

# Appendix B

## Greenhouse Gas Emissions Modeling

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**Tustin 5 acre lots residential project**  
**South Coast Air Basin, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	1.00	Dwelling Unit	0.50	7,560.00	3
Single Family Housing	1.00	Dwelling Unit	0.50	7,560.00	3
Single Family Housing	1.00	Dwelling Unit	0.50	7,560.00	3
Single Family Housing	1.00	Dwelling Unit	0.50	7,560.00	3
Single Family Housing	1.00	Dwelling Unit	0.49	7,560.00	3

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	31
<b>Climate Zone</b>	8			<b>Operational Year</b>	2019
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MWhr)</b>	702.44	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

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Project Characteristics -

Land Use - 5 acre lots, each lot max size is 7,560 sq. feet. Total site acreage is 2.49 acres.

Construction Phase - Client provided construction schedule

Demolition -

Architectural Coating - Rule 1113

Construction Off-road Equipment Mitigation - Rule 403

Area Mitigation - Rule 1113

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	100	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	100	50
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	70
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	70
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	220.00	270.00
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	6.00	60.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	220.00	60.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	PhaseEndDate	3/6/2018	10/30/2018
tblConstructionPhase	PhaseEndDate	10/13/2017	11/10/2017

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tblConstructionPhase	PhaseEndDate	10/17/2017	7/17/2018
tblConstructionPhase	PhaseEndDate	7/31/2018	7/23/2018
tblConstructionPhase	PhaseEndDate	7/24/2018	4/25/2018
tblConstructionPhase	PhaseEndDate	8/7/2018	7/23/2018
tblConstructionPhase	PhaseStartDate	10/14/2017	4/25/2018
tblConstructionPhase	PhaseStartDate	7/25/2018	7/17/2018
tblConstructionPhase	PhaseStartDate	3/7/2018	2/1/2018
tblConstructionPhase	PhaseStartDate	8/1/2018	7/17/2018
tblGrading	AcresOfGrading	30.00	3.00
tblLandUse	BuildingSpaceSquareFeet	1,800.00	7,560.00
tblLandUse	BuildingSpaceSquareFeet	1,800.00	7,560.00
tblLandUse	BuildingSpaceSquareFeet	1,800.00	7,560.00
tblLandUse	BuildingSpaceSquareFeet	1,800.00	7,560.00
tblLandUse	BuildingSpaceSquareFeet	1,800.00	7,560.00
tblLandUse	LandUseSquareFeet	1,800.00	7,560.00
tblLandUse	LandUseSquareFeet	1,800.00	7,560.00
tblLandUse	LandUseSquareFeet	1,800.00	7,560.00
tblLandUse	LandUseSquareFeet	1,800.00	7,560.00
tblLandUse	LandUseSquareFeet	1,800.00	7,560.00
tblLandUse	LotAcreage	0.32	0.50
tblLandUse	LotAcreage	0.32	0.50
tblLandUse	LotAcreage	0.32	0.50
tblLandUse	LotAcreage	0.32	0.50
tblLandUse	LotAcreage	0.32	0.49
tblProjectCharacteristics	OperationalYear	2018	2019

**2.0 Emissions Summary**



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

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											2.6555	5.1871	7.8426	8.0000e-003	1.8000e-004	8.0964
Energy											0.0000	21.9877	21.9877	7.2000e-004	2.7000e-004	22.0860
Mobile											0.0000	359.4050	359.4050	0.0192	0.0000	359.8860
Waste											1.2484	0.0000	1.2484	0.0738	0.0000	3.0928
Water											0.1034	2.0786	2.1819	0.0107	2.7000e-004	2.5294
<b>Total</b>											<b>4.0072</b>	<b>388.6584</b>	<b>392.6656</b>	<b>0.1124</b>	<b>7.2000e-004</b>	<b>395.6906</b>

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**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											2.6555	5.1871	7.8426	8.0000e-003	1.8000e-004	8.0964
Energy											0.0000	21.9877	21.9877	7.2000e-004	2.7000e-004	22.0860
Mobile											0.0000	359.4050	359.4050	0.0192	0.0000	359.8860
Waste											1.2484	0.0000	1.2484	0.0738	0.0000	3.0928
Water											0.1034	2.0786	2.1819	0.0107	2.7000e-004	2.5294
<b>Total</b>											<b>4.0072</b>	<b>388.6584</b>	<b>392.6656</b>	<b>0.1124</b>	<b>7.2000e-004</b>	<b>395.6906</b>

