Appendix B:
Air Quality, Greenhouse Gas Emissions, and Energy Analysis Supporting Information

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Appendix B: Air Quality Supporting Informationand Modeling Results

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5076.0001 Outfront Media LED Billboards Project - Langton Site

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.01	25.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Langton Site - Construction Only

Land Use - Langton Site

Construction Phase - Billboard construction would require 2 to 4 weeks to complete

Off-road Equipment - Estimated construction equipment

Off-road Equipment - Estimated construction equipment

Off-road Equipment - Estimated construction equipment

Trips and VMT - Additional worker trips added to the building construction phase and two vendor trips per day added to all phases to account for the delivery of materials.

Grading - The total transported soils would require four additional truck trips to and from the location.

Construction Off-road Equipment Mitigation - Compliance with BAAQMD best management practices threshold for fugitive dust; recommended measures from BAAQMD's Basic Construction Mitigation Measures Recommended for All Proposed Projects.
Tier III mitigation

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	100.00	19.00
tblConstructionPhase	NumDays	2.00	1.00
tblConstructionPhase	NumDays	5.00	2.00
tblGrading	MaterialExported	0.00	64.00
tblLandUse	LandUseSquareFeet	0.00	25.00
tblLandUse	LotAcreage	0.00	0.01
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	UsageHours	6.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00
tblTripsAndVMT	WorkerTripNumber	5.00	8.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	4.7800e-003	0.0514	0.0264	6.0000e-005	9.1000e-004	2.4600e-003	3.3700e-003	2.5000e-004	2.2700e-003	2.5100e-003	0.0000	5.6163	5.6163	1.3200e-003	0.0000	5.6493
Maximum	**4.7800e-003**	**0.0514**	**0.0264**	**6.0000e-005**	**9.1000e-004**	**2.4600e-003**	**3.3700e-003**	**2.5000e-004**	**2.2700e-003**	**2.5100e-003**	**0.0000**	**5.6163**	**5.6163**	**1.3200e-003**	**0.0000**	**5.6493**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	1.6300e-003	0.0268	0.0301	6.0000e-005	9.1000e-004	1.1000e-003	2.0100e-003	2.5000e-004	1.0900e-003	1.3400e-003	0.0000	5.6163	5.6163	1.3200e-003	0.0000	5.6493
Maximum	**1.6300e-003**	**0.0268**	**0.0301**	**6.0000e-005**	**9.1000e-004**	**1.1000e-003**	**2.0100e-003**	**2.5000e-004**	**1.0900e-003**	**1.3400e-003**	**0.0000**	**5.6163**	**5.6163**	**1.3200e-003**	**0.0000**	**5.6493**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**65.90**	**47.87**	**-13.97**	**0.00**	**0.00**	**55.28**	**40.36**	**0.00**	**51.98**	**46.61**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	10/1/2018	10/1/2018	5	1	
2	Building Construction	Building Construction	10/2/2018	10/26/2018	5	19	
3	Paving	Paving	10/25/2018	10/26/2018	5	2	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Concrete/Industrial Saws	1	2.00	81	0.73
Grading	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Paving	Cement and Mortar Mixers	1	2.00	9	0.56

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	3	8.00	2.00	8.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	3	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	2	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-004	3.0800e-003	1.9500e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.2000e-004	1.2000e-004	0.0000	0.5488	0.5488	1.6000e-004	0.0000	0.5526
Total	**2.7000e-004**	**3.0800e-003**	**1.9500e-003**	**1.0000e-005**	**0.0000**	**1.3000e-004**	**1.3000e-004**	**0.0000**	**1.2000e-004**	**1.2000e-004**	**0.0000**	**0.5488**	**0.5488**	**1.6000e-004**	**0.0000**	**0.5526**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.3100e-003	2.2000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3126	0.3126	2.0000e-005	0.0000	0.3130
Vendor	0.0000	1.3000e-004	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0268	0.0268	0.0000	0.0000	0.0269
Worker	2.0000e-005	1.0000e-005	1.3000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0299	0.0299	0.0000	0.0000	0.0299
Total	**6.0000e-005**	**1.4500e-003**	**3.8000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.3693**	**0.3693**	**2.0000e-005**	**0.0000**	**0.3698**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7000e-004	3.0600e-003	3.4500e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	0.5488	0.5488	1.6000e-004	0.0000	0.5526
Total	**1.7000e-004**	**3.0600e-003**	**3.4500e-003**	**1.0000e-005**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**0.5488**	**0.5488**	**1.6000e-004**	**0.0000**	**0.5526**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.3100e-003	2.2000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3126	0.3126	2.0000e-005	0.0000	0.3130
Vendor	0.0000	1.3000e-004	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0268	0.0268	0.0000	0.0000	0.0269
Worker	2.0000e-005	1.0000e-005	1.3000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0299	0.0299	0.0000	0.0000	0.0299
Total	**6.0000e-005**	**1.4500e-003**	**3.8000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.3693**	**0.3693**	**2.0000e-005**	**0.0000**	**0.3698**

3.3 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9800e-003	0.0436	0.0206	4.0000e-005		2.3000e-003	2.3000e-003		2.1100e-003	2.1100e-003	0.0000	3.4959	3.4959	1.0900e-003	0.0000	3.5231
Total	**3.9800e-003**	**0.0436**	**0.0206**	**4.0000e-005**		**2.3000e-003**	**2.3000e-003**		**2.1100e-003**	**2.1100e-003**	**0.0000**	**3.4959**	**3.4959**	**1.0900e-003**	**0.0000**	**3.5231**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.0000e-005	2.5600e-003	5.8000e-004	1.0000e-005	1.2000e-004	2.0000e-005	1.4000e-004	4.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.5096	0.5096	3.0000e-005	0.0000	0.5104
Worker	3.2000e-004	2.5000e-004	2.5000e-003	1.0000e-005	6.0000e-004	0.0000	6.1000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5678	0.5678	2.0000e-005	0.0000	0.5683
Total	**4.1000e-004**	**2.8100e-003**	**3.0800e-003**	**2.0000e-005**	**7.2000e-004**	**2.0000e-005**	**7.5000e-004**	**2.0000e-004**	**2.0000e-005**	**2.1000e-004**	**0.0000**	**1.0774**	**1.0774**	**5.0000e-005**	**0.0000**	**1.0787**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.4000e-004	0.0192	0.0229	4.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	3.4959	3.4959	1.0900e-003	0.0000	3.5231
Total	**9.4000e-004**	**0.0192**	**0.0229**	**4.0000e-005**		**9.2000e-004**	**9.2000e-004**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**3.4959**	**3.4959**	**1.0900e-003**	**0.0000**	**3.5231**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.0000e-005	2.5600e-003	5.8000e-004	1.0000e-005	1.2000e-004	2.0000e-005	1.4000e-004	4.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.5096	0.5096	3.0000e-005	0.0000	0.5104
Worker	3.2000e-004	2.5000e-004	2.5000e-003	1.0000e-005	6.0000e-004	0.0000	6.1000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5678	0.5678	2.0000e-005	0.0000	0.5683
Total	**4.1000e-004**	**2.8100e-003**	**3.0800e-003**	**2.0000e-005**	**7.2000e-004**	**2.0000e-005**	**7.5000e-004**	**2.0000e-004**	**2.0000e-005**	**2.1000e-004**	**0.0000**	**1.0774**	**1.0774**	**5.0000e-005**	**0.0000**	**1.0787**

3.4 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.0000e-005	9.0000e-005	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0115	0.0115	0.0000	0.0000	0.0115
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0000e-005**	**9.0000e-005**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0115**	**0.0115**	**0.0000**	**0.0000**	**0.0115**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.7000e-004	6.0000e-005	0.0000	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0536	0.0536	0.0000	0.0000	0.0537
Worker	3.0000e-005	3.0000e-005	2.6000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0598	0.0598	0.0000	0.0000	0.0598
Total	**4.0000e-005**	**3.0000e-004**	**3.2000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1134**	**0.1134**	**0.0000**	**0.0000**	**0.1136**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0115	0.0115	0.0000	0.0000	0.0115
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0115**	**0.0115**	**0.0000**	**0.0000**	**0.0115**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.7000e-004	6.0000e-005	0.0000	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0536	0.0536	0.0000	0.0000	0.0537
Worker	3.0000e-005	3.0000e-005	2.6000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0598	0.0598	0.0000	0.0000	0.0598
Total	**4.0000e-005**	**3.0000e-004**	**3.2000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1134**	**0.1134**	**0.0000**	**0.0000**	**0.1136**

Outfront Media LED Billboards Project - Removal Sites - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Outfront Media LED Billboards Project - Removal Sites

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.01	25.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2018
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Removal Sites - Construction Only

Land Use - Removal of existing billboards

Construction Phase - It is expected to take approximately one to two working days to remove each of the existing billboard structures, for a maximum of approximately 20 working days to remove all billboard structures.

Off-road Equipment - Estimated construction equipment

Off-road Equipment - Estimated construction equipment
Hand tools and small crane rigs would be used to remove the billboards.

