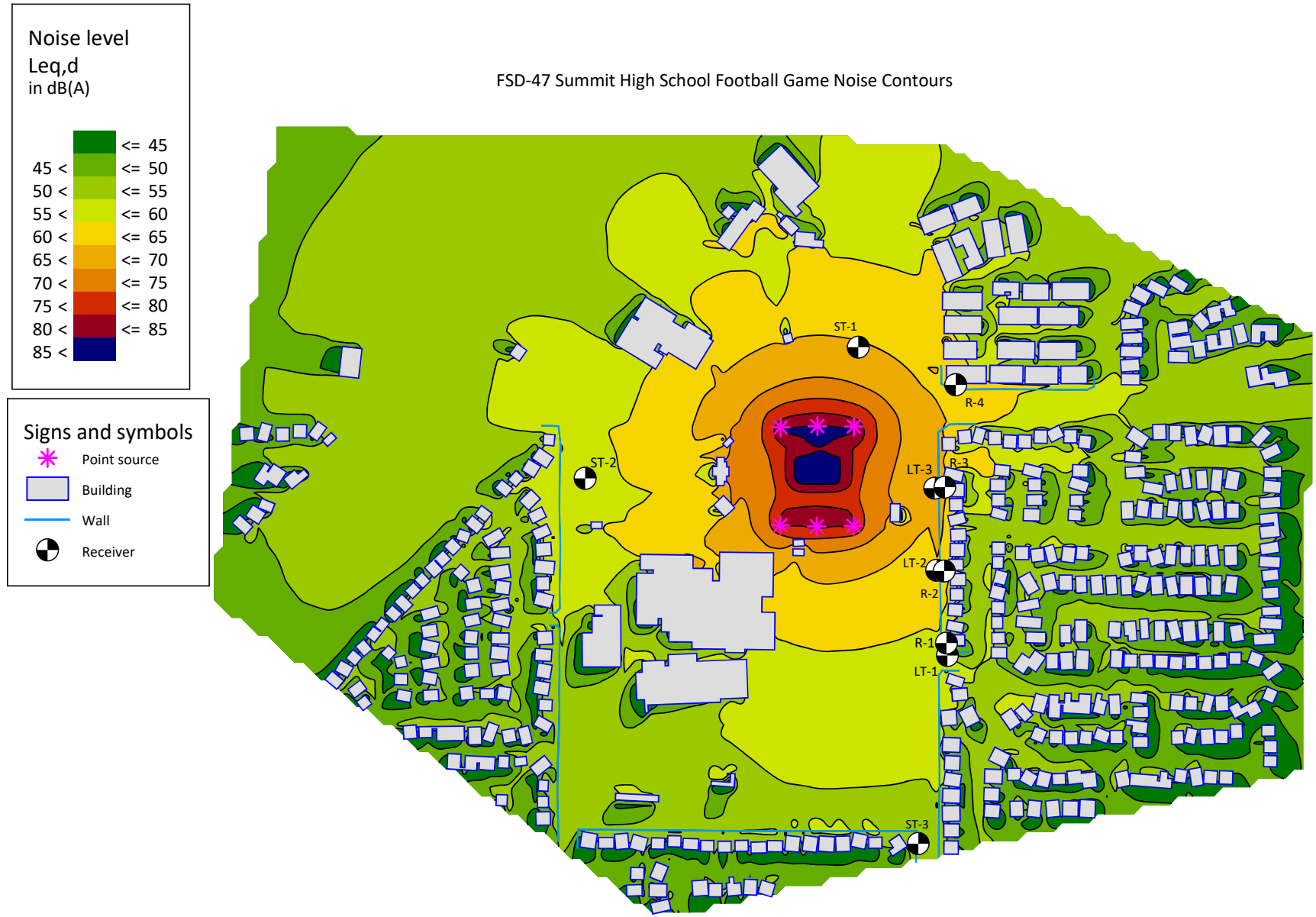
Traffic Noise Calculator: FHWA 77-108 — **Summit High School Field Improvements Project (FSD-47) Opening Year 2027 No Project Traffic Noise Traffic Conditions**

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour				Segment From - To														
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway			ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	67.8	70.6	71.3	61	132	284	Summit Avenue	Knox Avenue	Lytle Creek Road	18,063	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
2	68.1	70.9	71.6	64	138	296	Summit Avenue	Lytle Creek Road	the West	19,309	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
3	55.7	58.5	59.2	9	20	44	Lytle Creek Road	Summit Avenue	Ford Way	3,910	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
4	56.0	58.8	59.5	10	21	46	Lytle Creek Road	Ford Way	the South	4,210	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20

Traffic Noise Calculator: FHWA 77-108 — **Summit High School Field Improvements Project (FSD-47) Opening Year 2027 with Project Traffic Noise Traffic Conditions**

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour				Segment														
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	From - To		ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	67.9	70.7	71.4	62	133	287	Summit Avenue	Knox Avenue	Lytle Creek Road	18,435	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
2	68.2	71.0	71.7	65	140	301	Summit Avenue	Lytle Creek Road	the West	19,774	45	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	4	Soft	50	0.5	44
3	56.2	59.0	59.6	10	22	47	Lytle Creek Road	Summit Avenue	Ford Way	4,375	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20
4	56.1	58.9	59.6	10	22	47	Lytle Creek Road	Ford Way	the South	4,303	25	0.0%	96.0%	2.5%	1.5%	75.0%	15.0%	10.0%	2	Soft	50	0.5	20

FSD-47 Summit High School Football Game Noise Contours



Summit High School Stadium Project
Assessed receiver levels
FSD-47 Full Capacity Stadium

2

Receiver	Usage	Fl	Leq,d dB(A)	Leq,n dB(A)	
LT-1	SCR	G	56.8	56.8	
LT-2	SCR	G	63.7	63.7	
LT-3	SCR	G	66.9	66.9	
R-1	SCR	G	59.4	59.4	
R-2	SCR	G	62.2	62.2	
R-3	SCR	G	65.4	65.4	
R-4	SCR	G	64.7	64.7	
ST-1	SCR	G	65.6	65.6	
ST-2	SCR	G	58.6	58.6	
ST-3	SCR	G	50.4	50.4	

Source	Source group	Source ty	Leq,d dB(A)	Leq,n dB(A)	
Receiver LT-1 Fl G Leq,d 56.8 dB(A) Leq,n 56.8 dB(A)					
Band	Band	Area	43.1	43.1	
Visitor Bleachers	Bleachers South	Area	51.6	51.6	
Home Bleachers	Bleachers North	Area	51.6	51.6	
Playfield	Playfield	Area	26.2	26.2	
Ref's Whistle	Refs Whistle	Area	50.0	50.0	
N1	Speakers	Point	42.6	42.6	
S1	Speakers	Point	38.9	38.9	
S2	Speakers	Point	39.4	39.4	
S3	Speakers	Point	41.7	41.7	
N2	Speakers	Point	40.8	40.8	
N3	Speakers	Point	37.8	37.8	
Receiver LT-2 Fl G Leq,d 63.7 dB(A) Leq,n 63.7 dB(A)					
Band	Band	Area	51.5	51.5	
Visitor Bleachers	Bleachers South	Area	58.9	58.9	
Home Bleachers	Bleachers North	Area	57.7	57.7	
Playfield	Playfield	Area	33.4	33.4	
Ref's Whistle	Refs Whistle	Area	57.2	57.2	
N1	Speakers	Point	49.0	49.0	
S1	Speakers	Point	47.2	47.2	
S2	Speakers	Point	45.4	45.4	
S3	Speakers	Point	48.4	48.4	
N2	Speakers	Point	46.8	46.8	
N3	Speakers	Point	44.2	44.2	
Receiver LT-3 Fl G Leq,d 66.9 dB(A) Leq,n 66.9 dB(A)					
Band	Band	Area	58.3	58.3	
Visitor Bleachers	Bleachers South	Area	58.9	58.9	
Home Bleachers	Bleachers North	Area	61.8	61.8	
Playfield	Playfield	Area	37.8	37.8	
Ref's Whistle	Refs Whistle	Area	61.7	61.7	
N1	Speakers	Point	50.0	50.0	
S1	Speakers	Point	50.1	50.1	
S2	Speakers	Point	48.1	48.1	
S3	Speakers	Point	48.1	48.1	
N2	Speakers	Point	48.1	48.1	
N3	Speakers	Point	47.6	47.6	

Source	Source group	Source ty	Leq,d dB(A)	Leq,n dB(A)	
Receiver R-1 Fl G Leq,d 59.4 dB(A) Leq,n 59.4 dB(A)					
Band	Band	Area	46.7	46.7	
Visitor Bleachers	Bleachers South	Area	52.8	52.8	
Home Bleachers	Bleachers North	Area	55.7	55.7	
Playfield	Playfield	Area	27.7	27.7	
Ref's Whistle	Refs Whistle	Area	51.8	51.8	
N1	Speakers	Point	43.8	43.8	
S1	Speakers	Point	41.2	41.2	
S2	Speakers	Point	40.4	40.4	
S3	Speakers	Point	43.5	43.5	
N2	Speakers	Point	43.2	43.2	
N3	Speakers	Point	40.6	40.6	
Receiver R-2 Fl G Leq,d 62.2 dB(A) Leq,n 62.2 dB(A)					
Band	Band	Area	48.9	48.9	
Visitor Bleachers	Bleachers South	Area	55.6	55.6	
Home Bleachers	Bleachers North	Area	58.3	58.3	
Playfield	Playfield	Area	31.3	31.3	
Ref's Whistle	Refs Whistle	Area	55.4	55.4	
N1	Speakers	Point	45.9	45.9	
S1	Speakers	Point	44.5	44.5	
S2	Speakers	Point	43.1	43.1	
S3	Speakers	Point	45.9	45.9	
N2	Speakers	Point	44.2	44.2	
N3	Speakers	Point	42.6	42.6	
Receiver R-3 Fl G Leq,d 65.4 dB(A) Leq,n 65.4 dB(A)					
Band	Band	Area	53.2	53.2	
Visitor Bleachers	Bleachers South	Area	57.9	57.9	
Home Bleachers	Bleachers North	Area	61.6	61.6	
Playfield	Playfield	Area	35.7	35.7	
Ref's Whistle	Refs Whistle	Area	59.7	59.7	
N1	Speakers	Point	46.5	46.5	
S1	Speakers	Point	46.9	46.9	
S2	Speakers	Point	45.3	45.3	
S3	Speakers	Point	45.4	45.4	
N2	Speakers	Point	45.2	45.2	
N3	Speakers	Point	44.8	44.8	