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

**3.0 Construction Detail**

**Construction Phase**

## Tustin 5 acre lots residential project - South Coast Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/1/2017	11/10/2017	5	30	
2	Grading	Grading	4/25/2018	7/17/2018	5	60	
3	Building Construction	Building Construction	10/18/2017	10/30/2018	5	270	
4	Infrastructure Installation	Building Construction	2/1/2018	4/25/2018	5	60	
5	Paving	Paving	7/17/2018	7/23/2018	5	5	
6	Architectural Coating	Architectural Coating	7/17/2018	7/23/2018	5	5	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 3**

**Acres of Paving: 0**

**Residential Indoor: 76,545; Residential Outdoor: 25,515; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**



## Tustin 5 acre lots residential project - South Coast Air Basin, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Infrastructure Installation	Cranes	1	8.00	231	0.29
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Infrastructure Installation	Forklifts	2	7.00	89	0.20
Infrastructure Installation	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Infrastructure Installation	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Building Construction	Welders	3	8.00	46	0.45
Infrastructure Installation	Welders	3	8.00	46	0.45

**Trips and VMT**

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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
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	2.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00	15.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Infrastructure Installation	8	2.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Water Exposed Area

Clean Paved Roads

**3.2 Demolition - 2017**

**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
Off-Road											0.0000	32.9502	32.9502	8.3300e-003	0.0000	33.1585
<b>Total</b>											<b>0.0000</b>	<b>32.9502</b>	<b>32.9502</b>	<b>8.3300e-003</b>	<b>0.0000</b>	<b>33.1585</b>

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**3.2 Demolition - 2017**

**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	0.5869	0.5869	4.0000e-005	0.0000	0.5880
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2.1135	2.1135	8.0000e-005	0.0000	2.1155
<b>Total</b>											<b>0.0000</b>	<b>2.7004</b>	<b>2.7004</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>2.7035</b>

**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
Off-Road											0.0000	32.9501	32.9501	8.3300e-003	0.0000	33.1585
<b>Total</b>											<b>0.0000</b>	<b>32.9501</b>	<b>32.9501</b>	<b>8.3300e-003</b>	<b>0.0000</b>	<b>33.1585</b>

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**3.2 Demolition - 2017**

**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	0.5869	0.5869	4.0000e-005	0.0000	0.5880
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2.1135	2.1135	8.0000e-005	0.0000	2.1155
<b>Total</b>											<b>0.0000</b>	<b>2.7004</b>	<b>2.7004</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>2.7035</b>

**3.3 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
Off-Road											0.0000	56.5394	56.5394	0.0176	0.0000	56.9794
<b>Total</b>											<b>0.0000</b>	<b>56.5394</b>	<b>56.5394</b>	<b>0.0176</b>	<b>0.0000</b>	<b>56.9794</b>

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**3.3 Grading - 2018**

**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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.1605	3.1605	1.1000e-004	0.0000	3.1632
<b>Total</b>											<b>0.0000</b>	<b>3.1605</b>	<b>3.1605</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>3.1632</b>

**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
Off-Road											0.0000	56.5393	56.5393	0.0176	0.0000	56.9794
<b>Total</b>											<b>0.0000</b>	<b>56.5393</b>	<b>56.5393</b>	<b>0.0176</b>	<b>0.0000</b>	<b>56.9794</b>

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**3.3 Grading - 2018**

**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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.1605	3.1605	1.1000e-004	0.0000	3.1632
<b>Total</b>											<b>0.0000</b>	<b>3.1605</b>	<b>3.1605</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>3.1632</b>

**3.4 Building Construction - 2017**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	56.4377	56.4377	0.0126	0.0000	56.7520
<b>Total</b>											<b>0.0000</b>	<b>56.4377</b>	<b>56.4377</b>	<b>0.0126</b>	<b>0.0000</b>	<b>56.7520</b>

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**3.4 Building Construction - 2017**