Trips and VMT - Additional vendor trips and haul trips were added to account for delivery of material and transport of removed billboards.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	20.00
tblLandUse	LandUseSquareFeet	0.00	25.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblLandUse	LotAcreage	0.00	0.01
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	9.1600e-003	0.0805	0.0649	1.2000e-004	9.3000e-004	4.8900e-003	5.8300e-003	2.5000e-004	4.7200e-003	4.9700e-003	0.0000	10.4841	10.4841	1.5400e-003	1.9000e-004	10.5793
Maximum	**9.1600e-003**	**0.0805**	**0.0649**	**1.2000e-004**	**9.3000e-004**	**4.8900e-003**	**5.8300e-003**	**2.5000e-004**	**4.7200e-003**	**4.9700e-003**	**0.0000**	**10.4841**	**10.4841**	**1.5400e-003**	**1.9000e-004**	**10.5793**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	9.1600e-003	0.0805	0.0649	1.2000e-004	9.3000e-004	4.8900e-003	5.8300e-003	2.5000e-004	4.7200e-003	4.9700e-003	0.0000	10.4841	10.4841	1.5400e-003	1.9000e-004	10.5793
Maximum	**9.16E-03**	**0.0805**	**0.0649**	**1.2000e-004**	**9.3000e-004**	**4.89E-03**	**5.8300e-003**	**2.5000e-004**	**4.72E-03**	**4.9700e-003**	**0.0000**	**10.4841**	**10.4841**	**1.5400e-003**	**1.9000e-004**	**10.5793**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e

Outfront Media LED Billboards Project - Removal Sites - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/1/2018	10/26/2018	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Cranes	1	2.00	231	0.29
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	2.00	20.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.6200e-003	0.0759	0.0611	1.0000e-004		4.8100e-003	4.8100e-003		4.6300e-003	4.6300e-003	0.0000	8.8214	8.8214	1.4900e-003	0.0000	8.8587
Total	**8.6200e-003**	**0.0759**	**0.0611**	**1.0000e-004**		**4.8100e-003**	**4.8100e-003**		**4.6300e-003**	**4.6300e-003**	**0.0000**	**8.8214**	**8.8214**	**1.4900e-003**	**0.0000**	**8.8587**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2000e-004	2.5400e-003	5.1000e-004	1.0000e-005	1.7000e-004	5.0000e-005	2.2000e-004	5.0000e-005	4.0000e-005	9.0000e-005	0.0000	0.6591	0.6591	2.0000e-005	1.0000e-004	0.6905
Vendor	1.1000e-004	1.7300e-003	4.7000e-004	0.0000	1.3000e-004	4.0000e-005	1.7000e-004	4.0000e-005	4.0000e-005	7.0000e-005	0.0000	0.4338	0.4338	1.0000e-005	7.0000e-005	0.4534
Worker	3.2000e-004	2.8000e-004	2.8300e-003	1.0000e-005	6.3000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5698	0.5698	3.0000e-005	2.0000e-005	0.5768
Total	**5.5000e-004**	**4.5500e-003**	**3.8100e-003**	**2.0000e-005**	**9.3000e-004**	**9.0000e-005**	**1.0300e-003**	**2.6000e-004**	**8.0000e-005**	**3.3000e-004**	**0.0000**	**1.6627**	**1.6627**	**6.0000e-005**	**1.9000e-004**	**1.7207**

Mitigated Construction On-Site

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

Outfront Media LED Billboards Project - Removal Sites - Alameda County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	tons/yr										MT/yr					
Off-Road	8.6200e-003	0.0759	0.0611	1.0000e-004		4.8100e-003	4.8100e-003		4.6300e-003	4.6300e-003	0.0000	8.8214	8.8214	1.4900e-003	0.0000	8.8586
Total	**8.6200e-003**	**0.0759**	**0.0611**	**1.0000e-004**		**4.8100e-003**	**4.8100e-003**		**4.6300e-003**	**4.6300e-003**	**0.0000**	**8.8214**	**8.8214**	**1.4900e-003**	**0.0000**	**8.8586**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2000e-004	2.5400e-003	5.1000e-004	1.0000e-005	1.7000e-004	5.0000e-005	2.2000e-004	5.0000e-005	4.0000e-005	9.0000e-005	0.0000	0.6591	0.6591	2.0000e-005	1.0000e-004	0.6905
Vendor	1.1000e-004	1.7300e-003	4.7000e-004	0.0000	1.3000e-004	4.0000e-005	1.7000e-004	4.0000e-005	4.0000e-005	7.0000e-005	0.0000	0.4338	0.4338	1.0000e-005	7.0000e-005	0.4534
Worker	3.2000e-004	2.8000e-004	2.8300e-003	1.0000e-005	6.3000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5698	0.5698	3.0000e-005	2.0000e-005	0.5768
Total	**5.5000e-004**	**4.5500e-003**	**3.8100e-003**	**2.0000e-005**	**9.3000e-004**	**9.0000e-005**	**1.0300e-003**	**2.6000e-004**	**8.0000e-005**	**3.3000e-004**	**0.0000**	**1.6627**	**1.6627**	**6.0000e-005**	**1.9000e-004**	**1.7207**

Outfront Media LED Billboard Project

Unmitigated

Notes: emissions are for 1 billboard (construction of each billboard uses the exact same assumptions, so the emissions estimates are also the same)
CalEEMod run used 25 sq ft as the project area
Construction Phase

Phase Name	Start Date	End Date	m Days We	Num Days
Grading	10/1/2018	10/1/2018	5	1
Building Constructic	10/2/2018	10/26/2018	5	19
Paving	10/25/2018	10/26/2018	5	2
			Total	**20 working days because of overlap**

Construction Annual DPM Emissions (as PM2.5 Exhaust)

Construction Scheduling	**2018**	
	8	hours/day
	5	days/week
	4	weeks/year
	160	hours/year

4-week construction schedule

Onsite Construction Area Source Size (m2): 6.1 from AERMOD

Onsite Construction PM2.5 Emissions

2018		**Onsite**	**Onsite**	**Onsite DPM**
	Construction Activity	**Annual DPM Exhaust Emissions (tons/year)**	**Annual DPM Exhaust Emissions (g/sec)**	**Source Exhaust Emissions (g/m2-sec)**
	Grading	1.200E-04	1.892E-04	3.101E-05
	Building Construction	2.110E-03	3.326E-03	5.453E-04
	Paving	0.000E+00	0.000E+00	0.000E+00
	Total	**2.230E-03**	**3.515E-03**	**5.763E-04**

Offsite Construction Vehicle PM2.5 Emissions

2018		**Offsite Hauling**	**Offsite Vendor**	**Offsite Workers**	
	Construction Activity	**Annual DPM Exhaust Emissions (tons/year)**	**Annual DPM Exhaust Emissions (tons/year)**	**Annual DPM Exhaust Emissions (tons/year)**	
	Grading	0.000E+00	0.000E+00	0.000E+00	
	Building Construction	0.000E+00	2.000E-05	0.000E+00	
	Paving	0.000E+00	0.000E+00	0.000E+00	
	Total (tons/year)	**0.000E+00**	**2.000E-05**	**0.000E+00**	**2.000E-05**
	Trip Distance assumed in CalEEMod (mi)	20.0	7.3	10.8	
	Offsite Project Trip Distance Along Roadway Segment	0.12	0.12	0.12	
	Offsite Project Emissions Along Roadway Segment	**0.000E+00**	**3.295E-07**	**0.000E+00**	

Offsite Emissions Along Roadway Segment Analyzed	
Total Offsite Project Exhaust Emissions (tons/year)	**3.295E-07**
Total Offsite Project Exhaust Emissions (grams/sec)	**5.194E-07**

Onsite Exhaust Emissions (tons/year)	**2.230E-03**
Total Onsite Emissions (tons/year)	**2.230E-03**
Onsite Exhaust Emissions (g/m2-sec)	**5.763E-04**

Total PM@2.5 Exhaust (tons/year)	2.230E-03

		Onsite DPM Concentration		Offise DPM Concentration		
X	Y	Unit Emission	Actual Emission	Unit Emission	Actual Emission	Total DPM
578818.9	4171632	106.8635	6.16E-02	38.58318	2.0E-05	6.16E-02
578842.1	4171636	600.00884	3.46E-01	55.80554	2.9E-05	3.46E-01
578851.9	4171638	626.10524	3.61E-01	34.25362	1.8E-05	3.61E-01
578803	4171629	75.36354	4.34E-02	20.05246	1.0E-05	4.34E-02
578862.5	4171641	500.61786	2.88E-01	22.79302	1.2E-05	2.89E-01
578819.3	4171599	33.02414	1.90E-02	56.0478	2.9E-05	1.91E-02
578854.1	4171606	104.6097	6.03E-02	66.85735	3.5E-05	6.03E-02
578871.6	4171610	129.28558	7.45E-02	33.04969	1.7E-05	7.45E-02
578882.5	4171615	139.97595	8.07E-02	23.08715	1.2E-05	8.07E-02
578797.3	4171598	22.06304	1.27E-02	39.50811	2.1E-05	1.27E-02
578770.4	4171588	14.62139	8.43E-03	43.50407	2.3E-05	8.45E-03
578752.1	4171585	11.61255	6.69E-03	40.97536	2.1E-05	6.71E-03
578737.1	4171583	9.60999	5.54E-03	35.9872	1.9E-05	5.56E-03
578783.3	4171599	20.68456	1.19E-02	31.58365	1.6E-05	1.19E-02
578865.5	4171567	26.68102	1.54E-02	26.70872	1.4E-05	1.54E-02
578880.4	4171564	27.94937	1.61E-02	18.44363	9.6E-06	1.61E-02
578827.6	4171559	12.51883	7.21E-03	37.00476	1.9E-05	7.23E-03
578801.3	4171554	7.78343	4.49E-03	36.66443	1.9E-05	4.50E-03
578785.8	4171549	6.74922	3.89E-03	31.20704	1.6E-05	3.91E-03
578770.3	4171547	6.43769	3.71E-03	29.82672	1.5E-05	3.73E-03
578753.1	4171545	6.13617	3.54E-03	28.19372	1.5E-05	3.55E-03
578867.2	4171552	18.23056	1.05E-02	16.34847	8.5E-06	1.05E-02
578870.1	4171534	12.55839	7.24E-03	10.17035	5.3E-06	7.24E-03
578829.9	4171536	7.71876	4.45E-03	14.26498	7.4E-06	4.46E-03
578819.6	4171538	6.98417	4.02E-03	16.69621	8.7E-06	4.03E-03
578872.7	4171519	9.33282	5.38E-03	7.02414	3.6E-06	5.38E-03
578887.8	4171525	11.8404	6.82E-03	7.2796	3.8E-06	6.83E-03
578829.1	4171512	4.99687	2.88E-03	7.32904	3.8E-06	2.88E-03
578812.4	4171504	3.66026	2.11E-03	5.98799	3.1E-06	2.11E-03
578796.5	4171508	3.51557	2.03E-03	6.65947	3.5E-06	2.03E-03
578775.9	4171516	3.89514	2.24E-03	8.3958	4.4E-06	2.25E-03
578777.5	4171501	3.13937	1.81E-03	5.39823	2.8E-06	1.81E-03
578759.3	4171514	3.80919	2.20E-03	7.32192	3.8E-06	2.20E-03
CONCUNIT /m^3		0	0.00E+00			
DEPUNIT g, ^2		0	0.00E+00			