Source	Source group	Source ty	Leq,d dB(A)	Leq,n dB(A)	
Receiver R-4 Fl G Leq,d 64.7 dB(A) Leq,n 64.7 dB(A)					
Band	Band	Area	53.6	53.6	
Visitor Bleachers	Bleachers South	Area	54.9	54.9	
Home Bleachers	Bleachers North	Area	61.8	61.8	
Playfield	Playfield	Area	34.4	34.4	
Ref's Whistle	Refs Whistle	Area	58.5	58.5	
N1	Speakers	Point	44.2	44.2	
S1	Speakers	Point	45.4	45.4	
S2	Speakers	Point	44.7	44.7	
S3	Speakers	Point	42.8	42.8	
N2	Speakers	Point	42.9	42.9	
N3	Speakers	Point	45.6	45.6	
Receiver ST-1 Fl G Leq,d 65.6 dB(A) Leq,n 65.6 dB(A)					
Band	Band	Area	54.6	54.6	
Visitor Bleachers	Bleachers South	Area	53.9	53.9	
Home Bleachers	Bleachers North	Area	63.4	63.4	
Playfield	Playfield	Area	34.2	34.2	
Ref's Whistle	Refs Whistle	Area	58.2	58.2	
N1	Speakers	Point	46.0	46.0	
S1	Speakers	Point	46.8	46.8	
S2	Speakers	Point	47.8	47.8	
S3	Speakers	Point	45.5	45.5	
N2	Speakers	Point	46.8	46.8	
N3	Speakers	Point	47.6	47.6	
Receiver ST-2 Fl G Leq,d 58.6 dB(A) Leq,n 58.6 dB(A)					
Band	Band	Area	49.0	49.0	
Visitor Bleachers	Bleachers South	Area	50.5	50.5	
Home Bleachers	Bleachers North	Area	54.7	54.7	
Playfield	Playfield	Area	27.6	27.6	
Ref's Whistle	Refs Whistle	Area	51.1	51.1	
N1	Speakers	Point	41.6	41.6	
S1	Speakers	Point	40.3	40.3	
S2	Speakers	Point	40.5	40.5	
S3	Speakers	Point	42.9	42.9	
N2	Speakers	Point	40.6	40.6	
N3	Speakers	Point	46.9	46.9	

Source	Source group	Source ty	Leq,d dB(A)	Leq,n dB(A)	
Receiver ST-3 Fl G Leq,d 50.4 dB(A) Leq,n 50.4 dB(A)					
Band	Band	Area	37.8	37.8	
Visitor Bleachers	Bleachers South	Area	43.5	43.5	
Home Bleachers	Bleachers North	Area	46.7	46.7	
Playfield	Playfield	Area	17.5	17.5	
Ref's Whistle	Refs Whistle	Area	41.6	41.6	
N1	Speakers	Point	36.2	36.2	
S1	Speakers	Point	31.9	31.9	
S2	Speakers	Point	33.5	33.5	
S3	Speakers	Point	33.5	33.5	
N2	Speakers	Point	37.3	37.3	
N3	Speakers	Point	35.4	35.4	

Summit High School Stadium Project
Octave spectra of the sources in dB(A) - FSD-47 Full Capacity Stadium

Name	Source type	l or A	Rw	L'w	Lw	KI	KT	Day histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz	
		m,m²	dB	dB(A)	dB(A)	dB	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
Band	Area	62.44		102.0	120.0	0.0	0.0	Band during Game 20% = 12 minutes	Live bands (Pop, Rock, Metal)	105.5	105.0	109.6	114.5	115.3	111.9	107.2	99.7	81.6	
Home Bleachers	Area	1030.34		93.9	124.0	0.0	0.0	Crowd during Game 10 min 60*10 sec	Spectator area (seats)				124.0						
N1	Point			115.0	115.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	86.7	101.3	104.1	109.7	110.4	107.2	102.0	95.7	74.3	
N2	Point			115.0	115.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	86.7	101.3	104.1	109.7	110.4	107.2	102.0	95.7	74.3	
N3	Point			115.0	115.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	86.7	101.3	104.1	109.7	110.4	107.2	102.0	95.7	74.3	
Playfield	Area	5329.44		56.7	94.0	0.0	0.0	Sporting Event	American Football, Players				94.0						
Ref's Whistle	Area	2528.03		84.0	118.0	0.0	0.0	Sporting Event	Referee whistle				118.0						
S1	Point			115.0	115.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	86.7	101.3	104.1	109.7	110.4	107.2	102.0	95.7	74.3	
S2	Point			115.0	115.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	86.7	101.3	104.1	109.7	110.4	107.2	102.0	95.7	74.3	
S3	Point			115.0	115.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	86.7	101.3	104.1	109.7	110.4	107.2	102.0	95.7	74.3	
Visitor Bleachers	Area	779.71		91.1	120.0	0.0	0.0	Crowd during Game 10 min 60*10 sec	Spectator area (seats)				120.0						

Appendix D Transportation Analysis Study

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SUMMIT HIGH SCHOOL

FIELD IMPROVEMENTS PROJECT

TRANSPORTATION ANALYSIS STUDY

Prepared for:
PlaceWorks

Prepared by:
DJ&A

April 17, 2026

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Appendix A – Average Daily Traffic Roadway Segment Counts

1. Project Description

The proposed Summit High School Field Improvements Project would improve the school's existing track and field facility to meet the requirements of CIF play for football. Proposed improvements include replacement and expansion of the existing bleachers; a new press box; six new Musco field lights; new team rooms; new entry building; fire access improvements; and landscaping improvements. The proposed project would allow for Summit HS football games that are currently played at A.B. Miller to be played on their home field. The proposed project would result in expanded hours and use of the field and accommodate more spectators on-site compared to existing conditions. The project would not result in a change to student enrollment numbers or capacity at the high school.

1.1 New Buildings

The proposed project would include a new 4,592 square foot (sf) Entry Building on the western side of the track and field; a 1,370 sf Visitor Team Building on the northwestern side of the track and field; a 2,567 sf Home Team Building on the southeastern corner of the track and field; and a new 3,591 sf Cheer/Wrestling Team Building on the southwest part of the track and field.

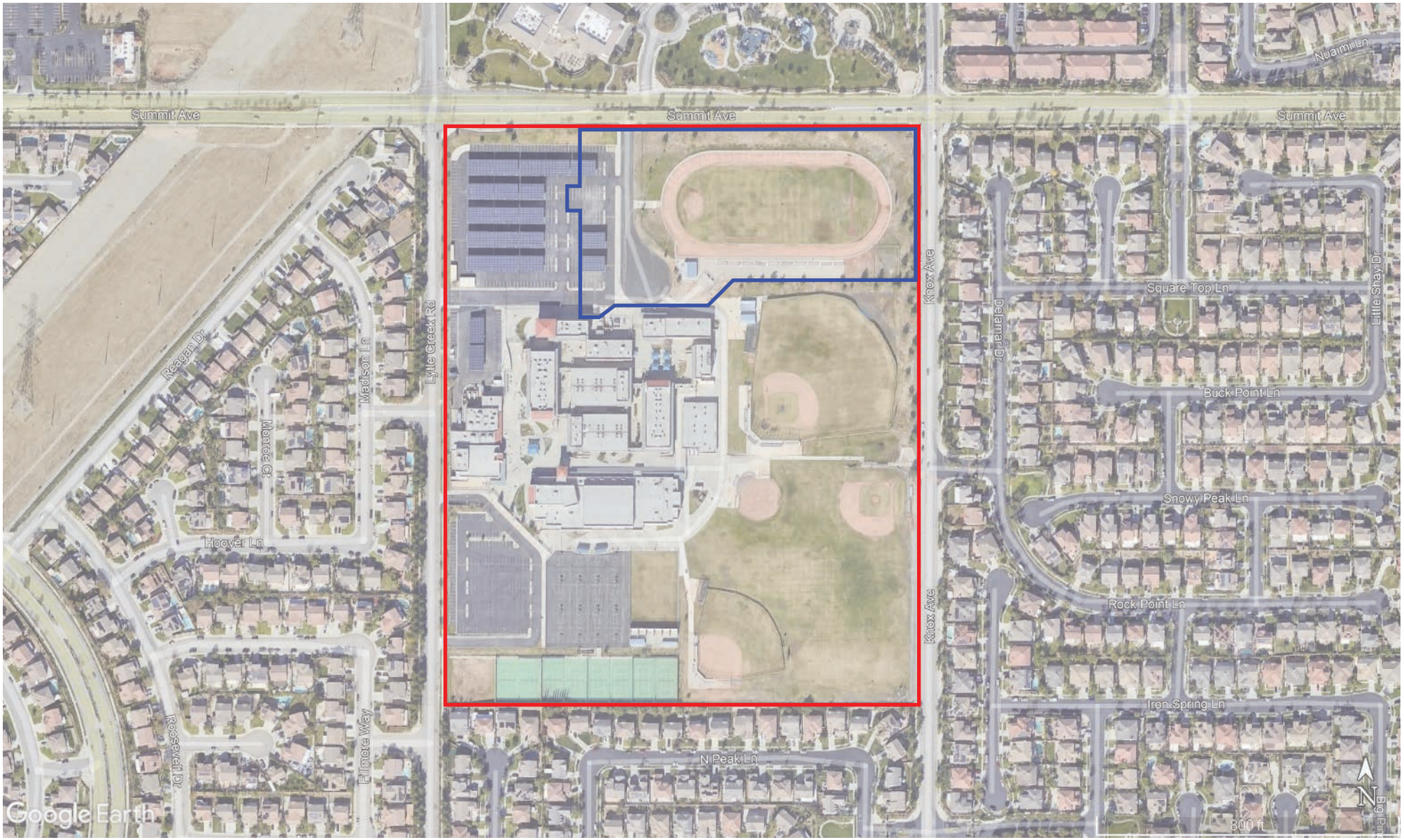
The entry building would serve as the entrance to the existing football stadium from the parking lot to the west, and includes the ticket booth, concession stands, and restrooms. The home and visitor team buildings would each include locker rooms and team restrooms. The cheer and wrestling building would also serve as an athletic training room and activities building for all school sports. Figure 1 shows the proposed project location and elements of the project.

1.2 Bleachers

The proposed project includes the installation of new permanent bleachers on the home and visitor side of the existing football stadium. The expanded bleachers would accommodate approximately 3,624 spectators, which is an increase of 3,224 attendees in capacity from the current temporary bleachers. The maximum expected attendance for home games is typically 2,000 attendees.

1.3 Proposed Lighting

The proposed project includes the installation of six new field lights located around the perimeter of the existing track and field and would eliminate the need to use portable lights. Lighting would be used as needed depending on the sport and season from 5:00 p.m. to no later than 10:00 p.m. during scheduled practices and games.



LEGEND

- Project Site Boundary
- Proposed Area of Improvement

Figure 1: Proposed Project Area

1.4 Existing Track and Field Event Scheduling

Current use of the track and field facilities includes tackle football practices; boys' and girls' soccer practices, games, and events; girls' flag football practices, games, and events; track and field practice and events; marching band rehearsals; and other non-school practices, games, and events. Given the lack of seating, lights, and related amenities, the Summit HS tackle football teams currently play games at A.B. Miller High School, located approximately 2.5 miles southeast of the project site. Table 1 presents the existing athletics and events schedule at Summit High School.

Table 1 Existing Athletics/Events Schedule at Track and Field

Activity/Use	Anticipated Number of Home Events	Days of Week	Times		Maximum Number of Spectators
			Start	End	
Flag Football (Aug-Nov)	16 per year	Friday	7:30pm	9:30pm	300
Band Practice (Aug-Nov)	30 per year	M-F	4:00pm	7:00pm	n/a
Girls Soccer (Dec-Feb)	20 per year	T-Sat	3:30pm	5:30pm	400
Boys Soccer (Dec-Feb)	20 per year	T-Sat	5:30pm	7:30pm	400
Track and Field (Feb-May)	3 per year	W-S	3:00pm	6:00pm	500

1.5 Proposed Event Scheduling

The proposed improvements at Summit HS would accommodate existing sporting events and practices that are already part of current sports programming and that are either played at other campuses or utilize temporary lights. The proposed new lighting would be utilized Monday through Thursday from 5:00 PM to 9:00 PM, and on Fridays from 5:00 PM to 11:30 PM for tackle football games only.