**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
Vendor											0.0000	0.6607	0.6607	5.0000e-005	0.0000	0.6620
Worker											0.0000	0.5744	0.5744	2.0000e-005	0.0000	0.5750
<b>Total</b>											<b>0.0000</b>	<b>1.2352</b>	<b>1.2352</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>1.2370</b>

**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	56.4377	56.4377	0.0126	0.0000	56.7519
<b>Total</b>											<b>0.0000</b>	<b>56.4377</b>	<b>56.4377</b>	<b>0.0126</b>	<b>0.0000</b>	<b>56.7519</b>

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**3.4 Building Construction - 2017**

**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
Vendor											0.0000	0.6607	0.6607	5.0000e-005	0.0000	0.6620
Worker											0.0000	0.5744	0.5744	2.0000e-005	0.0000	0.5750
<b>Total</b>											<b>0.0000</b>	<b>1.2352</b>	<b>1.2352</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>1.2370</b>

**3.4 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											0.0000	229.3188	229.3188	0.0494	0.0000	230.5538
<b>Total</b>											<b>0.0000</b>	<b>229.3188</b>	<b>229.3188</b>	<b>0.0494</b>	<b>0.0000</b>	<b>230.5538</b>



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**3.4 Building Construction - 2018**

**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
Vendor											0.0000	2.6961	2.6961	1.9000e-004	0.0000	2.7010
Worker											0.0000	2.2861	2.2861	8.0000e-005	0.0000	2.2880
<b>Total</b>											<b>0.0000</b>	<b>4.9822</b>	<b>4.9822</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>4.9890</b>

**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	229.3185	229.3185	0.0494	0.0000	230.5535
<b>Total</b>											<b>0.0000</b>	<b>229.3185</b>	<b>229.3185</b>	<b>0.0494</b>	<b>0.0000</b>	<b>230.5535</b>

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**3.4 Building Construction - 2018**

**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
Vendor											0.0000	2.6961	2.6961	1.9000e-004	0.0000	2.7010
Worker											0.0000	2.2861	2.2861	8.0000e-005	0.0000	2.2880
<b>Total</b>											<b>0.0000</b>	<b>4.9822</b>	<b>4.9822</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>4.9890</b>

**3.5 Infrastructure Installation - 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											0.0000	63.4061	63.4061	0.0137	0.0000	63.7476
<b>Total</b>											<b>0.0000</b>	<b>63.4061</b>	<b>63.4061</b>	<b>0.0137</b>	<b>0.0000</b>	<b>63.7476</b>

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**3.5 Infrastructure Installation - 2018**

**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
Vendor											0.0000	0.7455	0.7455	5.0000e-005	0.0000	0.7468
Worker											0.0000	0.6321	0.6321	2.0000e-005	0.0000	0.6326
<b>Total</b>											<b>0.0000</b>	<b>1.3776</b>	<b>1.3776</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>1.3795</b>

**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	63.4060	63.4060	0.0137	0.0000	63.7475
<b>Total</b>											<b>0.0000</b>	<b>63.4060</b>	<b>63.4060</b>	<b>0.0137</b>	<b>0.0000</b>	<b>63.7475</b>

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**3.5 Infrastructure Installation - 2018**

**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
Vendor											0.0000	0.7455	0.7455	5.0000e-005	0.0000	0.7468
Worker											0.0000	0.6321	0.6321	2.0000e-005	0.0000	0.6326
<b>Total</b>											<b>0.0000</b>	<b>1.3776</b>	<b>1.3776</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>1.3795</b>

**3.6 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											0.0000	4.0239	4.0239	1.2300e-003	0.0000	4.0546
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>											<b>0.0000</b>	<b>4.0239</b>	<b>4.0239</b>	<b>1.2300e-003</b>	<b>0.0000</b>	<b>4.0546</b>

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**3.6 Paving - 2018**

**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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.3951	0.3951	1.0000e-005	0.0000	0.3954
<b>Total</b>											<b>0.0000</b>	<b>0.3951</b>	<b>0.3951</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.3954</b>

**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	4.0239	4.0239	1.2300e-003	0.0000	4.0546
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>											<b>0.0000</b>	<b>4.0239</b>	<b>4.0239</b>	<b>1.2300e-003</b>	<b>0.0000</b>	<b>4.0546</b>