Cancer Potency Factor: 1.1 $(mg/kg\text{-}day)^{-1}$
Averaging Period 25550 days

Year	Unit DPM Concentration (ug/m3)	Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At Home Factor	Exposure Frequency (days/year)	Exposure Duration (years)	Unit Risk Factor $(ug/m3)^{-1}$
3rd Trimester	1	10	361	0.85	350	0.08	3.9
infant	1	10	1090	0.85	350	0.08	11.6

BAAQMD 2016. Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines

Construction Cancer Risk Estimation

X (m)	Y (m)	DPM Emission Concentration ug/m3	Cancer Risk 2018 /million
578818.9	4171632	0.06	0.7
578842.1	4171636	0.35	4.0
578851.9	4171638	0.36	4.2
578803	4171629	0.04	0.5
578862.5	4171641	0.29	3.4
578819.3	4171599	0.02	0.2
578854.1	4171606	0.06	0.7
578871.6	4171610	0.07	0.9
578882.5	4171615	0.08	0.9
578797.3	4171598	0.01	0.1
578770.4	4171588	0.01	0.1
578752.1	4171585	0.01	0.1
578737.1	4171583	0.01	0.1
578783.3	4171599	0.01	0.1
578865.5	4171567	0.02	0.2
578880.4	4171564	0.02	0.2
578827.6	4171559	0.01	0.1
578801.3	4171554	0.00	0.1
578785.8	4171549	0.00	0.0
578770.3	4171547	0.00	0.0
578753.1	4171545	0.00	0.0
578867.2	4171552	0.01	0.1
578870.1	4171534	0.01	0.1
578829.9	4171536	0.00	0.1
578819.6	4171538	0.00	0.0
578872.7	4171519	0.01	0.1
578887.8	4171525	0.01	0.1
578829.1	4171512	0.00	0.0
578812.4	4171504	0.00	0.0
578796.5	4171508	0.00	0.0
578775.9	4171516	0.00	0.0
578777.5	4171501	0.00	0.0
578759.3	4171514	0.00	0.0
CONCUNIT /m^3		0.00	0.0

Maximum Cancer Risk	
4.2	
BAAQMD Threshold of Significance	
10	
Exceed Thresholds?	
No	

Unmitigated

Chronic Non-Cancer Hazard Index

Reference Exposure Level (REL) for DPM: 5 ug/m3

CNCHI = DPM/REL

X	Y	DPM (ug/m3)	CNCHI
578818.9	4171632	0.061604	0.01
578842.1	4171636	0.345806	0.07
578851.9	4171638	0.360834	0.07
578803	4171629	0.043441	0.01
578862.5	4171641	0.288511	0.06
578819.3	4171599	0.01906	0.00
578854.1	4171606	0.06032	0.01
578871.6	4171610	0.074523	0.01
578882.5	4171615	0.080678	0.02
578797.3	4171598	0.012735	0.00
578770.4	4171588	0.008449	0.00
578752.1	4171585	0.006713	0.00
578737.1	4171583	0.005557	0.00
578783.3	4171599	0.011937	0.00
578865.5	4171567	0.01539	0.00
578880.4	4171564	0.016116	0.00
578827.6	4171559	0.007234	0.00
578801.3	4171554	0.004505	0.00
578785.8	4171549	0.003906	0.00
578770.3	4171547	0.003725	0.00
578753.1	4171545	0.003551	0.00
578867.2	4171552	0.010515	0.00
578870.1	4171534	0.007243	0.00
578829.9	4171536	0.004456	0.00
578819.6	4171538	0.004034	0.00
578872.7	4171519	0.005382	0.00
578887.8	4171525	0.006827	0.00
578829.1	4171512	0.002883	0.00
578812.4	4171504	0.002112	0.00
578796.5	4171508	0.002029	0.00
578775.9	4171516	0.002249	0.00
578777.5	4171501	0.001812	0.00
578759.3	4171514	0.002199	0.00
CONCUNIT /m^3		0	
0	0	0	
0	0	0	

Max Non-cancer risk
0.07
BAAQMD Threshold of Significance
1
Exceed threshold?
No

Max PM2.5 Concentration
0.4
BAAQMD Threshold of Significance
0.3
Exceed threshold?
YES

Outfront Media LED Billboard Project

Tier III

Notes: emissions are for 1 billboard (construction of each billboard uses the exact same assumptions, so the emissions estimates are also the same)
CalEEMod run used 25 sq ft as the project area
Construction Phase

Phase Name	Start Date	End Date	m Days We	Num Days
Grading	10/1/2018	10/1/2018	5	1
Building Constructic	10/2/2018	10/26/2018	5	19
Paving	10/25/2018	10/26/2018	5	2
			Total	**20 working days because of overlap**

Construction Annual DPM Emissions (as PM2.5 Exhaust)

Construction Scheduling	**2018**		
	8	hours/day	
	5	days/week	
	4	weeks/year	4-week construction schedule
	160	hours/year	

Onsite Construction Area Source Size (m2): 6.1 from AERMOD

Onsite Construction PM2.5 Emissions

2018		**Onsite**	**Onsite**	**Onsite DPM**
	Construction Activity	**Annual DPM Exhaust Emissions (tons/year)**	**Annual DPM Exhaust Emissions (g/sec)**	**Source Exhaust Emissions (g/m2-sec)**
	Grading	1.400E-04	2.207E-04	3.618E-05
	Building Construction	9.200E-04	1.450E-03	2.378E-04
	Paving	0.000E+00	0.000E+00	0.000E+00
	Total	**1.060E-03**	**1.671E-03**	**2.739E-04**

Offsite Construction Vehicle PM2.5 Emissions

2018		**Offsite Hauling**	**Offsite Vendor**	**Offsite Workers**	
	Construction Activity	**Annual DPM Exhaust Emissions (tons/year)**	**Annual DPM Exhaust Emissions (tons/year)**	**Annual DPM Exhaust Emissions (tons/year)**	
	Grading	0.000E+00	0.000E+00	0.000E+00	
	Building Construction	0.000E+00	2.000E-05	0.000E+00	
	Paving	0.000E+00	0.000E+00	0.000E+00	
	Total (tons/year)	**0.000E+00**	**2.000E-05**	**0.000E+00**	**2.000E-05**
	Trip Distance assumed in CalEEMod (mi)	20.0	7.3	10.8	
	Offsite Project Trip Distance Along Roadway Segment	0.12	0.12	0.12	
	Offsite Project Emissions Along Roadway Segment	**0.000E+00**	**3.295E-07**	**0.000E+00**	

Offsite Emissions Along Roadway Segment Analyzed	
Total Offsite Project Exhaust Emissions (tons/year)	**3.295E-07**
Total Offsite Project Exhaust Emissions (grams/sec)	**5.194E-07**

Onsite Exhaust Emissions (tons/year)	**1.060E-03**
Total Onsite Emissions (tons/year)	**1.060E-03**
Onsite Exhaust Emissions (g/m2-sec)	**2.739E-04**

Total PM@2.5 Exhaust (tons/year)	1.060E-03

		Onsite DPM Concentration		Offise DPM Concentration		
X	Y	Unit Emission	Actual Emission	Unit Emission	Actual Emission	Total DPM
578818.9	4171632	106.8635	2.93E-02	38.58318	2.0E-05	2.93E-02
578842.1	4171636	600.00884	1.64E-01	55.80554	2.9E-05	1.64E-01
578851.9	4171638	626.10524	1.72E-01	34.25362	1.8E-05	1.72E-01
578803	4171629	75.36354	2.06E-02	20.05246	1.0E-05	2.07E-02
578862.5	4171641	500.61786	1.37E-01	22.79302	1.2E-05	1.37E-01
578819.3	4171599	33.02414	9.05E-03	56.0478	2.9E-05	9.08E-03
578854.1	4171606	104.6097	2.87E-02	66.85735	3.5E-05	2.87E-02
578871.6	4171610	129.28558	3.54E-02	33.04969	1.7E-05	3.54E-02
578882.5	4171615	139.97595	3.83E-02	23.08715	1.2E-05	3.84E-02
578797.3	4171598	22.06304	6.04E-03	39.50811	2.1E-05	6.06E-03
578770.4	4171588	14.62139	4.01E-03	43.50407	2.3E-05	4.03E-03
578752.1	4171585	11.61255	3.18E-03	40.97536	2.1E-05	3.20E-03
578737.1	4171583	9.60999	2.63E-03	35.9872	1.9E-05	2.65E-03
578783.3	4171599	20.68456	5.67E-03	31.58365	1.6E-05	5.68E-03
578865.5	4171567	26.68102	7.31E-03	26.70872	1.4E-05	7.32E-03
578880.4	4171564	27.94937	7.66E-03	18.44363	9.6E-06	7.67E-03
578827.6	4171559	12.51883	3.43E-03	37.00476	1.9E-05	3.45E-03
578801.3	4171554	7.78343	2.13E-03	36.66443	1.9E-05	2.15E-03
578785.8	4171549	6.74922	1.85E-03	31.20704	1.6E-05	1.87E-03
578770.3	4171547	6.43769	1.76E-03	29.82672	1.5E-05	1.78E-03
578753.1	4171545	6.13617	1.68E-03	28.19372	1.5E-05	1.70E-03
578867.2	4171552	18.23056	4.99E-03	16.34847	8.5E-06	5.00E-03
578870.1	4171534	12.55839	3.44E-03	10.17035	5.3E-06	3.45E-03
578829.9	4171536	7.71876	2.11E-03	14.26498	7.4E-06	2.12E-03
578819.6	4171538	6.98417	1.91E-03	16.69621	8.7E-06	1.92E-03
578872.7	4171519	9.33282	2.56E-03	7.02414	3.6E-06	2.56E-03
578887.8	4171525	11.8404	3.24E-03	7.2796	3.8E-06	3.25E-03
578829.1	4171512	4.99687	1.37E-03	7.32904	3.8E-06	1.37E-03
578812.4	4171504	3.66026	1.00E-03	5.98799	3.1E-06	1.01E-03
578796.5	4171508	3.51557	9.63E-04	6.65947	3.5E-06	9.66E-04
578775.9	4171516	3.89514	1.07E-03	8.3958	4.4E-06	1.07E-03
578777.5	4171501	3.13937	8.60E-04	5.39823	2.8E-06	8.63E-04
578759.3	4171514	3.80919	1.04E-03	7.32192	3.8E-06	1.05E-03
CONCUNIT /m^3		0	0.00E+00			
DEPUNIT g, ^2		0	0.00E+00			