The proposed event scheduling is contingent upon District operational needs and may be modified at the District's discretion. Sporting events and practices are anticipated to consist of tackle football, flag football, girls and boys soccer, track and field, and band. The key element for this transportation analysis is that these events - with the exception of tackle football games - are existing activities at Summitt High School and would not generate any new vehicle trips.

Similar to the existing athletics schedule, the tackle football season including freshman, junior varsity, and varsity football, would begin in August and conclude in November. Freshmen and Junior Varsity football is projected to include five home games each that would be played on Fridays from 5:00 pm to 7:00 pm. Varsity tackle football, the most attended sport event, would include five home games per year on Fridays from 7:30 pm to 9:30 pm. With the implementation of the proposed project, all 15 home football games would be played at Summit High Sschool, relocating them all from A.B Miller High School.

Table 2 summarizes the proposed athletics and events schedule.

Table 2 Existing Athletics/Events Schedule at Track and Field

Activity/Use	Anticipated Number of Home Events	Days of Week	Times		Maximum Number of Spectators
			Start	End	
Tackle Football (Aug-Nov)	15 per year	Friday	7:30pm	9:30pm	2,000
Flag Football (Aug-Nov)	14 per year	Friday	7:30pm	9:30pm	300
Band Practice (Aug-Nov)	30 per year	M-F	4:00pm	7:00pm	n/a
Girls Soccer (Dec-Feb)	28 per year	T-Sat	3:30pm	5:30pm	400
Boys Soccer (Dec-Feb)	28 per year	T-Sat	5:30pm	7:30pm	400
Track and Field (Feb-May)	5 per year	W-S	3:00pm	6:00pm	800

2. Approach and Methodology

The Summit High School Field Improvement project would permit tackle football games currently played at A.B. Miller High School to be relocated to Summit High School. This proposed operational change would mean that only a portion of the vehicle trips generated by the new bleachers at Summit High School would be new trips. The other portion would be a reallocation of existing trips to and from A.B. Miller High School.

The proposed football games at Summit High School would be played during weekday evenings, with varsity football games typically starting at 7:30pm. This start time would occur well after the completion of the typical weekday PM peak hour for adjacent street traffic (usually 5:00-6:00pm). With this proposed operational schedule, the proposed project is not anticipated to generate a significant number of new PM peak hour vehicle trips. Additionally, as noted above, a portion of the vehicle trips that would be generated by the project are already occurring in the vicinity of Summit High School as local residents and students travel to A.B. Miller High School for the existing football games.

Given these anticipated operating characteristics and the fact that the proposed project will relocate a portion of existing vehicle trips instead of generating new trips, the transportation analysis for the proposed project is limited in scope. The elements of the transportation analysis are discussed in more detail below.

2.1 Analysis Years

This study analyzes traffic conditions for two analysis years:

- Existing Conditions (2026)
- Opening Year (2027)

For the purpose of this analysis, the project opening year for traffic conditions is 2027. The proposed project's construction period is scheduled to be completed during the 2027 calendar year. An ambient growth rate of 1% per year was used to forecast the future volumes.

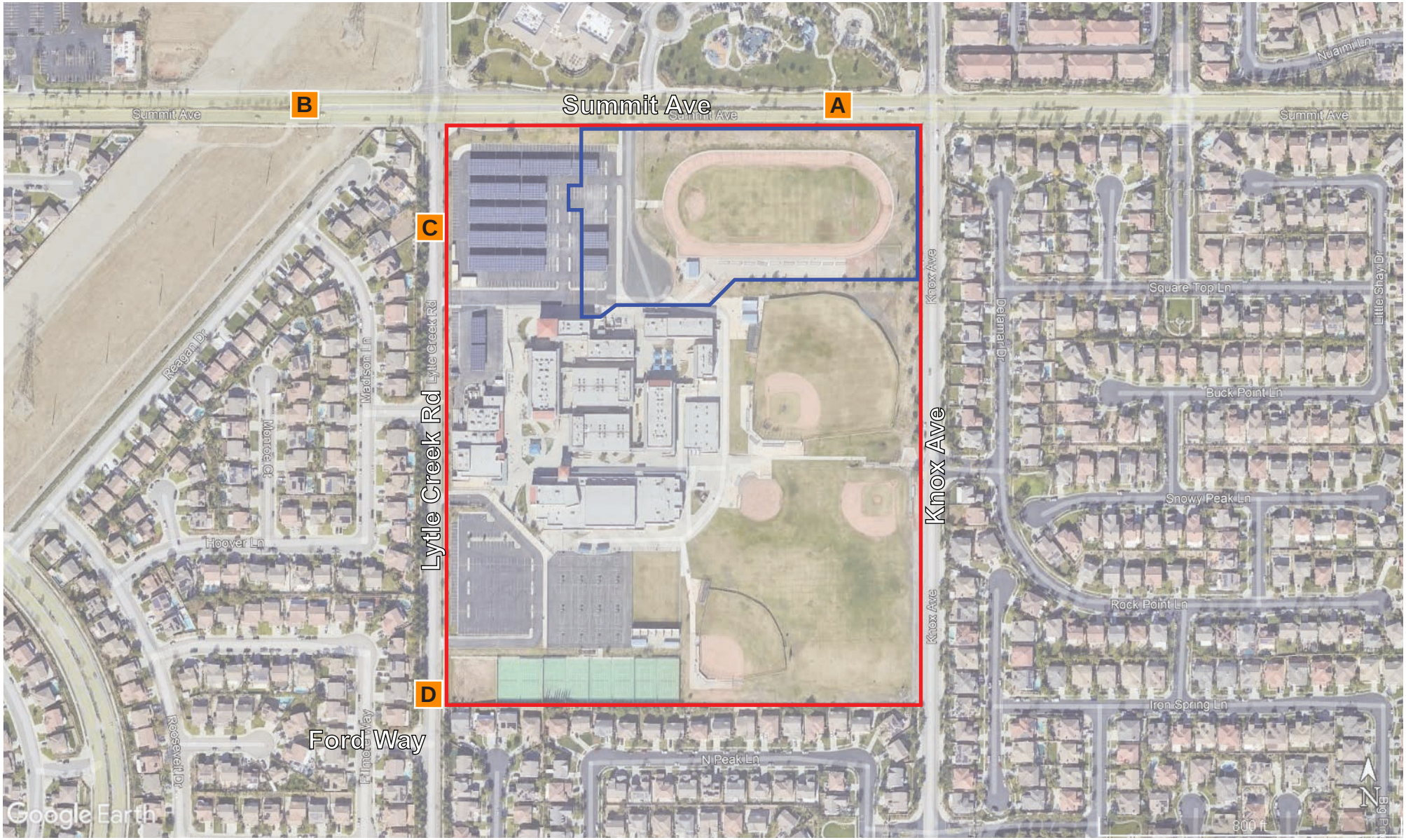
2.2 Average Daily Traffic

Average daily traffic (ADT) data was collected on four roadway segments in or near the study area for a full 24-hour period on Tuesday, March 10, 2026. The roadway segment locations are depicted in Figure 2 and listed below:

A. Summit Ave west of Knox Ave
B. Summit Ave west of Lytle Creek Rd
C. Lytle Creek Rd north of Ford Way
D. Lytle Creek Rd south of Summit Ave

2.3 Intersection Analysis

No intersection analysis is included in the transportation analysis because the proposed project would not generate a significant number of new vehicle trips during either the AM and PM weekday peak hours.



LEGEND

A) Summit Ave west of Knox Ave
B) Summit Ave west of Lytle Creek Ave
C) Lytle Creek Rd south of Summit Ave
D) Lytle Creek Rd north of Ford Way

- Project Site Boundary
- Proposed project area for improvement
- Roadway Segment Locations

Figure 2: Project Site and Roadway Segment Locations

2.4 Vehicle Miles Traveled (VMT) Screening

The proposed project does not change the student enrollment number for Summit High School. With the relocation of tackle football games from A.B. High School – located 2.5 miles away – to Summit High School, VMT for existing trips associated with tackle football games is anticipated to be reduced when compared to the existing condition. Existing attendees and participants in the football games will have much shorter distances to travel since the games will occur at their home school. While attendance at Summit High School is anticipated to increase compared to existing games at A.B. Miller High School, the stadium is a typical K-12 use and activity, which is considered to be a locally-serving use that can be screened out from the need to conduct a full VMT analysis.

Therefore, no analysis of vehicle miles traveled (VMT) is required. No significant impacts related to VMT are anticipated due to the proposed project.

2.5 Roadway Descriptions

The study area roadways are described below with respect to existing geometry, pedestrian and bicycle facilities, speed limit, parking facilities, and adjacent land uses.

Summit Ave

Summit Avenue, located just north of Summit High School, is a four-lane east–west roadway with two travel lanes in each direction separated by a raised landscaped median featuring grass and mature trees. Select intersections include dedicated left-turn pockets, while sidewalks are generally provided along both sides to support pedestrian connectivity to the school and surrounding neighborhoods. Bicycle facilities are not striped, so cyclists share the outer travel lanes with vehicles. The roadway operates at moderate speeds typical of a collector street in a school-adjacent area, with limited on-street parking. Adjacent land uses are primarily residential, and pedestrian, bicycle, and vehicular activity increases during school arrival and dismissal periods.

Lytle Creek Rd

Lytle Creek Road is a north–south roadway located west of Summit High School. The street has one travel lane in each direction with no continuous center median, left-turn lanes are provided at select intersections. Sidewalks are present along portions of the corridor, supporting pedestrian access, while bicyclists share the travel lanes due to the absence of dedicated facilities. On-street parking is minimal and intermittent. Surrounding land uses are predominantly residential, with school-related traffic contributing to peak-period activity.

Knox Ave

Knox Avenue is a north–south roadway located east of Summit High School. Similar to Lytle Creek Road, it consists of one travel lane in each direction with no continuous center median, though left-turn lanes are provided at select intersections. Sidewalks are present along portions of the street, supporting pedestrian access, while bicyclists share the travel lanes in the absence of dedicated facilities. On-street parking is limited and intermittent. The corridor is primarily bordered by residential land uses.

3. Traffic Analysis

This section of the report summarizes the average daily traffic volumes for the following project horizon years:

- Existing Conditions (2026)
- Opening Year (2027)

3.1 Existing Conditions No Project

The average daily traffic (ADT) volumes for the study area roadway segments under Existing Conditions are summarized in Table 3. Existing roadway segment volumes are summarized from 24-hour counts which can be found in Appendix A.

Table 3 Roadway Average Daily Traffic (ADT).

Roadway	Source	Date	Existing ATD
Summit Ave west of Knox Ave	AimTD LLC	03/10/26	17,884
Summit Ave west of Lytle Creek Rd	AimTD LLC	03/10/26	19,118
Lytle Creek Rd south of Summit Ave	AimTD LLC	03/10/26	3,871
Lytle Creek Rd north of Ford Way	AimTD LLC	03/10/26	4,169

3.2 Opening Year (2027) No Project

The average daily traffic for the study area roadway segment in the Opening Year (2027) No Project scenario is presented in Table 4. Year 2027 traffic volumes were developed by applying an assumed 1% annual growth rate to Existing Year (2026) counts.