Cancer Potency Factor: 1.1 $(mg/kg\text{-}day)^{-1}$
Averaging Period 25550 days

Year	Unit DPM Concentration (ug/m3)	Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At Home Factor	Exposure Frequency (days/year)	Exposure Duration (years)	Unit Risk Factor $(ug/m3)^{-1}$
3rd Trimester	1	10	361	0.85	350	0.08	3.9
infant	1	10	1090	0.85	350	0.08	11.6

BAAQMD 2016. Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines

Construction Cancer Risk Estimation

X (m)	Y (m)	DPM Emission Concentration ug/m3	Cancer Risk 2018 /million	
578818.9	4171632	0.03	0.3	Maximum Cancer Risk
578842.1	4171636	0.16	1.9	**2.0**
578851.9	4171638	0.17	2.0	BAAQMD Threshold of Significance
578803	4171629	0.02	0.2	10
578862.5	4171641	0.14	1.6	Exceed Thresholds?
578819.3	4171599	0.01	0.1	**No**
578854.1	4171606	0.03	0.3	
578871.6	4171610	0.04	0.4	
578882.5	4171615	0.04	0.4	
578797.3	4171598	0.01	0.1	
578770.4	4171588	0.00	0.0	
578752.1	4171585	0.00	0.0	
578737.1	4171583	0.00	0.0	
578783.3	4171599	0.01	0.1	
578865.5	4171567	0.01	0.1	
578880.4	4171564	0.01	0.1	
578827.6	4171559	0.00	0.0	
578801.3	4171554	0.00	0.0	
578785.8	4171549	0.00	0.0	
578770.3	4171547	0.00	0.0	
578753.1	4171545	0.00	0.0	
578867.2	4171552	0.01	0.1	
578870.1	4171534	0.00	0.0	
578829.9	4171536	0.00	0.0	
578819.6	4171538	0.00	0.0	
578872.7	4171519	0.00	0.0	
578887.8	4171525	0.00	0.0	
578829.1	4171512	0.00	0.0	
578812.4	4171504	0.00	0.0	
578796.5	4171508	0.00	0.0	
578775.9	4171516	0.00	0.0	
578777.5	4171501	0.00	0.0	
578759.3	4171514	0.00	0.0	
CONCUNIT /m^3		0.00	0.0	

Chronic Non-Cancer Hazard Index

Reference Exposure Level (REL) for DPM: 5 ug/m3

CNCHI = DPM/REL

X	Y	DPM (ug/m3)	CNCHI
578818.9	4171632	0.029293	0.006
578842.1	4171636	0.164389	0.033
578851.9	4171638	0.171527	0.034
578803	4171629	0.020655	0.004
578862.5	4171641	0.137146	0.027
578819.3	4171599	0.009075	0.002
578854.1	4171606	0.02869	0.006
578871.6	4171610	0.035432	0.007
578882.5	4171615	0.038356	0.008
578797.3	4171598	0.006064	0.001
578770.4	4171588	0.004028	0.001
578752.1	4171585	0.003202	0.001
578737.1	4171583	0.002651	0.001
578783.3	4171599	0.005683	0.001
578865.5	4171567	0.007323	0.001
578880.4	4171564	0.007666	0.002
578827.6	4171559	0.003449	0.001
578801.3	4171554	0.002151	0.000
578785.8	4171549	0.001865	0.000
578770.3	4171547	0.001779	0.000
578753.1	4171545	0.001696	0.000
578867.2	4171552	0.005002	0.001
578870.1	4171534	0.003445	0.001
578829.9	4171536	0.002122	0.000
578819.6	4171538	0.001922	0.000
578872.7	4171519	0.00256	0.001
578887.8	4171525	0.003247	0.001
578829.1	4171512	0.001373	0.000
578812.4	4171504	0.001006	0.000
578796.5	4171508	0.000966	0.000
578775.9	4171516	0.001071	0.000
578777.5	4171501	0.000863	0.000
578759.3	4171514	0.001047	0.000
CONCUNIT /m^3		0	

Max Non-cancer risk
0.03
BAAQMD Threshold of Significance
1
Exceed threshold?
No

Max PM2.5 Concentration
0.2
BAAQMD Threshold of Significance
0.3
Exceed threshold?
No

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.6.1
** Lakes Environmental Software Inc.
** Date: 7/26/2018
** File: C:\Users\xli\Desktop\Billboard\construction HRA\construction
HRA.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Users\xli\Desktop\Billboard-HRA\construction
HRA\construction HRA
   MODELOPT DFAULT CONC
   AVERTIME ANNUAL
   URBANOPT 10000
   POLLUTID DPM
   RUNORNOT RUN
   ERRORFIL "construction HRA.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   578820.223  4171653.850
18.000
** DESCRSRC on-site area source
** ------------------------------------------------------------------
--
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE1
** DESCRSRC offsite haul trucks
** PREFIX
** Length of Side = 8.50
** Configuration = Adjacent
** Emission Rate = 1.0
** Elevated
** Vertical Dimension = 6.22
** SZINIT = 1.45
```