Table 4 Forecast ADT Under No Project Conditions

Roadway	Existing 2026 ADT	2027 No Project
Summit Ave west of Knox Ave	17,884	18,063
Summit Ave west of Lytle Creek Rd	19,118	19,309
Lytle Creek Rd south of Summit Ave	3,871	3,910
Lytle Creek Rd north of Ford Way	4,169	4,210

3.3 Trip Generation

The t Summit High School Field Improvement project is not a typical land use published in the ITE Trip Generation Manual 12th Edition. The closest potential land uses would include a High School (ITE Code 550), which would account for after school activities and a Professional Baseball Stadium (ITE Code 462), which is the only land use to consider attendees at a sporting event with seats and/or bleachers.

Table 5 presents the weekday daily trip generation forecast for the following land uses:

- High School with a school enrollment of 2,725 students
- A stadium with 1,000 and 2,000 attendees

Table 5 Trip Generation

Land Use and Time Period	Trip Generation Rate	Distribution		Trips		Total
		Inbound	Outbound	Inbound	Outbound	
High School – Daily	1.94 trips / student	50%	50%	2,643	2,644	5,287
Stadium – Daily (1,000 attendees)	1.24 trips / attendee	50%	50%	620	620	1,240
Stadium – Daily (2,000 attendees)	1.24 trips / attendee	50%	50%	1,240	1,240	2,480

Using the ITE rates presented in Table 5, existing tackle football games occurring at A. B. Miller High School are estimated to generate a maximum of 1,240 vehicle trips daily with full attendance at games. These existing trips include attendees traveling from home to the event, as well as attendees traveling from Summit High School to A.B. Miller High School. Given this condition, relocating tackle football games and doubling the maximum attendance at Summit High School from 1,000 to 2,000 attendees is not forecast to double the number of vehicle trips.

A reasonable assumption would be that about 25% of existing trips to games at A. B. Miller High School originate at Summit High School. Applying this assumption to the with project condition with tackle football games at Summit High School results in a net increase of 930 vehicle trips.

3.4 With Project Conditions

Existing athletic events and practices occurring at Summit High School will see shifts in the times for their events, but no new events will occur aside from the relocation of tackle football games from A.B. Miller High School to Summit High School

The forecast increase of 930 daily vehicle trips was applied to the with project condition to develop updated average daily traffic (ADT) forecast volumes for the study area roadway segments under Existing Year (2026) and Opening Year (2027) With Project conditions.

Table 6 below shows the estimated additional ADT volumes for each roadway segment, by horizon year. As noted above, no project ADT volumes are assumed to grow at a 1% rate per year from 2026.

Table 6 Forecast ADT Under No Project and With Project Conditions

Roadway	Existing 2026 ADT	2027 No project	With Project Trip Assignment Percentage	2026 With Project	2027 With Project
Summit Ave west of Knox Ave	17,884	18,063	40%	18,256	18,435
Summit Ave west of Lytle Creek Rd	19,118	19,309	50%	19,583	19,774
Lytle Creek Rd south of Summit Ave	3,871	3,910	50%	4,336	4,375
Lytle Creek Rd north of Ford Way	4,169	4,210	10%	4,262	4,303

4. Additional Analysis

4.1 Pedestrian and Site Circulation

This section summarizes the results of several focused analysis areas related to pedestrian and site circulation for the proposed project. This review is completed at a high level based on the project description provided by the district.

Summit High School is located in Fontana at the intersection of Summit Avenue and Lytle Creek Road. The campus is bordered by residential neighborhoods to the north, south, and west. Primary access to the school is provided from Lytle Creek Road to the east, where three existing driveways are located. An additional driveway is situated along Summit Avenue to the north of the campus. Driveway 1, located on Summit Avenue, provides dual access for both entry and exit and allows circulation to an internal cul-de-sac within the campus. Similarly, Driveway 2, located on the east side of the campus along Lytle Creek Road, also accommodates dual access and provides entry to an additional on-site parking lot. Driveways 3 and 4 are positioned south of Driveway 2 along Lytle Creek Road and serve the student pick-up and drop-off area adjacent to the school parking lot. Driveway 3 functions as an exit-only access point, while Driveway 4 is designated for entry only. Figure 3 shows the locations of existing driveways that serve Summit High School.

4.1.1 Driveway Location and Turning Movements

The existing driveways are designed to serve the typical school day traffic volumes and turning movements. The proposed project after-school activities would generate a substantially lower number of vehicle trips compared to a typical school day. As such, no substantial impacts to site access and circulation are anticipated.

4.1.2 Driveway Length

No changes to existing driveway lengths and pick-up/drop-off areas are proposed as part of the project. With after-school activities occurring in the late afternoon and evening, the proposed project is not anticipated to generate impacts to pick-up and drop-off areas compared to the existing condition. No modifications to driveway lengths are recommended as part of this analysis. No impact is anticipated.

4.1.3 Driveway Proximity and Corner Clearance

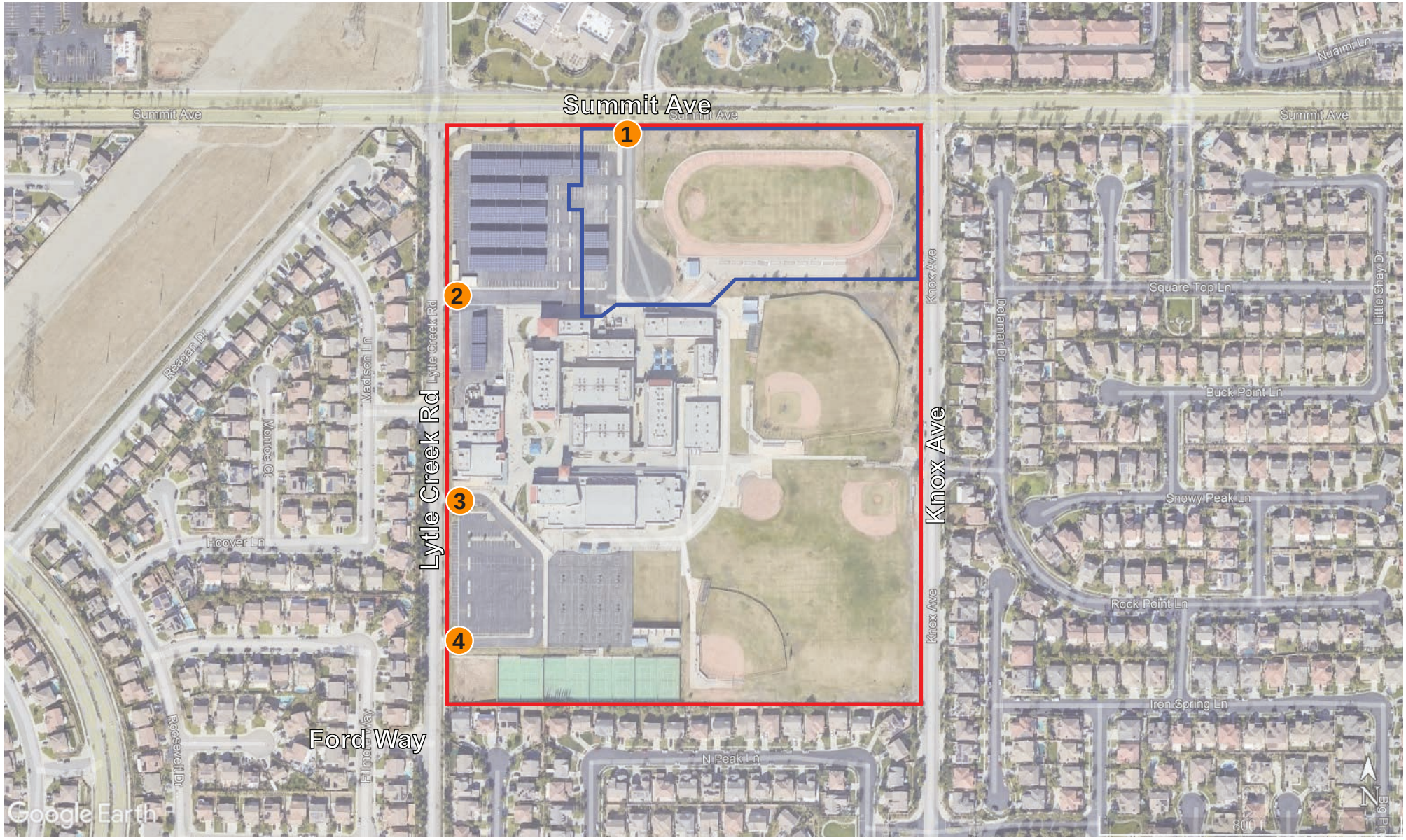
No changes are proposed to the location or proximity of existing site access driveways. No impact is anticipated.

4.1.4 Right-Turn Lanes at Driveways

All project driveways are expected to operate at an acceptable level of service with project conditions. No modifications to right turn lanes at the driveways are recommended. No impact is anticipated.

4.1.5 Pedestrian and Bicycle Access

Existing site access points along Lytle Creek Road and Summit Avenue would be maintained. Pedestrian access is provided along Lytle Creek Road, Summit Avenue, and Knox Avenue. Marked crosswalks are provided on the intersections of Lytle Creek Road & Summit Avenue and on Summit Avenue & Knox Avenue. There is also an existing mid-block crosswalk along Knox Avenue. No additional pedestrian or bicycle crossing locations are recommended.



LEGEND

1) Driveway 1 and Summit Ave
2) Driveway 2 and Lytle Creek Rd
3) Driveway 3 and Lytle Creek Rd
4) Driveway 4 and Lytle Creek Rd

Project Site Boundary
Proposed project area for improvement
Roadway Segment Locations

Figure 3: Intersection and Driveway Locations

5. Conclusions

This transportation analysis has analyzed how transportation conditions are expected to change with the implementation of the proposed field improvements project for Summit High School. A summary is provided below documenting the conclusions for each analysis component.

5.1 VMT Screening Analysis

The proposed project for Summit High School would be eligible to be screened out from the need for a full project level VMT analysis. Discussed in the report, the project would relocate existing vehicle trips that currently travel to A.B. Miller High School (2.5 miles away) and is considered to be a typical K-12 school component. No VMT analysis is required for the project.

5.2 Pedestrian and Site Circulation

This study analyzed at a high level the existing site access driveways for Summit High School. All project driveways and on-site circulation are designed to serve peak school traffic volumes. The proposed after-school activities would generate substantially fewer trips compared to a typical school day. As such, no impacts related to site access and on-site circulation are anticipated, and no permanent changes or improvements to site access are recommended based on this analysis.

References

ITE (Institute of Transportation Engineers). *Trip Generation Manual.* 12th ed. 2025

Appendix A— Turning Movement and Roadway Segment Counts

Tuesday, March 10, 2026 CITY: Fontana PROJECT: SC5912

ADT1 Summit Ave west of Knox Ave. **Prepared by AimTD LLC tel. 714 253 7888**

AM Period	EB		WB			PM Period	EB		WB		
0:00	18		12			12:00	107		110		
0:15	12		6			12:15	125		100		
0:30	8		7			12:30	111		115		
0:45	1	39	8	33	72	12:45	124	467	115	440	907
1:00	5		5			13:00	133		97		
1:15	6		10			13:15	113		118		
1:30	5		5			13:30	122		123		
1:45	6	22	1	21	43	13:45	123	491	112	450	941
2:00	5		3			14:00	132		117		
2:15	9		3			14:15	119		155		
2:30	7		2			14:30	232		145		
2:45	7	28	6	14	42	14:45	223	706	140	557	1263
3:00	5		1			15:00	254		138		
3:15	2		11			15:15	229		147		
3:30	5		10			15:30	319		164		
3:45	6	18	20	42	60	15:45	327	1129	157	606	1735
4:00	0		22			16:00	208		130		
4:15	3		22			16:15	218		133		
4:30	7		30			16:30	225		118		
4:45	8	18	35	109	127	16:45	226	877	132	513	1390
5:00	8		33			17:00	276		144		
5:15	12		24			17:15	261		135		
5:30	13		26			17:30	240		139		
5:45	11	44	40	123	167	17:45	280	1057	144	562	1619
6:00	22		49			18:00	259		105		
6:15	15		46			18:15	234		150		
6:30	37		54			18:30	223		132		
6:45	38	112	73	222	334	18:45	208	924	122	509	1433
7:00	45		97			19:00	190		132		
7:15	66		179			19:15	177		113		
7:30	98		202			19:30	154		90		
7:45	143	352	247	725	1077	19:45	137	658	87	422	1080
8:00	201		234			20:00	231		86		
8:15	239		164			20:15	199		79		
8:30	212		120			20:30	134		71		
8:45	84	736	105	623	1359	20:45	98	662	65	301	963
9:00	58		74			21:00	100		49		
9:15	92		103			21:15	81		48		
9:30	87		90			21:30	94		37		
9:45	72	309	109	376	685	21:45	73	348	46	180	528
10:00	82		88			22:00	65		32		
10:15	86		100			22:15	51		39		
10:30	94		94			22:30	62		22		
10:45	72	334	103	385	719	22:45	33	211	16	109	320
11:00	83		125			23:00	41		13		
11:15	93		109			23:15	24		12		
11:30	107		109			23:30	36		11		
11:45	116	399	111	454	853	23:45	21	122	9	45	167
Total Vol.		2411		3127	**5538**			7652		4694	**12346**

Daily Totals

EB	WB	Combined
10063	7821	**17884**

	AM			PM		
Split %	43.5%	56.5%	**31.0%**	62.0%	38.0%	**69.0%**
Peak Hour	7:45	7:15	**7:45**	15:00	15:00	**15:00**
Volume	795	862	**1560**	1129	606	**1735**
P.H.F.	0.83	0.87	**0.90**	0.88	0.92	**0.90**

Tuesday, March 10, 2026 CITY: Fontana PROJECT: SC5912

ADT2a Summit Ave west of Lytle Creek Rd.

Prepared by AimTD LLC tel. 714 253 7888

AM Period	EB		WB			PM Period	EB		WB		
0:00	21		13			12:00	112		142		
0:15	14		7			12:15	147		131		
0:30	10		7			12:30	115		149		
0:45	2	47	10	37	84	12:45	132	506	133	555	1061
1:00	7		5			13:00	133		113		
1:15	9		10			13:15	131		144		
1:30	6		6			13:30	130		132		
1:45	6	28	4	25	53	13:45	144	538	137	526	1064
2:00	5		5			14:00	141		132		
2:15	11		3			14:15	148		159		
2:30	7		3			14:30	206		195		
2:45	7	30	7	18	48	14:45	226	721	203	689	1410
3:00	3		1			15:00	246		216		
3:15	3		13			15:15	239		146		
3:30	6		12			15:30	221		213		
3:45	7	19	22	48	67	15:45	239	945	225	800	1745
4:00	1		28			16:00	208		155		
4:15	3		24			16:15	221		153		
4:30	8		34			16:30	192		168		
4:45	9	21	40	126	147	16:45	222	843	158	634	1477
5:00	9		39			17:00	243		179		
5:15	11		33			17:15	217		179		
5:30	11		32			17:30	214		159		
5:45	12	43	57	161	204	17:45	250	924	183	700	1624
6:00	26		49			18:00	246		135		
6:15	31		60			18:15	201		189		
6:30	31		64			18:30	188		165		
6:45	41	129	81	254	383	18:45	191	826	134	623	1449
7:00	42		123			19:00	167		171		
7:15	68		166			19:15	148		127		
7:30	109		207			19:30	151		104		
7:45	190	409	255	751	1160	19:45	145	611	108	510	1121
8:00	156		261			20:00	210		98		
8:15	238		207			20:15	189		100		
8:30	106		161			20:30	115		98		
8:45	86	586	118	747	1333	20:45	118	632	76	372	1004
9:00	72		96			21:00	100		65		
9:15	106		96			21:15	87		63		
9:30	72		110			21:30	91		47		
9:45	79	329	109	411	740	21:45	76	354	49	224	578
10:00	85		121			22:00	64		38		
10:15	90		119			22:15	57		43		
10:30	98		113			22:30	66		24		
10:45	78	351	118	471	822	22:45	37	224	19	124	348
11:00	103		154			23:00	39		16		
11:15	103		131			23:15	29		18		
11:30	108		139			23:30	46		12		
11:45	114	428	150	574	1002	23:45	22	136	12	58	194
Total Vol.		2420		3623	**6043**			7260		5815	**13075**

Daily Totals

EB	WB	**Combined**
9680	9438	**19118**

	AM			**PM**		
Split %	40.0%	60.0%	**31.6%**	55.5%	44.5%	**68.4%**
Peak Hour	7:30	7:30	**7:30**	15:00	15:00	**15:00**
Volume	693	930	**1623**	945	800	**1745**
P.H.F.	0.73	0.89	**0.91**	0.94	0.89	**0.94**

cs@aimtd.com Tell. 714 253 7888

Tuesday, March 10, 2026 CITY: Fontana PROJECT: SC5912

ADT4 Lytle Creek Rd south of Summit Ave. **Prepared by AimTD LLC tel. 714 253 7888**

AM Period	NB		SB			PM Period	NB		SB		
0:00	2		1			12:00	19		12		
0:15	0		0			12:15	17		21		
0:30	0		0			12:30	16		12		
0:45	1	3	1	2	5	12:45	19	71	10	55	126
1:00	1		1			13:00	20		23		
1:15	0		5			13:15	17		28		
1:30	1		0			13:30	26		19		
1:45	0	2	0	6	8	13:45	27	90	16	86	176
2:00	0		0			14:00	43		16		
2:15	0		0			14:15	56		21		
2:30	1		0			14:30	61		46		
2:45	2	3	0	0	3	14:45	67	227	95	178	405
3:00	1		0			15:00	31		66		
3:15	0		0			15:15	60		36		
3:30	0		0			15:30	97		54		
3:45	2	3	0	0	3	15:45	86	274	65	221	495
4:00	0		1			16:00	40		59		
4:15	3		2			16:15	38		28		
4:30	0		1			16:30	47		37		
4:45	3	6	0	4	10	16:45	37	162	36	160	322
5:00	4		1			17:00	39		33		
5:15	3		1			17:15	37		25		
5:30	9		2			17:30	25		29		
5:45	7	23	0	4	27	17:45	33	134	39	126	260
6:00	2		6			18:00	41		28		
6:15	2		2			18:15	35		33		
6:30	6		3			18:30	39		28		
6:45	9	19	6	17	36	18:45	26	141	21	110	251
7:00	27		24			19:00	54		34		
7:15	36		32			19:15	28		12		
7:30	89		40			19:30	9		12		
7:45	94	246	79	175	421	19:45	11	102	9	67	169
8:00	113		42			20:00	12		10		
8:15	130		44			20:15	10		21		
8:30	121		32			20:30	8		13		
8:45	35	399	23	141	540	20:45	8	38	7	51	89
9:00	17		30			21:00	11		4		
9:15	20		30			21:15	4		8		
9:30	19		12			21:30	4		8		
9:45	12	68	20	92	160	21:45	5	24	7	27	51
10:00	16		11			22:00	3		1		
10:15	17		12			22:15	0		4		
10:30	12		13			22:30	2		2		
10:45	18	63	16	52	115	22:45	1	6	1	8	14
11:00	25		20			23:00	0		3		
11:15	14		20			23:15	5		2		
11:30	31		16			23:30	0		7		
11:45	26	96	13	69	165	23:45	1	6	2	14	20
Total Vol.		931		562	**1493**			1275		1103	**2378**

Daily Totals

NB	SB	**Combined**
2206	1665	**3871**

	AM			**PM**		
Split %	62.4%	37.6%	**38.6%**	53.6%	46.4%	**61.4%**
Peak Hour	7:45	7:30	**7:45**	15:15	14:45	**14:45**
Volume	458	205	**655**	283	251	**506**
P.H.F.	0.88	0.65	**0.94**	0.85	0.66	**0.78**

Tuesday, March 10, 2026 CITY: Fontana PROJECT: SC5912

ADT3 Lytle Creek Rd north of Ford Way.

Prepared by AimTD LLC tel. 714 253 7888

AM Period	NB		SB			PM Period	NB		SB		
0:00	3		2			12:00	11		13		
0:15	0		1			12:15	12		14		
0:30	0		0			12:30	19		21		
0:45	2	5	1	4	9	12:45	12	54	10	58	112
1:00	1		0			13:00	21		14		
1:15	0		3			13:15	12		15		
1:30	1		0			13:30	16		21		
1:45	0	2	0	3	5	13:45	24	73	15	65	138
2:00	0		0			14:00	39		15		
2:15	0		0			14:15	56		15		
2:30	1		0			14:30	55		64		
2:45	1	2	0	0	2	14:45	71	221	72	166	387
3:00	1		0			15:00	55		56		
3:15	0		1			15:15	59		45		
3:30	1		0			15:30	45		97		
3:45	1	3	0	1	4	15:45	40	199	75	273	472
4:00	1		1			16:00	53		58		
4:15	0		2			16:15	47		36		
4:30	0		0			16:30	40		46		
4:45	4	5	2	5	10	16:45	48	188	40	180	368
5:00	3		5			17:00	29		38		
5:15	7		3			17:15	46		35		
5:30	6		3			17:30	27		30		
5:45	7	23	1	12	35	17:45	18	120	48	151	271
6:00	4		6			18:00	33		26		
6:15	5		3			18:15	38		36		
6:30	15		6			18:30	28		41		
6:45	17	41	10	25	66	18:45	24	123	30	133	256
7:00	40		19			19:00	18		48		
7:15	66		33			19:15	12		14		
7:30	132		47			19:30	8		17		
7:45	144	382	80	179	561	19:45	10	48	9	88	136
8:00	179		67			20:00	9		9		
8:15	167		89			20:15	10		20		
8:30	92		72			20:30	8		11		
8:45	26	464	36	264	728	20:45	6	33	7	47	80
9:00	30		21			21:00	12		4		
9:15	35		33			21:15	4		7		
9:30	21		16			21:30	5		7		
9:45	13	99	17	87	186	21:45	4	25	6	24	49
10:00	15		8			22:00	4		3		
10:15	19		15			22:15	0		4		
10:30	13		9			22:30	2		3		
10:45	13	60	12	44	104	22:45	4	10	1	11	21
11:00	25		18			23:00	0		4		
11:15	12		15			23:15	2		8		
11:30	29		16			23:30	0		5		
11:45	12	78	19	68	146	23:45	1	3	3	20	23
Total Vol.		1164		692	**1856**			1097		1216	**2313**

Daily Totals

NB	SB	**Combined**
2261	1908	**4169**

	AM			**PM**		
Split %	62.7%	37.3%	**44.5%**	47.4%	52.6%	**55.5%**
Peak Hour	7:30	7:45	**7:30**	14:30	15:15	**14:45**
Volume	622	308	**905**	240	275	**500**
P.H.F.	0.87	0.87	**0.88**	0.83	0.71	**0.87**

cs@aimtd.com Tell. 714 253 7888

Appendix E Native American Tribal Consultation

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NATIVE AMERICAN HERITAGE COMMISSION

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Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

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Pauma-Yuima Band of Luiseño Indians

COMMISSIONER
Vacant

COMMISSIONER
Vacant

EXECUTIVE SECRETARY
Andrew Alejandre
Paskenta Band of Nomlaki Indians

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

April 1, 2026

Alen Estrada-Rodas
PlaceWorks

Via Email to: aestradarodas@placeworks.com

Re: Summit High Stadium Improvements Project, San Bernardino County

To Whom It May Concern:

As requested, a search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed based on information submitted for the above referenced project. The results were positive. Please contact the Gabrieleno Band of Mission Indians – Kizh Nation on the attached list for more information. Be aware that tribes do not always record their sacred sites in the SLF, nor are they required to do so. As such, an SLF search is not a substitute for consultation with all tribes that are traditionally and culturally affiliated with a project's geographic area.