```
** Nodes = 4
** 578717.434, 4171571.259, 17.12, 3.11, 3.95
** 578720.418, 4171562.131, 17.30, 3.11, 3.95
** 578844.739, 4171584.952, 18.00, 3.11, 3.95
** 578828.329, 4171640.137, 18.00, 3.11, 3.95
** ----------------------------------------------------------------
--
   LOCATION L0000001     VOLUME   578718.755 4171567.220 17.25
   LOCATION L0000002     VOLUME   578723.513 4171562.699 17.45
   LOCATION L0000003     VOLUME   578731.873 4171564.234 17.57
   LOCATION L0000004     VOLUME   578740.233 4171565.768 17.71
   LOCATION L0000005     VOLUME   578748.594 4171567.303 17.89
   LOCATION L0000006     VOLUME   578756.954 4171568.838 18.00
   LOCATION L0000007     VOLUME   578765.314 4171570.372 18.00
   LOCATION L0000008     VOLUME   578773.675 4171571.907 18.00
   LOCATION L0000009     VOLUME   578782.035 4171573.441 18.00
   LOCATION L0000010     VOLUME   578790.395 4171574.976 18.00
   LOCATION L0000011     VOLUME   578798.756 4171576.511 18.00
   LOCATION L0000012     VOLUME   578807.116 4171578.045 18.00
   LOCATION L0000013     VOLUME   578815.476 4171579.580 18.00
   LOCATION L0000014     VOLUME   578823.837 4171581.115 18.00
   LOCATION L0000015     VOLUME   578832.197 4171582.649 18.00
   LOCATION L0000016     VOLUME   578840.557 4171584.184 18.00
   LOCATION L0000017     VOLUME   578843.528 4171589.024 18.00
   LOCATION L0000018     VOLUME   578841.106 4171597.171 18.00
   LOCATION L0000019     VOLUME   578838.683 4171605.318 18.00
   LOCATION L0000020     VOLUME   578836.260 4171613.466 18.00
   LOCATION L0000021     VOLUME   578833.837 4171621.613 18.00
   LOCATION L0000022     VOLUME   578831.414 4171629.761 18.00
   LOCATION L0000023     VOLUME   578828.992 4171637.908 18.00
** End of LINE VOLUME Source ID = SLINE1
** Source Parameters **
   SRCPARAM PAREA1             1.0     5.000         4
   AREAVERT PAREA1       578820.223 4171653.850 578819.787 4171651.273
   AREAVERT PAREA1       578821.823 4171650.843 578822.259 4171654.279
** LINE VOLUME Source ID = SLINE1
   SRCPARAM L0000001     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000002     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000003     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000004     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000005     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000006     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000007     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000008     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000009     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000010     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000011     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000012     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000013     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000014     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000015     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000016     0.0434782609      3.11      3.95      1.45
```

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   SRCPARAM L0000017     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000018     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000019     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000020     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000021     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000022     0.0434782609      3.11      3.95      1.45
   SRCPARAM L0000023     0.0434782609      3.11      3.95      1.45
** ------------------------------------------------------------------
--
   URBANSRC PAREA1
   URBANSRC L0000001
   URBANSRC L0000002
   URBANSRC L0000003
   URBANSRC L0000004
   URBANSRC L0000005
   URBANSRC L0000006
   URBANSRC L0000007
   URBANSRC L0000008
   URBANSRC L0000009
   URBANSRC L0000010
   URBANSRC L0000011
   URBANSRC L0000012
   URBANSRC L0000013
   URBANSRC L0000014
   URBANSRC L0000015
   URBANSRC L0000016
   URBANSRC L0000017
   URBANSRC L0000018
   URBANSRC L0000019
   URBANSRC L0000020
   URBANSRC L0000021
   URBANSRC L0000022
   URBANSRC L0000023

** Variable Emissions Type: "By Hour / Day (HRDOW)"
** Variable Emission Scenario: "Scenario 2"
** WeekDays:
   EMISFACT PAREA1       HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT PAREA1       HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
   EMISFACT PAREA1       HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Saturday:
   EMISFACT PAREA1       HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Sunday:
   EMISFACT PAREA1       HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT PAREA1       HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** WeekDays:
```

```
EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000001     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0000001     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000002     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0000002     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000003     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000003     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0000003     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
EMISFACT L0000003     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000004     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000004     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0000004     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
EMISFACT L0000004     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000005     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000005     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0000005     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
EMISFACT L0000005     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000006     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000006     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0000006     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
EMISFACT L0000006     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000007     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000007     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0000007     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
EMISFACT L0000007     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000008     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000008     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0000008     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
EMISFACT L0000008     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000009     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000009     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0000009     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
EMISFACT L0000009     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000010     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000010     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0000010     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
EMISFACT L0000010     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000011     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000011     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0000011     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
EMISFACT L0000011     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000012     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000012     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0000012     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
EMISFACT L0000012     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000013     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000013     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0000013     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
EMISFACT L0000013     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
```

```
   EMISFACT L0000014     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000014     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0000014     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
   EMISFACT L0000014     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000015     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000015     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0000015     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
   EMISFACT L0000015     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000016     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000016     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0000016     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
   EMISFACT L0000016     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000017     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000017     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0000017     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
   EMISFACT L0000017     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000018     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000018     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0000018     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
   EMISFACT L0000018     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000019     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000019     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0000019     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
   EMISFACT L0000019     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000020     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000020     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0000020     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
   EMISFACT L0000020     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000021     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000021     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0000021     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
   EMISFACT L0000021     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000022     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000022     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0000022     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
   EMISFACT L0000022     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000023     HRDOW 0.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0000023     HRDOW 1.0 1.0 1.0 0.0 0.0 0.0
   EMISFACT L0000023     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Saturday:
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000003     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000003     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000003     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000016     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000017     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000017     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000017     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000018     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000019     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000020     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000020     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000021     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000022     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000023     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Sunday:
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000019     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000019     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000020     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000020     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000023     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   SRCGROUP area     PAREA1
   SRCGROUP line     L0000001 L0000002 L0000003 L0000004 L0000005
L0000006
   SRCGROUP line     L0000007 L0000008 L0000009 L0000010 L0000011
L0000012
   SRCGROUP line     L0000013 L0000014 L0000015 L0000016 L0000017
L0000018
   SRCGROUP line     L0000019 L0000020 L0000021 L0000022 L0000023
   SRCGROUP ALL
SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED "construction HRA.rou"
RE FINISHED
**
****************************************
** AERMOD Meteorology Pathway
****************************************
**
**
ME STARTING
   SURFFILE "..\724930 (1)\724930.SFC"
   PROFFILE "..\724930 (1)\724930.PFL"
   SURFDATA 23230 2009 OAKLAND/WSO_AP
   UAIRDATA 23230 2009 OAKLAND/WSO_AP
   PROFBASE 1.8 METERS
ME FINISHED
**
****************************************
```

```
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
** Auto-Generated Plotfiles
   PLOTFILE ANNUAL ALL "construction HRA.AD\AN00GALL.PLT" 31
   PLOTFILE ANNUAL area "construction HRA.AD\AN00G001.PLT" 32
   PLOTFILE ANNUAL line "construction HRA.AD\AN00G002.PLT" 33
   SUMMFILE "construction HRA.sum"
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            1 Warning Message(s)
 A Total of            0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 CO W320      22       URBOPT: Input Parameter May Be Out-of-Range for
Parameter       URB-POP

 **********************************
 *** SETUP Finishes Successfully ***
 **********************************


 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
***        15:49:40

PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                                                ***     MODEL SETUP
OPTIONS SUMMARY       ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 **Model Is Setup For Calculation of Average CONCentration Values.

   --  DEPOSITION LOGIC  --
 **NO GAS DEPOSITION Data Provided.
```

```
 **NO PARTICLE DEPOSITION Data Provided.
 **Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
 **Model Uses NO WET DEPLETION.  WETDPLT  =  F

 **Model Uses URBAN Dispersion Algorithm for the SBL for    24
Source(s),
   for Total of    1 Urban Area(s):
   Urban Population =     10000.0 ;  Urban Roughness Length =  1.000 m

 **Model Uses Regulatory DEFAULT Options:
        1. Stack-tip Downwash.
        2. Model Accounts for ELEVated Terrain Effects.
        3. Use Calms Processing Routine.
        4. Use Missing Data Processing Routine.
        5. No Exponential Decay.
        6. Urban Roughness Length of 1.0 Meter Assumed.

 **Other Options Specified:
        CCVR_Sub - Meteorological data includes CCVR substitutions
        TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Assumes No FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  DPM

 **Model Calculates ANNUAL Averages Only

 **This Run Includes:     24 Source(s);       3 Source Group(s); and
33 Receptor(s)

               with:      0 POINT(s), including
                          0 POINTCAP(s) and      0 POINTHOR(s)
                and:     23 VOLUME source(s)
                and:      1 AREA type source(s)
                and:      0 LINE source(s)
                and:      0 OPENPIT source(s)
                and:      0 BUOYANT LINE source(s) with      0 line(s)


 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  14134

 **Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting
(PLOTFILE Keyword)
         Model Outputs Separate Summary File of High Ranked Values
(SUMMFILE Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for
Calm Hours
```

```
                                                                      m for
Missing Hours
                                                                      b for
Both Calm and Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =
1.80 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units =
GRAMS/SEC                                ;  Emission Rate Unit Factor
=   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.5 MB of RAM.

 **Input Runstream File:          aermod.inp
 **Output Print File:             aermod.out

 **Detailed Error/Message File:   construction HRA.err
 **File for Summary of Results:   construction HRA.sum

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
***        15:49:40

PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN


                                                      *** VOLUME SOURCE
DATA ***

               NUMBER EMISSION RATE                    BASE    RELEASE
INIT.    INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT
SY       SZ     SOURCE  SCALAR VARY
     ID          CATS.               (METERS) (METERS) (METERS) (METERS)
(METERS) (METERS)             BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 L0000001         0   0.43478E-01  578718.8 4171567.2    17.2     3.11
3.95     1.45     YES   HRDOW
 L0000002         0   0.43478E-01  578723.5 4171562.7    17.4     3.11
3.95     1.45     YES   HRDOW
 L0000003         0   0.43478E-01  578731.9 4171564.2    17.6     3.11
3.95     1.45     YES   HRDOW
 L0000004         0   0.43478E-01  578740.2 4171565.8    17.7     3.11
3.95     1.45     YES   HRDOW
 L0000005         0   0.43478E-01  578748.6 4171567.3    17.9     3.11
3.95     1.45     YES   HRDOW
```

```
 L0000006         0   0.43478E-01  578757.0 4171568.8    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000007         0   0.43478E-01  578765.3 4171570.4    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000008         0   0.43478E-01  578773.7 4171571.9    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000009         0   0.43478E-01  578782.0 4171573.4    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000010         0   0.43478E-01  578790.4 4171575.0    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000011         0   0.43478E-01  578798.8 4171576.5    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000012         0   0.43478E-01  578807.1 4171578.0    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000013         0   0.43478E-01  578815.5 4171579.6    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000014         0   0.43478E-01  578823.8 4171581.1    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000015         0   0.43478E-01  578832.2 4171582.6    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000016         0   0.43478E-01  578840.6 4171584.2    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000017         0   0.43478E-01  578843.5 4171589.0    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000018         0   0.43478E-01  578841.1 4171597.2    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000019         0   0.43478E-01  578838.7 4171605.3    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000020         0   0.43478E-01  578836.3 4171613.5    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000021         0   0.43478E-01  578833.8 4171621.6    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000022         0   0.43478E-01  578831.4 4171629.8    18.0     3.11
3.95     1.45     YES   HRDOW
 L0000023         0   0.43478E-01  578829.0 4171637.9    18.0     3.11
3.95     1.45     YES   HRDOW

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN


                                                    *** AREAPOLY SOURCE
DATA ***

               NUMBER EMISSION RATE   LOCATION OF AREA  BASE
RELEASE  NUMBER      INIT.   URBAN  EMISSION RATE
```

```
   SOURCE       PART.  (GRAMS/SEC       X        Y      ELEV.
HEIGHT  OF VERTS.     SZ     SOURCE  SCALAR VARY
     ID          CATS.   /METER**2)   (METERS) (METERS) (METERS)
(METERS)            (METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 PAREA1           0   0.10000E+01  578820.2 4171653.8    18.0     5.00
4         0.00     YES   HRDOW

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN


                                              *** SOURCE IDs DEFINING
SOURCE GROUPS ***

 SRCGROUP ID                                                SOURCE IDs
 -----------                                                ----------


  AREA       PAREA1      ,

  LINE       L0000001    , L0000002    , L0000003    , L0000004    ,
L0000005    , L0000006    , L0000007    , L0000008    ,

             L0000009    , L0000010    , L0000011    , L0000012    ,
L0000013    , L0000014    , L0000015    , L0000016    ,

             L0000017    , L0000018    , L0000019    , L0000020    ,
L0000021    , L0000022    , L0000023    ,

  ALL        PAREA1      , L0000001    , L0000002    , L0000003    ,
L0000004    , L0000005    , L0000006    , L0000007    ,

             L0000008    , L0000009    , L0000010    , L0000011    ,
L0000012    , L0000013    , L0000014    , L0000015    ,

             L0000016    , L0000017    , L0000018    , L0000019    ,
L0000020    , L0000021    , L0000022    , L0000023    ,

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN


                                          *** SOURCE IDs DEFINED AS
URBAN SOURCES ***

  URBAN ID   URBAN POP                                        SOURCE IDs
  --------   ---------                                        ----------


               10000.   PAREA1      , L0000001    , L0000002    ,
L0000003    , L0000004    , L0000005    , L0000006    ,
 L0000007    ,

              L0000008    , L0000009    , L0000010    , L0000011    ,
L0000012    , L0000013    , L0000014    , L0000015    ,

              L0000016    , L0000017    , L0000018    , L0000019    ,
L0000020    , L0000021    , L0000022    , L0000023    ,

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = PAREA1       ; SOURCE TYPE = AREAPOLY :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SUNDAY
```

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000001     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN
```

```
                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000002     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000003     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
```

```
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000004     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
```

```
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
***        15:49:40

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000005     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *
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```
 SOURCE ID = L0000006     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
***        15:49:40

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000007     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
```

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
***        15:49:40

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000008     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
```

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000009 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00
5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.1000E+01
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01
13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00
21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00
5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00
13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00
21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00
5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00
13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00
21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000010 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

```
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000011     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
```

```
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000012     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000013   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                    DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00
5 .0000E+00   6 .0000E+00   7 .0000E+00   8 .1000E+01
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01
13 .1000E+01   14 .1000E+01   15 .1000E+01   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00
21 .0000E+00   22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00
5 .0000E+00   6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00
13 .0000E+00   14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00
21 .0000E+00   22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                    DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00
5 .0000E+00   6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00
13 .0000E+00   14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00
21 .0000E+00   22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** AERMOD - VERSION 18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***   07/26/18
 *** AERMET - VERSION 14134 ***   ***
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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000014   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                    DAY OF WEEK = WEEKDAY

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000015     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
```

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
***        15:49:40

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000016     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
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PAGE  23
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN
```

```
                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000017     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000018     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
```

```
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000019     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
```