Attached is a list of Native American tribes that are traditionally and culturally affiliated with the project's geographic area. Please contact all of the listed tribes as they may have information about sacred sites within the project area that is not listed with the NAHC.

If within two weeks of notification, a response has not been received, the Commission requests that you follow up with a telephone call or email to ensure that the project information was received.

If you receive notification of a change of address or phone number from a tribe, please inform the NAHC so that we can assure that our lists contain current information.

In addition to engaging in tribal consultation, you should consult the appropriate regional California Historical Research Information System (CHRIS) information center to determine whether it has information regarding the presence of recorded archaeological sites within the project area.

If you have any questions or need additional information, please contact me at Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

From: Sanchez-Aguilar, Jocel (TRBL) <[redacted]>
Sent: Friday, April 17, 2026 12:40 PM
To: alzusa@fusd.net
Cc: THPO Consulting
Subject: Summit High School Stadium Improvements Project

This is the first time you received an email from this sender ([redacted]). Exercise caution when clicking links, opening attachments or taking further action, before validating its authenticity.

You don't often get email from [redacted] Learn why this is important

Greetings,

A records check of the Tribal Historic Preservation Office's cultural registry revealed that this project is not located within the Tribe's Traditional Use Area. Therefore, we defer to the other tribes in the area. This letter shall conclude our consultation efforts.

Thank you,

Jocel Sanchez-Aguilar
Cultural Resources Analyst
Agua Caliente Band of Cahuilla Indians
[redacted]
E: [redacted]
C: [redacted]

From: Eunice Ambriz-Aguilar [redacted]
Sent: Friday, April 17, 2026 11:55 AM
To: alzusa@fusd.net
Cc: Kristen Tuosto
Subject: AB52: Summit High School Stadium Improvements Project, Fontana Unified School District (FUSD) [SD-FUSD-2026-1]
Attachments: SD-FUSD-2026-1.pdf

This is the first time you received an email from this sender ([redacted]). Exercise caution when clicking links, opening attachments or taking further action, before validating its authenticity.

You don't often get email from [redacted] Learn why this is important

Dear Samer Alzubaidi,

Thank you for contacting the Yuhaaviatam of San Manuel Nation (YSMN, also known as the San Manuel Band of Mission Indians) regarding the above referenced project. YSMN appreciates the opportunity to review the project documentation, which was received by our Cultural Resources Management Department on April 9, 2026, pursuant to CEQA (AB 52) and CA PRC 21080.3.1. The proposed project area exists within Serrano ancestral territory and, therefore, is of interest to the Tribe. However, due to the nature and location of the proposed project, and given the CRM Department's present state of knowledge, YSMN does not have any concerns with the project's implementation, as planned, at this time. As a result, YSMN requests that the following language be made a part of the project/permit/plan conditions:

CUL MMs

1. In the event that cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the Yuhaaviatam of San Manuel Nation Cultural Resources Department (YSMN) shall be contacted, as detailed within TCR-1, regarding any pre-contact finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

2. If significant pre-contact cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to YSMN for review and comment, as detailed within TCR-1. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

3. If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the project.

TCR MMs

1. The Yuhaaviatam of San Manuel Nation Cultural Resources Management Department (YSMN) shall be contacted, as detailed in CUL-1, of any pre-contact cultural resources discovered during project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a

Cultural Resources Monitoring and Treatment Plan shall be created by the archaeologist, in coordination with YSMN, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents YSMN for the remainder of the project, should YSMN elect to place a monitor on-site.

2. Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant and Lead Agency for dissemination to YSMN. The Lead Agency and/or applicant shall, in good faith, consult with YSMN throughout the life of the project.

Note: Yuhaaviatam of San Manuel Nation realizes that there may be additional tribes claiming cultural affiliation to the area; however, Yuhaaviatam of San Manuel Nation can only speak for itself. The Tribe has no objection if the agency, developer, and/or archaeologist wishes to consult with other tribes in addition to YSMN and if the Lead Agency wishes to revise the conditions to recognize additional tribes.

Please provide a draft and the final copy of the project/permit/plan conditions so that YSMN may review the included language. If you should have any further questions with regard to this matter, please do not hesitate to contact Tribal Archaeologist, Kristen Tuosto (cc'd), or myself, as we will be your Point of Contacts (POC) for YSMN with respect to this project.

Regards,
Eunice

Eunice Ambriz-Aguilar
Cultural Resources Technician
[redacted]
YUHAAVIATAM
OF SAN MANUEL NATION

GABRIELEÑO BAND OF MISSION INDIANS - KIZH NATION
Historically known as The San Gabriel Band of Mission Indians recognized by the State of California as the aboriginal tribe of the Los Angeles basin

Tuesday, April 21, 2026

Subject: Formal Request for Government-to-Government Consultation – Summit High School Stadium

Dear Samer,

On behalf of the Gabrieleno Band of Mission Indians Kizh Nation, I am formally requesting government-to-government consultation with the City of Fontana pursuant to Assembly Bill 52 and the California Environmental Quality Act (CEQA) regarding the proposed Summit High School Stadium. Our tribe has ancestral and cultural ties to this area, and we are concerned that the project may impact Tribal Cultural Resources (TCRs) within our traditional territory.

Under AB52, lead agencies are required to engage in meaningful government-to-government consultation with our tribe who is ancestrally traditionally and culturally affiliated with the project area when the project undergoes CEQA review, in accordance with the law.

We request that formal consultation be initiated within the required timeframe, and we are prepared to meet at your earliest convenience. Please confirm receipt of this request and provide available dates for an initial consultation meeting.

For scheduling or further discussion, please contact me at admin@gabrielenoindians.org or (844) 390 - 0787. We appreciate your commitment to ensuring compliance with AB 52 and protecting the cultural heritage of our tribal community.

Best regards,

Hereditary Chief Andrew Salas
Gabrieleño Band of Mission Indians–Kizh Nation

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Dr. Christina Swindall Martinez, Secretary
Mike Jesus Lemos, Treasurer I | Samantha Lemos, Treasurer II | Richard Gradias, Chairman of the council of Elders

GABRIELEÑO BAND OF MISSION INDIANS - KIZH NATION
Historically known as The San Gabriel Band of Mission Indians recognized by the State of California as the aboriginal tribe of the Los Angeles basin

Legal Thresholds for "Substantial Evidence" in Tribal Consultation

RE: CEQA, AB52, SB18, AB130, SB35 and Section 106 Tribal Consultation

Attn: Lead Agency Representative

This letter is submitted by the Gabrieleño Band of Mission Indians – Kizh Nation to clarify the legal definition and threshold of "substantial evidence" as required under the California Environmental Quality Act (CEQA) and Assembly Bill 52 (SECTION 106). These statutes govern how Tribes are determined to be eligible for consultation and involvement in cultural resource protection.

I. Legal Definition of "Substantial Evidence"

Pursuant to CEQA Guidelines § 15384(a):

> *"Enough relevant information and reasonable inferences from that information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached*."

In practical terms, "substantial evidence" is fact-based, documented proof, and not merely opinion or unverified narrative. Lead agencies are required to rely on this standard when determining which tribes have legal standing in consultation, mitigation, monitoring, and repatriation processes under CEQA and SECTION 106.

Valid examples of substantial evidence include:

- Archaeological records
- Historical documentation
- Spanish/Mexican land grant records and mission-era maps
- Genealogical data showing ancestral ties to the area
- Oral histories (when supported by documentation)
- Expert reports or peer-reviewed scholarly assessments

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Dr. Christina Swindall Martinez, Secretary
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PO Box 393 Covina, CA 91723 www.gabrielenoindians.org
admin@gabrielenoindians.org

II. What Does Not Qualify as Substantial Evidence?

The intent of CEQA and SECTION 106 is not to create symbolic inclusivity, but to ensure that only those tribes with documented, lineal, cultural, or ancestral affiliation to a project area are consulted. The law is clear: participation must be based on fact-based documentation, not preference, emotion, or assumption.

According to **CEQA Guidelines § 15384:**

> *"Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts."*

Conversely, § 15384(b) states:

> *"Argument, speculation, unsubstantiated opinion or narrative, evidence that is clearly inaccurate or erroneous, or evidence that is not credible shall not constitute substantial evidence."*

Invalid examples include:

1. Unsubstantiated Opinions – Generalized claims such as "we feel connected to this area" without accompanying documentation.
2. Speculative Assertions – Guesswork or assumptions without factual or historical support.
3. Form Letters or Equity-Based Requests – Requests made "in the spirit of respect" or for equitable inclusion with no specific tie to the site.
4. NAHC List Status Alone – Being listed on the NAHC Consultation Contact List does not establish cultural affiliation or descent. The NAHC has clarified this list is strictly for contact purposes.
5. Unverified or Fabricated Sources – Misrepresented or plagiarized documents, or third-party claims made without evidence.

Allowing participation based on such unsupported assertions undermines the legal foundation of CEQA, violates the rights of lineal descendant tribes, and puts the lead agency at legal risk.

III. Legal Precedent: Koi Nation v. City of Clearlake (2020)

This pivotal court case illustrates the legal requirement to honor substantial evidence. The Koi Nation provided maps, Tribal records, and historical evidence of its ancestral ties to a project site in Clearlake. The City dismissed the evidence and issued a Mitigated Negative Declaration (MND) instead of conducting full consultation.

The California Court of Appeal ruled in favor of the Koi Nation, concluding that:

- The Tribe met the substantial evidence standard, triggering the requirement for full CEQA review;
- The city violated CEQA by dismissing the evidence and failing to conduct proper consultation;
- The presence of substantial evidence that cultural resources may be affected required the preparation of an EIR.

Lead agencies are legally obligated to consult and coordinate with tribes that present documented, fact-based evidence of cultural affiliation to a project area. This case confirms that agencies may not substitute convenience, preference, or assumptions in place of the legal requirement to engage Tribes who provide substantial evidence of ancestral connection.

IV. Why This Matters

Pursuant to SECTION 106 and CEQA, consultation must be based on "substantial evidence" demonstrating a tribe's cultural or ancestral affiliation to the specific project area. Failure to apply the substantial evidence standard results in:

- Invalidation of tribal consultation efforts
- Potential CEQA litigation and project delays
- Legal and ethical harm to culturally affiliated tribes
- Risk of project rejection or reversal

V. Tribal Obligations and Evidentiary Submissions During SECTION 106 Consultation

SECTION 106 consultation is a structured, evidence-driven process. Tribes asserting consultation rights are expected to provide ***specific, location-based, and documented information*** regarding Tribal Cultural Resources (TCRs) within or near a project area. Consultation is not abstract or generalized; it is grounded in identifiable resources, cultural landscapes, and documented affiliation.