```
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000020     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
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PAGE  27
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *
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```
 SOURCE ID = L0000021     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000022     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
```

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00

 *** AERMOD - VERSION  18081 ***   *** C:\Users\xli\Desktop\Billboard-
HRA\construction HRA\construction HRA ***        07/26/18
 *** AERMET - VERSION  14134 ***   ***
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PAGE  29
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY
AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000023     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR
SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01
13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00
5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00
13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00
21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(578818.9, 4171632.4, 18.0, 18.0, 0.0);
(578842.1, 4171635.9, 18.0, 18.0, 0.0);
(578851.9, 4171638.4, 18.0, 18.0, 0.0);
(578803.0, 4171629.3, 18.0, 18.0, 0.0);
(578862.5, 4171641.2, 18.0, 18.0, 0.0);
(578819.3, 4171598.8, 18.0, 18.0, 0.0);
(578854.1, 4171606.4, 18.0, 18.0, 0.0);
(578871.6, 4171610.2, 18.0, 18.0, 0.0);
(578882.5, 4171614.9, 18.0, 18.0, 0.0);
(578797.3, 4171597.7, 18.0, 18.0, 0.0);
(578770.4, 4171588.4, 18.0, 18.0, 0.0);
(578752.1, 4171584.8, 18.0, 18.0, 0.0);
(578737.1, 4171582.8, 17.5, 17.5, 0.0);
(578783.3, 4171598.6, 18.0, 18.0, 0.0);
(578865.5, 4171566.5, 18.0, 18.0, 0.0);
(578880.4, 4171564.2, 18.0, 18.0, 0.0);
(578827.6, 4171559.0, 18.0, 18.0, 0.0);
(578801.3, 4171554.5, 18.0, 18.0, 0.0);
(578785.8, 4171549.3, 18.0, 18.0, 0.0);
(578770.3, 4171547.0, 18.0, 18.0, 0.0);
(578753.1, 4171545.3, 18.0, 18.0, 0.0);
(578867.2, 4171551.6, 18.0, 18.0, 0.0);
(578870.1, 4171534.4, 18.0, 18.0, 0.0);
(578829.9, 4171535.6, 18.0, 18.0, 0.0);
(578819.6, 4171538.4, 18.0, 18.0, 0.0);
(578872.7, 4171518.8, 18.0, 18.0, 0.0);
(578887.8, 4171525.1, 18.0, 18.0, 0.0);
(578829.1, 4171512.4, 18.0, 18.0, 0.0);
(578812.4, 4171503.7, 18.0, 18.0, 0.0);
(578796.5, 4171507.7, 18.0, 18.0, 0.0);
(578775.9, 4171516.4, 18.0, 18.0, 0.0);
(578777.5, 4171501.3, 18.0, 18.0, 0.0);
(578759.3, 4171514.0, 18.0, 18.0, 0.0);

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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                            *** METEOROLOGICAL DAYS
SELECTED FOR PROCESSING ***
                                                                   (1=YES;
0=NO)

            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1

                NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL
ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

                                  *** UPPER BOUND OF FIRST THROUGH
FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

                                                 1.54,   3.09,   5.14,
8.23, 10.80,

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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                    *** UP TO THE FIRST 24 HOURS OF
METEOROLOGICAL DATA ***

   Surface file: ..\724930 (1)\724930.SFC
Met Version: 14134
   Profile file: ..\724930 (1)\724930.PFL

```
   Surface format: FREE
   Profile format: FREE
   Surface station no.:    23230                  Upper air station
no.:    23230
                  Name: OAKLAND/WSO_AP
Name: OAKLAND/WSO_AP
                  Year:   2009
Year:   2009

 First 24 hours of scalar data
 YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN
Z0  BOWEN ALBEDO  REF WS   WD     HT  REF TA     HT
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 09 01 01   1 01  -17.2  0.303 -9.000 -9.000 -999.  401.    147.2
0.63   0.86   1.00    2.36   81.   10.0  282.5    2.0
 09 01 01   1 02  -21.8  0.383 -9.000 -9.000 -999.  569.    234.6
0.63   0.86   1.00    2.86   68.   10.0  282.0    2.0
 09 01 01   1 03  -26.3  0.460 -9.000 -9.000 -999.  749.    337.1
0.63   0.86   1.00    3.36   84.   10.0  280.9    2.0
 09 01 01   1 04  -15.4  0.270 -9.000 -9.000 -999.  368.    116.1
0.47   0.86   1.00    2.36   53.   10.0  280.9    2.0
 09 01 01   1 05  -26.3  0.460 -9.000 -9.000 -999.  749.    336.3
0.63   0.86   1.00    3.36   73.   10.0  280.4    2.0
 09 01 01   1 06  -21.9  0.383 -9.000 -9.000 -999.  573.    232.9
0.63   0.86   1.00    2.86   82.   10.0  280.4    2.0
 09 01 01   1 07  -22.0  0.383 -9.000 -9.000 -999.  569.    232.5
0.63   0.86   1.00    2.86   95.   10.0  279.9    2.0
 09 01 01   1 08  -11.2  0.196 -9.000 -9.000 -999.  238.     60.6
0.63   0.86   0.76    1.76   73.   10.0  279.9    2.0
 09 01 01   1 09   -2.2 -9.000 -9.000 -9.000 -999. -999. -99999.0
0.45   0.86   0.39    0.00    0.   10.0  280.4    2.0
 09 01 01   1 10    6.8  0.266  0.264  0.016   98.  329.   -250.8
0.63   0.86   0.27    1.76   91.   10.0  280.9    2.0
 09 01 01   1 11   15.5 -9.000 -9.000 -9.000  177. -999. -99999.0
0.45   0.86   0.22    0.00    0.   10.0  282.0    2.0
 09 01 01   1 12   96.1  0.393  1.019  0.014  401.  591.    -57.4
0.22   0.86   0.21    3.36  266.   10.0  281.4    2.0
 09 01 01   1 13  102.5  0.395  1.092  0.014  462.  595.    -54.4
0.22   0.86   0.20    3.36  283.   10.0  282.0    2.0
 09 01 01   1 14   89.9  0.297  1.066  0.015  489.  394.    -26.5
0.22   0.86   0.21    2.36  249.   10.0  282.0    2.0
 09 01 01   1 15   62.1  0.383  0.954  0.014  507.  569.    -82.1
0.22   0.86   0.24    3.36  242.   10.0  282.5    2.0
 09 01 01   1 16   23.1  0.665  0.690  0.006  513. 1300.  -1150.4
0.52   0.86   0.33    4.86  304.   10.0  282.5    2.0
 09 01 01   1 17  -37.0  0.486 -9.000 -9.000 -999.  846.    280.6
0.22   0.86   0.56    4.86  291.   10.0  281.4    2.0
 09 01 01   1 18  -52.2  0.480 -9.000 -9.000 -999.  799.    191.9
0.52   0.86   1.00    3.86  307.   10.0  280.9    2.0
 09 01 01   1 19  -25.6  0.224 -9.000 -9.000 -999.  327.     39.8
0.52   0.86   1.00    2.36  334.   10.0  280.4    2.0
```

```
 09 01 01   1 20  -11.1  0.119 -9.000 -9.000 -999.  115.     13.8
0.52   0.86   1.00    1.76  317.   10.0  280.4    2.0
 09 01 01   1 21  -10.3  0.119 -9.000 -9.000 -999.   98.     14.7
0.52   0.86   1.00    1.76  320.   10.0  280.4    2.0
 09 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0
0.45   0.86   1.00    0.00    0.   10.0  280.9    2.0
 09 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0
0.45   0.86   1.00    0.00    0.   10.0  281.4    2.0
 09 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0
0.45   0.86   1.00    0.00    0.   10.0  281.4    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 09 01 01 01   10.0 1   81.    2.36   282.6   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES
AVERAGED OVER   5 YEARS FOR SOURCE GROUP: AREA     ***
                                  INCLUDING SOURCE(S):
PAREA1      ,

                                              *** DISCRETE CARTESIAN
RECEPTOR POINTS ***

                                           ** CONC OF DPM      IN
MICROGRAMS/M**3                             **

       X-COORD (M)   Y-COORD (M)        CONC                        X-
COORD (M)   Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
         578818.85    4171632.43      106.86350
578842.07    4171635.95      600.00884
         578851.92    4171638.41      626.10524
578803.01    4171629.26       75.36354
         578862.48    4171641.23      500.61786
578819.30    4171598.78       33.02414
         578854.12    4171606.43      104.60970
578871.61    4171610.18      129.28558
         578882.54    4171614.86      139.97595
578797.28    4171597.69       22.06304
```

```
         578770.36    4171588.40       14.62139
578752.06    4171584.84       11.61255
         578737.05    4171582.81        9.60999
578783.33    4171598.57       20.68456
         578865.46    4171566.50       26.68102
578880.36    4171564.21       27.94937
         578827.64    4171559.05       12.51883
578801.28    4171554.47        7.78343
         578785.81    4171549.31        6.74922
578770.34    4171547.02        6.43769
         578753.14    4171545.30        6.13617
578867.18    4171551.60       18.23056
         578870.05    4171534.41       12.55839
578829.93    4171535.56        7.71876
         578819.62    4171538.42        6.98417
578872.68    4171518.77        9.33282
         578887.75    4171525.12       11.84040
578829.06    4171512.43        4.99687
         578812.40    4171503.70        3.66026
578796.54    4171507.67        3.51557
         578775.91    4171516.39        3.89514
578777.50    4171501.32        3.13937
         578759.26    4171514.01        3.80919

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                    *** THE ANNUAL AVERAGE CONCENTRATION    VALUES
AVERAGED OVER   5 YEARS FOR SOURCE GROUP: LINE     ***
                                  INCLUDING SOURCE(S):
L0000001    , L0000002    , L0000003    , L0000004    , L0000005    ,
                L0000006    , L0000007    , L0000008    ,
L0000009    , L0000010    , L0000011    , L0000012    , L0000013    ,
                L0000014    , L0000015    , L0000016    ,
L0000017    , L0000018    , L0000019    , L0000020    , L0000021    ,
                L0000022    , L0000023    ,

                                             *** DISCRETE CARTESIAN
RECEPTOR POINTS ***

                                           ** CONC OF DPM      IN
MICROGRAMS/M**3                             **

       X-COORD (M)   Y-COORD (M)        CONC                        X-
COORD (M)   Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

```
         578818.85    4171632.43       38.58318
578842.07    4171635.95       55.80554
         578851.92    4171638.41       34.25362
578803.01    4171629.26       20.05246
         578862.48    4171641.23       22.79302
578819.30    4171598.78       56.04780
         578854.12    4171606.43       66.85735
578871.61    4171610.18       33.04969
         578882.54    4171614.86       23.08715
578797.28    4171597.69       39.50811
         578770.36    4171588.40       43.50407
578752.06    4171584.84       40.97536
         578737.05    4171582.81       35.98720
578783.33    4171598.57       31.58365
         578865.46    4171566.50       26.70872
578880.36    4171564.21       18.44363
         578827.64    4171559.05       37.00476
578801.28    4171554.47       36.66443
         578785.81    4171549.31       31.20704
578770.34    4171547.02       29.82672
         578753.14    4171545.30       28.19372
578867.18    4171551.60       16.34847
         578870.05    4171534.41       10.17035
578829.93    4171535.56       14.26498
         578819.62    4171538.42       16.69621
578872.68    4171518.77        7.02414
         578887.75    4171525.12        7.27960
578829.06    4171512.43        7.32904
         578812.40    4171503.70        5.98799
578796.54    4171507.67        6.65947
         578775.91    4171516.39        8.39580
578777.50    4171501.32        5.39823
         578759.26    4171514.01        7.32192

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES
AVERAGED OVER   5 YEARS FOR SOURCE GROUP: ALL      ***
                                  INCLUDING SOURCE(S):
PAREA1      , L0000001    , L0000002    , L0000003    , L0000004    ,
                L0000005    , L0000006    , L0000007    ,
L0000008    , L0000009    , L0000010    , L0000011    , L0000012    ,
                L0000013    , L0000014    , L0000015    ,
L0000016    , L0000017    , L0000018    , L0000019    , L0000020    ,
                L0000021    , L0000022    , L0000023    ,
```

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
578818.85	4171632.43	145.44667	578842.07	4171635.95	655.81438
578851.92	4171638.41	660.35886	578803.01	4171629.26	95.41600
578862.48	4171641.23	523.41087	578819.30	4171598.78	89.07194
578854.12	4171606.43	171.46705	578871.61	4171610.18	162.33527
578882.54	4171614.86	163.06310	578797.28	4171597.69	61.57115
578770.36	4171588.40	58.12547	578752.06	4171584.84	52.58791
578737.05	4171582.81	45.59718	578783.33	4171598.57	52.26821
578865.46	4171566.50	53.38974	578880.36	4171564.21	46.39300
578827.64	4171559.05	49.52359	578801.28	4171554.47	44.44786
578785.81	4171549.31	37.95626	578770.34	4171547.02	36.26441
578753.14	4171545.30	34.32989	578867.18	4171551.60	34.57903
578870.05	4171534.41	22.72874	578829.93	4171535.56	21.98374
578819.62	4171538.42	23.68038	578872.68	4171518.77	16.35697
578887.75	4171525.12	19.12000	578829.06	4171512.43	12.32590
578812.40	4171503.70	9.64824	578796.54	4171507.67	10.17504
578775.91	4171516.39	12.29094	578777.50	4171501.32	8.53761
578759.26	4171514.01	11.13111			

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

NETWORK GROUP ID (XR, YR, ZELEV, ZHILL, ZFLAG)	AVERAGE CONC OF TYPE	GRID-ID	RECEPTOR
AREA	1ST HIGHEST VALUE IS	626.10524	AT (578851.92, 4171638.41, 18.00, 18.00, 0.00) DC
	2ND HIGHEST VALUE IS	600.00884	AT (578842.07, 4171635.95, 18.00, 18.00, 0.00) DC
	3RD HIGHEST VALUE IS	500.61786	AT (578862.48, 4171641.23, 18.00, 18.00, 0.00) DC
	4TH HIGHEST VALUE IS	139.97595	AT (578882.54, 4171614.86, 18.00, 18.00, 0.00) DC
	5TH HIGHEST VALUE IS	129.28558	AT (578871.61, 4171610.18, 18.00, 18.00, 0.00) DC
	6TH HIGHEST VALUE IS	106.86350	AT (578818.85, 4171632.43, 18.00, 18.00, 0.00) DC
	7TH HIGHEST VALUE IS	104.60970	AT (578854.12, 4171606.43, 18.00, 18.00, 0.00) DC
	8TH HIGHEST VALUE IS	75.36354	AT (578803.01, 4171629.26, 18.00, 18.00, 0.00) DC
	9TH HIGHEST VALUE IS	33.02414	AT (578819.30, 4171598.78, 18.00, 18.00, 0.00) DC
	10TH HIGHEST VALUE IS	27.94937	AT (578880.36, 4171564.21, 18.00, 18.00, 0.00) DC
LINE	1ST HIGHEST VALUE IS	66.85735	AT (578854.12, 4171606.43, 18.00, 18.00, 0.00) DC
	2ND HIGHEST VALUE IS	56.04780	AT (578819.30, 4171598.78, 18.00, 18.00, 0.00) DC
	3RD HIGHEST VALUE IS	55.80554	AT (578842.07, 4171635.95, 18.00, 18.00, 0.00) DC
	4TH HIGHEST VALUE IS	43.50407	AT (578770.36, 4171588.40, 18.00, 18.00, 0.00) DC
	5TH HIGHEST VALUE IS	40.97536	AT (578752.06, 4171584.84, 17.96, 17.96, 0.00) DC
	6TH HIGHEST VALUE IS	39.50811	AT (578797.28, 4171597.69, 18.00, 18.00, 0.00) DC
	7TH HIGHEST VALUE IS	38.58318	AT (578818.85, 4171632.43, 18.00, 18.00, 0.00) DC
	8TH HIGHEST VALUE IS	37.00476	AT (578827.64, 4171559.05, 18.00, 18.00, 0.00) DC

```
          9TH HIGHEST VALUE IS      36.66443 AT (  578801.28,
4171554.47,    18.00,    18.00,    0.00)  DC
         10TH HIGHEST VALUE IS      35.98720 AT (  578737.05,
4171582.81,    17.46,    17.46,    0.00)  DC

ALL       1ST HIGHEST VALUE IS     660.35886 AT (  578851.92,
4171638.41,    18.00,    18.00,    0.00)  DC
          2ND HIGHEST VALUE IS     655.81438 AT (  578842.07,
4171635.95,    18.00,    18.00,    0.00)  DC
          3RD HIGHEST VALUE IS     523.41087 AT (  578862.48,
4171641.23,    18.00,    18.00,    0.00)  DC
          4TH HIGHEST VALUE IS     171.46705 AT (  578854.12,
4171606.43,    18.00,    18.00,    0.00)  DC
          5TH HIGHEST VALUE IS     163.06310 AT (  578882.54,
4171614.86,    18.00,    18.00,    0.00)  DC
          6TH HIGHEST VALUE IS     162.33527 AT (  578871.61,
4171610.18,    18.00,    18.00,    0.00)  DC
          7TH HIGHEST VALUE IS     145.44667 AT (  578818.85,
4171632.43,    18.00,    18.00,    0.00)  DC
          8TH HIGHEST VALUE IS      95.41600 AT (  578803.01,
4171629.26,    18.00,    18.00,    0.00)  DC
          9TH HIGHEST VALUE IS      89.07194 AT (  578819.30,
4171598.78,    18.00,    18.00,    0.00)  DC
         10TH HIGHEST VALUE IS      61.57115 AT (  578797.28,
4171597.69,    18.00,    18.00,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR

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PAGE  37
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of         7953 Informational Message(s)

 A Total of        43872 Hours Were Processed

 A Total of         7152 Calm Hours Identified
```

```
 A Total of          801 Missing Hours Identified (  1.83 Percent)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 CO W320      22       URBOPT: Input Parameter May Be Out-of-Range for
Parameter       URB-POP
 MX W481   43873         MAIN: Data Remaining After End of Year.
Number of Hours=           48

    ***********************************
    *** AERMOD Finishes Successfully ***
    ***********************************
```

Construction Vehicle Fuel Calculations

California Air Resource Board (ARB). 2020. EMFAC2014 Web Database. Website: https://www.arb.ca.gov/emfac/2014/. Accessed May 26, 2021.

VMT = Vehicle Miles Traveled
FE = Fuel Economy

EMFAC2014 (v1.0.7) Emissions Inventory
Region Type: County
Region: Alameda
Calendar Year: 2018
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

										Calculations	
Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT (mi/day)	Trips	Fuel_Consumption (1000 gallons/day)	FE (mi/gallon)	VMT*FE
Alameda	2018	HHDT	Aggregated	Aggregated	GAS	71.877063	10110.24183	1438.116	2.247261	4.498918231	45485.1513
Alameda	2018	HHDT	Aggregated	Aggregated	DSL	11774.312	1686553.417	0	298.083	5.657999824	9542518.933
Alameda	2018	LDA	Aggregated	Aggregated	GAS	603765.17	22412837.21	3777600	826.2446	27.12615365	607974065.9
Alameda	2018	LDA	Aggregated	Aggregated	DSL	6001.6552	233260.3212	36581.46	6.778161	34.41351064	8027306.548
Alameda	2018	LDT1	Aggregated	Aggregated	GAS	50960.598	1780689.977	308842.7	76.78538	23.19048099	41295057.07
Alameda	2018	LDT1	Aggregated	Aggregated	DSL	85.322178	1771.04029	405.9872	0.068005	26.04271563	46122.69863
Alameda	2018	LDT2	Aggregated	Aggregated	GAS	197229.07	7892076.481	1239667	386.2726	20.43136564	161245900.3
Alameda	2018	LDT2	Aggregated	Aggregated	DSL	254.82532	12516.21895	1643.864	0.449246	27.86047145	348707.7607
Alameda	2018	LHDT1	Aggregated	Aggregated	GAS	13564.688	441904.6199	202093.6	46.10563	9.58461273	4235484.646
Alameda	2018	LHDT1	Aggregated	Aggregated	DSL	9013.902	341528.3868	113383.5	19.90353	17.1591836	5860348.295
Alameda	2018	LHDT2	Aggregated	Aggregated	GAS	2114.1303	80764.21211	31497.39	9.324535	8.661473191	699537.0579
Alameda	2018	LHDT2	Aggregated	Aggregated	DSL	3176.4797	135968.5561	39956.12	8.822267	15.41197529	2095544.027
Alameda	2018	MHDT	Aggregated	Aggregated	GAS	1529.9703	80620.26253	30611.65	12.82429	6.286530019	506821.7006
Alameda	2018	MHDT	Aggregated	Aggregated	DSL	14948.967	815782.8638	0	98.98936	8.241116724	6722961.802