During consultation, a tribe asserting cultural affiliation should be prepared to submit, discuss, and substantiate the following, as applicable:

A. Identification of Tribal Cultural Resources (TCRs)
Detailed information identifying sites, features, objects, landscapes, or cultural places that possess cultural, spiritual, ceremonial, or traditional significance. This includes, but is not limited to, village locations, trails, use areas, burial contexts, sacred sites, and cultural landscapes—whether previously recorded or not.

B. Maps and Geographic Documentation
Maps delineating the tribe's area of traditional and cultural affiliation and identifying known or sensitive TCR locations, corridors, or cultural landscapes relevant to the project area.

C. Cultural Significance
A clear explanation of why identified resources are culturally significant, including spiritual, ceremonial, historical, or traditional importance. Cultural value is not limited to archaeological visibility and may extend beyond surface expressions.

D. Proposed Avoidance, Preservation, or Mitigation Measures
Concrete, project-specific measures proposed by the tribe, including avoidance, preservation in place, cultural monitoring, treatment protocols, access restrictions, or other culturally appropriate protections.

E. Confidentiality Requests
Formal requests to protect sensitive cultural information from public disclosure, as required and authorized under SECTION 106 and CEQA. Lead agencies are obligated to respect and safeguard confidential tribal information provided during consultation.

F. Formal and Timely Response to Consultation Notices
Written responses submitted within statutory timelines, forming part of the administrative record. While sample formats provided by the Native American Heritage Commission (NAHC) may be used, consultation determinations must ultimately rely on the **substantive evidence submitted**, not the format of correspondence.

VI. Consultation Standards: Good-Faith, Substantive, and Documented Engagement

SECTION 106 requires consultation to be conducted in *good faith* and to involve *meaningful, substantive dialogue*, not a procedural or checkbox exercise.

Key consultation principles include:

- **Early Engagement**
  Consultation should occur early enough in the planning process to allow for meaningful avoidance and project modification alternatives, not after project parameters are fixed.

- **Substantive Dialogue**
  Consultation must involve confidential, substantive discussions—preferably in person—regarding impacts, alternatives, and mitigation measures. Mere information exchange or unilateral agency determinations do not satisfy SECTION 106.

- **Documentation in the Administrative Record**
  All tribal input, correspondence, meeting notes, and submitted evidence must be accurately documented by the lead agency in the administrative record supporting environmental review.

- **Proactive Tribal Participation**
  Tribes are entitled to propose alternatives, mitigation measures, and treatment protocols that actively shape project outcomes. This proactive engagement strengthens CEQA compliance and reduces legal vulnerability.

By providing detailed, fact-based information and actively participating in consultation, tribes ensure their cultural heritage is properly considered while enabling lead agencies to meet their statutory obligations under CEQA and SECTION 106.

VII. Clarification Regarding County Proclamations and Political Recognition

It is necessary to clarify that **county or municipal proclamations do not constitute substantial evidence** under CEQA or SECTION 106.

A. Legal Standard for Substantial Evidence

a. CEQA Guidelines § 15384(a) define substantial evidence as:
    i. *"Facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts."*
b. CEQA Guidelines § 15384(b) further provide that:
    i. "Argument, speculation, unsubstantiated opinion, or evidence that is clearly inaccurate or erroneous does not constitute substantial evidence."

A county proclamation is a *political or ceremonial act*, not a factual, genealogical, ethnographic, or expert determination. It does not meet the substantial evidence standard required by CEQA.

B. SECTION 106 Requires Factual Determination of Cultural Affiliation

Under SECTION 106, tribal participation in consultation and mitigation depends on whether the lead agency determines (**based on substantial evidence**) that:

1. A Tribal Cultural Resource exists (Public Resources Code § 21074(a)(2)); and
2. The tribe is traditionally and culturally affiliated with that resource or geographic area (Public Resources Code § 21080.3.1(b)).

A proclamation does not establish traditional or cultural affiliation and cannot substitute for documented ancestral evidence.

C. Proclamations Are Not Expert or Evidentiary Findings

County proclamations typically:

- Are issued by elected officials;
- Do not include genealogical analysis;
- Do not cite ethnographic, mission-era, or historical documentation;
- Are not the result of CEQA findings, peer review, or expert assessment.

Courts have consistently recognized that *political recognition is not equivalent to evidentiary proof* under CEQA.

D. What Does Qualify as Substantial Evidence of Ancestral Affiliation

Examples of documentation that may satisfy the substantial evidence standard include:

- Mission and baptismal records with genealogical continuity;
- Ethnographic and historical sources (including mission-era and early ethnographic records);
- Documented village locations and evidence of continuous occupation;
- Prior CEQA findings recognizing ancestral affiliation;
- Expert reports grounded in verifiable, peer-reviewed data.

A county proclamation, standing alone, does not constitute substantial evidence under CEQA or SECTION 106 that a tribe is traditionally or culturally affiliated with a project area. While such proclamations may reflect political acknowledgment, they do not satisfy the legal evidentiary requirements of Public Resources Code §§ 21074 and 21080.3.1 or CEQA Guidelines § 15384.

VIII. The Position of the Kizh Nation

The Gabrieleño Band of Mission Indians – Kizh Nation maintains and submits substantial archaeological, historical, genealogical, and cultural evidence of our ancestral presence in the Greater Los Angeles Basin and associated project areas. This documented affiliation compels our inclusion in all stages of consultation, monitoring, and cultural resource treatment.

We respectfully urge your agency to uphold CEQA and SECTION 106's legal standards and to reject unsupported claims that seek involvement based on speculative or generalized assertions. Inclusion in tribal consultation is a legal matter—not a discretionary one.

Should your agency require further documentation, expert testimony, or legal case references to support this position, we are available to provide additional materials upon request.

Respectfully,



Hereditary Chief Andrew Salas
Gabrieleño Band of Mission Indians–Kizh Nation

GABRIELEÑO BAND OF MISSION INDIANS - KIZH NATION
Historically known as The San Gabriel Band of Mission Indians recognized by the State of California as the aboriginal tribe of the Los Angeles basin

Tuesday, June 2, 2026

Samer Alzubaidi
Executive Director
City of Fontana
Alzusa@fusd.net

Dear Samer Alzubaidi,

Please find below the substantial evidence submitted by the Gabrieleño Band of Mission Indians – Kizh Nation in relation to your project. This documentation fulfills the legal requirement under the California Environmental Quality Act (CEQA) and Assembly Bill 52 (AB 52) to establish our Tribe's cultural and ancestral affiliation to the project area.

The proposed project is located within the ancestral homeland of the Gabrieleño Band of Mission Indians – Kizh Nation, the historically documented Indigenous people of the Los Angeles Basin and surrounding regions. The Kizh people have maintained a continuous cultural, spiritual, and historical connection to this landscape since time immemorial. The project area falls within a broader cultural landscape that was utilized for habitation, travel, trade, resource procurement, ceremonial activities, and the maintenance of social relationships between neighboring villages throughout Southern California.

The City of Fontana is situated within an area historically associated with the Kizh village of **Kukamonga**, an important village and cultural landscape that served as part of a larger network of Indigenous settlements connected by traditional trails, seasonal resource gathering areas, and waterways. The surrounding region provided access to natural springs, alluvial fan environments, oak woodlands, chaparral communities, and diverse plant and animal resources that sustained Indigenous populations for thousands of years.

Spanish and Rancho Period Overview

Following Spanish colonization, Indigenous lifeways within the region were dramatically altered through the establishment of missions, ranchos, and agricultural enterprises. The Fontana area became associated with lands that later formed part of **Rancho Cucamonga**, one of the significant Mexican-era land grants in the region. Although the rancho system transformed the landscape through grazing, agriculture, and settlement activities, it did not eliminate the presence of Indigenous peoples, nor did it erase the cultural significance of ancestral village sites, travel corridors, traditional gathering areas, and sacred places that remained embedded within the landscape.

The historical record demonstrates that Indigenous communities continued to occupy, utilize, and maintain cultural connections to these lands throughout the Spanish, Mexican, and American periods.

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Dr. Christina Swindall Martinez, Secretary
Mike Jesus Lemos, Treasurer I | Samantha Lemos, Treasurer II | Richard Gradias, Chairman of the council of Elders
PO Box 393 Covina, CA 91723 www.gabrielenoindians.org
admin@gabrielenoindians.org

Archaeological Sensitivity and Cultural Resources

The City of Fontana and surrounding areas contain a substantial record of Indigenous occupation. Archaeological investigations conducted throughout the Inland Empire have documented prehistoric villages, temporary camps, lithic scatters, bedrock milling features, trails, sacred landscapes, and burial locations. Numerous cultural resources have been identified within the broader region, demonstrating a long and continuous history of Indigenous occupation extending thousands of years before European contact.

It is important to recognize that the absence of previously recorded archaeological sites within a project footprint does not indicate the absence of Tribal Cultural Resources. Many significant cultural resources remain undocumented, buried beneath historic fill, obscured by modern development, or maintained through Tribal oral histories and traditional knowledge. Tribal Cultural Resources under CEQA may include cultural landscapes, traditional use areas, sacred places, travel corridors, and other locations of cultural significance that may not be reflected in existing archaeological databases.

Tribal Cultural Resource Concerns

Based upon the cultural sensitivity of the project area, the known Indigenous occupation of the region, the proximity to the ancestral village of Kukamonga, and the extensive history of cultural resource discoveries throughout the surrounding area, the Gabrieleño Band of Mission Indians – Kizh Nation maintains that ground-disturbing activities associated with the proposed project have the potential to impact Tribal Cultural Resources, archaeological deposits, and Native American human remains.

Ground disturbance activities including, but not limited to, grading, excavation, trenching, drilling, boring, augering, utility installation, demolition with subterranean impacts, and other subsurface disturbances may encounter previously unidentified cultural materials.

Requested Mitigation Measures

To reduce potential impacts to Tribal Cultural Resources, the Gabrieleño Band of Mission Indians – Kizh Nation respectfully requests the following measures:

1. Retention of a Kizh Nation Tribal Monitor during all ground-disturbing activities associated with the project.
2. Execution of a Tribal Monitoring Agreement prior to the commencement of any ground-disturbing activities.
3. Immediate cessation of work within a minimum 50-foot radius should Tribal Cultural Resources, archaeological materials, or Native American human remains be encountered.
4. Evaluation of any discoveries in consultation with the Gabrieleño Band of Mission Indians – Kizh Nation to determine appropriate treatment, avoidance, preservation, or mitigation measures.
5. Compliance with all applicable provisions of CEQA, AB 52, Public Resources Code §5097.98, Health and Safety Code §7050.5, and other applicable state and federal regulations governing cultural resources and Native American human remains.

Conclusion

The Gabrieleño Band of Mission Indians – Kizh Nation possesses substantial evidence demonstrating its cultural affiliation to the City of Fontana and the surrounding region. The project area is situated within a culturally sensitive ancestral landscape associated with the village of Kukamonga and contains the potential to impact significant Tribal Cultural Resources. Accordingly, the Tribe requests continued consultation pursuant to AB 52 and the incorporation of appropriate avoidance, monitoring, and protection measures to ensure that Tribal Cultural Resources are properly identified and protected throughout the duration of the project.