Worker
Sum of VMT*FE (Column BI) 818937160.3
Total VMT 32333151.25
Weighted Average FE 25.32809605

Vendor
Sum of VMT*FE (Column BI) 29708701.61
Total VMT 3593232.56
Weighted Average FE 8.267959593

Haul
Sum of VMT*FE (Column BI) 9588004.085
Total VMT 1696663.658
Weighted Average FE 5.651092977

Project Construction Assumptions

Source: AQ/GHG Appendix, CalEEMod Output
5076.0001 Outfront Media LED Billboards Project - Langton Site - Alameda County, Annual
Date: 7/17/2018 8:28 AM
Outfront Media LED Billboards Project - Removal Sites - Alameda County, Annual
Date: 12/17/2021 6:52 AM

	Demolition	Demolition	10/1/2018	10/26/2018	5	20
	Grading	Grading	10/1/2018	10/1/2018	5	1
	Building Construction	Building Construction	10/2/2018	10/26/2018	5	19
	Paving	Paving	10/25/2018	10/26/2018	5	2

Trips and VMT	Phase Name	Trips per Day			Total Trips					Trips per Phase			VMT per Phase			Fuel Consumption (gallons)		
		Worker Trip Number	Vendor Trip	Hauling Trip	Worker Trip	Vendor	Hauling Trip	Vendor Vel	Num Days	Worker Trip	Vendor Trip	Hauling Trip	Worker	Vendor	Hauling	Worker	Vendor Trips	Hauling
	Demolition	8	2	20	10.8	7.3	20	LD_Mix	20	160	40	20	1,728	292	400	68.22	35.32	3.54
	Grading	8	2	8	10.8	7.3	20	LD_Mix	1	8	2	8	86	15	160	3.41	1.77	1.42
	Building Construction	8	2	0	10.8	7.3	20	LD_Mix	19	152	38	0	1,642	277	0	64.81	33.55	0.00
	Paving	8	2	0	10.8	7.3	20	LD_Mix	2	16	4	0	173	29	0	6.82	3.53	0.00

On-site Total Construction VMT (miles)
4,802

On-Site Total Fuel Consumption (gallons)
222

Construction Equipment Fuel Calculation

Source: AQ/GHG Appendix, CalEEMod Output
5076.0001 Outfront Media LED Billboards Project - Langton Site - Alameda County, Annual
Date: 7/17/2018 8:28 AM
Outfront Media LED Billboards Project - Removal Sites - Alameda County, Annual
Date: 12/17/2021 6:52 AM

Demolition	Demolition	10/1/2018	10/26/2018	5	20	
Grading	Grading	10/1/2018	10/1/2018	5	1	
Building Construction	Building Construction	10/2/2018	10/26/2018	5	19	
Paving	Paving	10/25/2018	10/26/2018	5	2	

Construction Equipment	Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of Days	HP Hours	Diesel Fuel Usage
	Demolition	Concrete/Industrial Saws	1	8	81	0.73	20	9,460.80	473.04
	Demolition	Tractors/Loaders/Backhoes	1	6	97	0.37	20	4,306.80	215.34
	Demolition	Cranes	1	2	231	0.29	20	2,679.60	133.98
	Grading	Bore/Drill Rigs	1	8	221	0.5	1	884.00	44.20
	Grading	Concrete/Industrial Saws	1	2	81	0.73	1	118.26	5.91
	Grading	Tractors/Loaders/Backhoes	1	3	97	0.37	1	107.67	5.38
	Building Construction	Cranes	1	8	231	0.29	19	10,182.48	509.12
	Building Construction	Forklifts	1	7	89	0.2	19	2,367.40	118.37
	Paving	Cement and Mortar Mixers	1	2	9	0.56	2	20.16	1.01
							Construction Equipment Fuel Consumption		**1,506.36 gallons**

Notes:

Equipment assumptions are provided in the CalEEMod output files.

Fuel usage estimate of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E.

South Coast Air Quality Management District. 1993. Air Quality Handbook, Table A9-3E.

Website: http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook. Accessed May 3, 2021.

Construction Office Electricity Calculation

Energy Appendix: CalEEMod Typical Construction Trailer

Typical Construction Trailer - Alameda County, Annual

Date: 5/26/2021 7:26 PM

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	8985.6	2.6140	1.2000e-004	2.0000e-005	2.6243
Total		**2.6140**	**1.2000e-004**	**2.0000e-005**	**2.6243**

kWh/yr = kilowatt hours per year

Energy by Land Use - Electricity

Annual	8,986	kWh/yr
Total Over Construction	**492**	**kWh**

Total Construction Schedule

Start	10/1/2018
End	10/26/2018
Total Calendar Days	20
Years	0.05

Digital Billboard Energy Use in California

July 2014

Project Manager

Nathaniel Taylor
San Diego Gas & Electric Company (SDG&E)

Prepared by

Bijit Kundu
Daniel Young
Sarah Schneider
Energy Solutions
1610 Harrison Street
Oakland, CA 94612

5.2 PER UNIT ENERGY USE

As previously stated, the energy use information provided by manufacturers often lacked specificity around display image content and display brightness. Assuming that all data listed in Table 1 reflect 100% full output displays at maximum brightness (i.e. displaying an image that is 100% white in color), and that the maximum brightness of all displays is equivalent, our research identified a range of **16** to **51 W/sq ft** for a current generation DBB. In order to calculate the annual energy use of a DBB, additional assumptions around typical duty cycles and operating modes are needed. For this report, we assume that a DBB will be operating for 24 hours a day (12 hours daylight, 12 hours nighttime), that the display will operate at full brightness (which is capped at 50% of achievable maximum brightness, due to sign color and content) during the day, and that nighttime operating power will be significantly lower than daytime operating power as reported by manufacturers. Ultimately, ambient light levels as well as customer choice play a major role in how much sign brightness is dimmed at night. For calculations in this report, a value of 40% was used. Table 2 describes the basic assumptions required for calculating the energy use of DBBs.

TABLE 2. BASIC ASSUMPTIONS FOR CALCULATING THE ENERGY USE OF DBBS

Parameter	Assumed Value
Daylight hours	12 hours
Nighttime hours	12 hours
Daylight operating brightness	100%
Nighttime operating brightness	40%
Average color of message content[1]	50%

[1] As noted in Section 5.1, designs that contain heavy whites, or light colors, use more energy than those using darker colors or primarily black

The following equation describes how the assumptions presented in Table 2 are used to calculate annual energy use for a typical 14 feet by 48 feet (598 square feet) sign:

$$AEU = \frac{W}{ft^2} * \frac{598 ft^2}{sign} * 50\% * \left(\frac{12hrs}{1day} * \frac{365days}{1yr} * 100\% + \frac{12hrs}{1day} * \frac{365days}{1yr} * 40\%\right) * \frac{1kW}{1000W}$$

Using these assumptions, DBBs may consume between **29,000** and **94,000 kWh per year**. More manufacturer data on actual LED efficacy by color and brightness level is needed to be able to more effectively estimate the expected energy consumption of these products when installed in the field. These calculations are summarized in Table 3.

TABLE 3. SUMMARY OF RANGE OF REPORTED DBB ENERGY USAGE METRICS, CONVERTED TO ANNUAL ENERGY USE

Reported Energy Use by Metric	Energy Use per Square Foot (W)	Energy Use for 14'x48' Sign (W)	Annual Energy Use (kWh)
0.14 – 0.2 W/pixel	46 – 51	20,000 – 30,000	85,000 – 94,000
16 – 20 W/ft^2	16 – 20	10,000 – 12,000	29,000 – 37,000
15,000 W/sign	25	15,000	46,000

It should be noted that the energy use estimates presented in this section do not include the energy use of other DBB components beyond the display, such as the computer and the cooling system, because these components contribute a relatively small fraction of total DBB energy use.

Electricity Consumption Assumptions and Associated GHG Emissions

Assumed annual electricity consumption for the proposed project: **94,000 kWh (or 94 MWh).**

Emission Intensity Factors:[1]		
CO_2	210	lbs./MWh
CH_4	0.029	lbs./MWh
N_2O	0.00617	lbs./MWh

Annual Emissions at 94 MWh:		
CO_2	19,740.00	lbs.
CH_4	2.73	lbs.
N_2O	0.58	lbs.

100-Year Global Warming Potentials:[2]	
CO_2	1
CH_4	298
N_2O	25

Annual Metric Tons of CO_2e:		
CO_2	8.95	MT CO_2e
CH_4	0.37	MT CO_2e
N_2O	0.01	MT CO_2e
Total:	**9.33**	**MT CO_2e**

Notes:
Pounds to metric ton conversion rate of 2,204.62 lbs/metric ton used.
CO_2 Intensity Factor to match Pacific Gas and Electric's (PG&E) 2019 emissions rates, the latest that are publicly available.[1] The intensity factor utilized in the model is 206 pounds of CO_2 per megawatt-hour delivered. Other intensity factors (CH_4 & N_2O) are drawn from the California Emissions Estimator Model (CalEEMod) given values.

Sources:
[1] Pacific Gas & Electric. 2020. Corporate Responsibility and Sustainability Report 2020. Website: https://www.pgecorp.com/corp_responsibility/reports/2020/assets/PGE_CRSR_2020.pdf. Accessed June 3, 2021.

[2] Intergovernmental Panel on Climate Change (IPCC). 2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. Website: https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf. Accessed June 3, 2021.

Typical Construction Trailer
Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	0.72	1000sqft	0.02	720.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Upper range of typical single-wide mobile office trailer = 720 square feet.

Construction Phase - Operational energy only

Off-road Equipment - Zeroed out construction equipment

Off-road Equipment - Zeroed out construction equipment

Vehicle Trips - Run for energy estimation only

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	8985.6	2.6140	1.2000e-004	2.0000e-005	2.6243
Total		**2.6140**	**1.2000e-004**	**2.0000e-005**	**2.6243**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	8985.6	2.6140	1.2000e-004	2.0000e-005	2.6243
Total		**2.6140**	**1.2000e-004**	**2.0000e-005**	**2.6243**

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