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Dr. Christina Swindall Martinez, Secretary
Mike Jesus Lemos, Treasurer I | Samantha Lemos, Treasurer II | Richard Gradias, Chairman of the council of Elders
PO Box 393 Covina, CA 91723 www.gabrielenoindians.org
admin@gabrielenoindians.org

Respectfully,



Hereditary Chief Andrew Salas
Gabrieleño Band of Mission Indians–Kizh Nation

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Dr. Christina Swindall Martinez, Secretary
Mike Jesus Lemos, Treasurer I | Samantha Lemos, Treasurer II | Richard Gradias, Chairman of the council of Elders

PO Box 393 Covina, CA 91723 www.gabrielenoindians.org
admin@gabrielenoindians.org

From: Samer Alzubaidi <Samer.Alzubaidi@fusd.net>
Sent: Thursday, June 4, 2026 5:15 PM
To: Alen Estrada-Rodas; Noel S. Garcia
Cc: Nicole A. LaCroix; Meghann Ortiz
Subject: Fw: Summit High School Stadium
Attachments: Summit High School Stadium_1938map_.png; Summit High School Stadium_1881map_.png; Summit High School Stadium_villagemap_.png; Chris Database SSFL.png; NACH SACRED LANDSFILE RESPONSE .jpeg; NAHC Letter Regarding Public Resources Code Section 5097.98 MLD .jpg; TECHINICAL ADVISORY .jpg; Summit High School Stadium_Mitigation Measures_.pdf; Summit High School Stadium_response_.pdf; Attn Lead Agencies.pdf; Legal Thresholds for "Substantial Evidence" in Tribal Consultation_Final.pdf; AB52TribalConsultationRequirementsAndBestPractices_Revised_3_9_16.pdf; Revised_AB_52_Technical_Advisory_March_2017.pdf

Thank you,

Samer Alzubaidi
Executive Director FMOT
9851 Catawba Ave.
Fontana, CA 92334-5090

p: (909)357-7521
e: Alzusa@fusd.net

From: Andy Salas <admin@gabrielenoindians.org>
Sent: Thursday, June 4, 2026 4:53 PM
To: Samer Alzubaidi <Samer.Alzubaidi@fusd.net>
Cc: Sophia Pina <sophia_pina@gabrielenokizh.org>; Andy Salas <chairman@gabrielenoindians.org>; KARA GRANT <kara@grant-law.net>
Subject: Re: Summit High School Stadium

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Dear Mr. Alzubaidi,

The Kizh Nation respectfully submits the attached information for inclusion in the administrative record and requests that it be considered prior to any final approval of the Summit High School Stadium Improvements Project. The materials contain confidential Tribal knowledge concerning Tribal Cultural Resources and areas of cultural significance and are submitted with the expectation that they will be protected from public disclosure to the fullest extent permitted by law.

The project area lies within the documented ancestral territory of the Gabrieleño Band of Mission Indians – Kizh Nation (Quiichi), as supported by ethnographic records, historical maps,

anthropological documentation, oral history, traditional knowledge, archaeological evidence, and historical accounts. The attached documentation constitutes substantial evidence within the meaning of CEQA Guidelines section 15384 of the Tribe's direct cultural, historical, and ancestral affiliation to the project area and of the reasonable potential for impacts to Tribal Cultural Resources as defined by Public Resources Code section 21074.

The Kizh Nation is concerned that the District may have prematurely closed consultation before fully considering substantial evidence submitted by the Tribe and before engaging in meaningful discussion of project-specific avoidance and mitigation measures. The Tribe is further concerned that the District may have relied on comments from another consulting tribe without first evaluating whether substantial evidence was provided to support that tribe's claimed affiliation to the specific project area. AB 52 requires consultation with tribes that are traditionally and culturally affiliated with the geographic area of a proposed project, and CEQA determinations must be based on substantial evidence in the administrative record. The correspondence provided by the lead agency appears to **consist primarily of requests for monitoring and treatment measures and does not identify the evidentiary basis establishing that tribe's ancestral affiliation to the project area.**

The Yuhaaviatam of San Manuel Nation maintains historical and cultural connections to its own traditionally documented ancestral territory, including portions of the San Bernardino Mountains, Mojave River Basin, and surrounding inland regions. However, the existence of those ancestral ties does not, by itself, establish direct traditional and cultural affiliation to the project area located within the ancestral homeland of the Gabrieleño Band of Mission Indians – Kizh Nation. The Kizh Nation further notes that the presence of individuals from neighboring tribal communities within the San Gabriel Mission system during the Spanish colonial period does not constitute evidence of ancestral territorial affiliation to the Los Angeles Basin or San Gabriel Valley, including the city of Fontana.

The District's evaluation should rely on substantial evidence specific to the project area, rather than assumptions based only on monitoring requests lacking substantial evidence. The Kizh Nation also objects to the proposed mitigation measures currently under consideration. Public Resources Code section 21084.3 provides that public agencies shall, when feasible, avoid damaging effects to any Tribal Cultural Resource and identifies mitigation approaches that prioritize avoidance and preservation in place. Given the cultural sensitivity of the area, the Kizh Nation maintains that mitigation measures developed through consultation are informed by ancestral tribal protocols, traditional knowledge, oral tradition, ethnographic and historical documentation, and the Tribe's longstanding cultural relationship with the landscape. As the ancestral tribe of the region, the Kizh Nation is uniquely positioned to identify appropriate measures necessary to avoid, minimize, and mitigate impacts to Tribal Cultural Resources.

Our proposed mitigation measures are tailored to Kizh Nation ancestral and cultural protocols and are intended to be the *minimum* feasible measures necessary to avoid, minimize, and/or mitigate impacts to Tribal Cultural Resources in a manner that is mutually agreed upon through consultation.
The District's evaluation should be based on the substantial evidence contained within the administrative record and consistent with CEQA's evidentiary standards.

The Kizh Nation respectfully requests that the attached materials be fully considered prior to any project approval or adoption of mitigation measures. The Tribe further requests written clarification on whether the District received and evaluated substantial evidence supporting any other tribe's claimed affiliation to the project area.

Please confirm receipt of these materials.

Best regards,
Sophia Pina

On Thu, Jun 4, 2026 at 1:52 PM Samer Alzubaidi <Samer.Alzubaidi@fusd.net> wrote:

Dear Andy,
While the District remains committed to open and meaningful consultation with the Gabrieleño Band Of Mission Indians - Kizh Nation, we have not received a response after multiple outreach attempts. Therefore, in accordance with Public Resources Code Section 21080.3.2, the District considers the formal consultation process closed for the Summit High School Stadium Improvements Project. Please note that this does not prevent the Tribe from reaching out in the future; we welcome your input and remain open to continued communication should you wish to discuss the project at a later date.

Thank you,

Samer Alzubaidi
Executive Director FMOT
9851 Catawba Ave.
Fontana, CA 92334-5090

p: (909)357-7521
e: Alzusa@fusd.net

From: Andy Salas <admin@gabrielenoindians.org>
Sent: Friday, May 15, 2026 10:46 AM
To: Samer Alzubaidi <Samer.Alzubaidi@fusd.net>
Subject: Re: Summit High School Stadium

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You don't often get email from admin@gabrielenoindians.org. Learn why this is important

Hello Samer

Did you receive my last email on May 5th?

Brandy Salas

On Wed, May 6, 2026 at 4:53 PM Andy Salas <admin@gabrielenoindians.org> wrote:

Hello Smer

We are following up on our last email.

Brandy Salas

On Tue, May 5, 2026 at 4:02 PM Andy Salas <admin@gabrielenoindians.org> wrote:

Good afternoon Samer

We received your voicemessage on trying to set up a call to discuss the above project. Unfortunately Chief Salas's schedule is fully booked for the entire month of May. If you are on a tight deadline Chief Salas is offering the option to go through consultation via email. We can provide substantial evidence, maps, and measures to help the project move forward without any delays. Please let us know if this will work for you.

Brandy Salas

On Tue, Apr 21, 2026 at 4:24 PM Andy Salas <admin@gabrielenoindians.org> wrote:

Hello Samer,

Thank you for your letter dated April 8, 2026. Please see the attachment below.

Thank you

--
Best regards,
Chloe Soto

Tribal Councilmember | Administrative Specialist
Gabrieleño Band of Mission Indians - Kizh Nation
PO Box 393
Covina, CA 91723
Office: 844-390-0787
Direct: (626) 469-2656
www.gabrielenoindians.org

For over twelve thousand years, the Gabrieleño people have thrived in what is now Los Angeles County, over half of Orange County, and parts of Riverside and San Bernardino counties. It was their labor that built the missions, ranchos, and pueblos of Los Angeles. Skilled in various trades, they constructed and maintained infrastructure, cultivated lands, and managed livestock. Their contributions formed the foundation of the early Los Angeles economy—an integral history that remains largely unrecognized.

DISCLAIMER:
Any views or opinions presented in this communication are solely those of the author and do not necessarily represent those of Fontana Unified School District.

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FUSD FONTANA UNIFIED SCHOOL DISTRICT

9680 Citrus Avenue • P. O. Box 5090 • Fontana • California 92335-5090 • (909) 357-5000 • www.fusd.net

June 15, 2026

Brandy Salas
Tribal Councilmember | Administrative Specialist
Gabrieleño Band of Mission Indians – Kizh Nation
PO Box 393
Covina, CA 91723

Dear Brandy Salas,

Thank you for engaging in consultation with the Fontana Unified School (District) under Assembly Bill 52 (AB 52) for the Summit High School Stadium Improvements Project (proposed project). The District deeply values the Gabrieleño Band of Mission Indians – Kizh Nation's expertise, cultural knowledge, and commitment to preserving ancestral tribal cultural resources within the project area.

The District has carefully reviewed and evaluated the mitigation measures proposed by the Kizh Nation to protect potential tribal cultural resources. Under the provisions of AB 52, lead agencies are tasked with balancing proposed protections with existing protocols to ensure measures are feasible and clear.

After a thorough evaluation, the District has determined that the environmental document already contains a robust framework of mitigation measures—originally developed in consultation with the Yuhaaviatam of San Manuel Nation (YSMN)—that effectively protect, identify, and treat subsurface cultural resources. Because these existing protocols provide comprehensive oversight and protective mechanisms for the same geographic footprint, the implementation of standalone tribal language would create regulatory redundancies and overlapping operational protocols that are legally and practically unfeasible to implement on-site. As a mitigation measure, if significant pre-contact cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to YSMN and Kizh Nation for review and comment, as detailed in Mitigation Measure TCR-1. The archaeologist shall monitor the remainder of the project and implement the plan accordingly.

While the District is not implementing your proposed mitigation language due to these administrative redundancies, we deeply respect the Kizh Nation's historical and cultural ties to this region. The District remains firmly committed to acting in good faith to protect your ancestral heritage. To ensure your ties

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to the land are honored, the District commits to immediately notifying the Kizh Nation in the event that any tribal cultural resources or inadvertent discoveries are made during ground-disturbing activities, and we will revise the existing mitigation measures accordingly.

The District has acted in good faith throughout this process and believes the existing administrative record demonstrates a thorough, protective framework for cultural resources. With this formal determination regarding feasibility and redundancy, the District will move forward to conclude the AB 52 consultation process for this project pursuant to PRC Section 21080.3.2.(b)(2).

Thank you again for your time, dedication, and invaluable insights.

Sincerely,

Samer Alzubaidi, Executive Director
Facilities, Maintenance and Operations and Transportation