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**3.6 Paving - 2018**

**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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.3951	0.3951	1.0000e-005	0.0000	0.3954
<b>Total</b>											<b>0.0000</b>	<b>0.3951</b>	<b>0.3951</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.3954</b>

**3.7 Architectural Coating - 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					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	0.6383	0.6383	6.0000e-005	0.0000	0.6398
<b>Total</b>											<b>0.0000</b>	<b>0.6383</b>	<b>0.6383</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.6398</b>

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**3.7 Architectural Coating - 2018**

**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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>											<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	0.6383	0.6383	6.0000e-005	0.0000	0.6398
<b>Total</b>											<b>0.0000</b>	<b>0.6383</b>	<b>0.6383</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.6398</b>

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**3.7 Architectural Coating - 2018**

**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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>											<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**



Tustin 5 acre lots residential project - South Coast Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	359.4050	359.4050	0.0192	0.0000	359.8860
Unmitigated											0.0000	359.4050	359.4050	0.0192	0.0000	359.8860

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	9.52	9.91	8.62	32,282	32,282
Single Family Housing	9.52	9.91	8.62	32,282	32,282
Single Family Housing	9.52	9.91	8.62	32,282	32,282
Single Family Housing	9.52	9.91	8.62	32,282	32,282
Single Family Housing	9.52	9.91	8.62	32,282	32,282
<b>Total</b>	<b>47.60</b>	<b>49.55</b>	<b>43.10</b>	<b>161,412</b>	<b>161,412</b>

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.548893	0.044275	0.199565	0.124385	0.017503	0.005874	0.020174	0.028962	0.001990	0.002015	0.004673	0.000702	0.000989
Single Family Housing	0.548893	0.044275	0.199565	0.124385	0.017503	0.005874	0.020174	0.028962	0.001990	0.002015	0.004673	0.000702	0.000989
Single Family Housing	0.548893	0.044275	0.199565	0.124385	0.017503	0.005874	0.020174	0.028962	0.001990	0.002015	0.004673	0.000702	0.000989
Single Family Housing	0.548893	0.044275	0.199565	0.124385	0.017503	0.005874	0.020174	0.028962	0.001990	0.002015	0.004673	0.000702	0.000989
Single Family Housing	0.548893	0.044275	0.199565	0.124385	0.017503	0.005874	0.020174	0.028962	0.001990	0.002015	0.004673	0.000702	0.000989

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

	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					
Electricity Mitigated											0.0000	13.6634	13.6634	5.6000e-004	1.2000e-004	13.7123
Electricity Unmitigated											0.0000	13.6634	13.6634	5.6000e-004	1.2000e-004	13.7123
NaturalGas Mitigated											0.0000	8.3243	8.3243	1.6000e-004	1.5000e-004	8.3737
NaturalGas Unmitigated											0.0000	8.3243	8.3243	1.6000e-004	1.5000e-004	8.3737

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	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
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	31198.2											0.0000	8.3243	8.3243	1.6000e-004	1.5000e-004	8.3737
<b>Total</b>												<b>0.0000</b>	<b>8.3243</b>	<b>8.3243</b>	<b>1.6000e-004</b>	<b>1.5000e-004</b>	<b>8.3737</b>

**Mitigated**

	NaturalGas Use	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
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	31198.2											0.0000	8.3243	8.3243	1.6000e-004	1.5000e-004	8.3737
<b>Total</b>												<b>0.0000</b>	<b>8.3243</b>	<b>8.3243</b>	<b>1.6000e-004</b>	<b>1.5000e-004</b>	<b>8.3737</b>

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	8576.59	13.6634	5.6000e-004	1.2000e-004	13.7123
<b>Total</b>		<b>13.6634</b>	<b>5.6000e-004</b>	<b>1.2000e-004</b>	<b>13.7123</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	8576.59	13.6634	5.6000e-004	1.2000e-004	13.7123
<b>Total</b>		<b>13.6634</b>	<b>5.6000e-004</b>	<b>1.2000e-004</b>	<b>13.7123</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											2.6555	5.1871	7.8426	8.0000e-003	1.8000e-004	8.0964
Unmitigated											2.6555	5.1871	7.8426	8.0000e-003	1.8000e-004	8.0964

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											2.6555	5.1029	7.7584	7.9200e-003	1.8000e-004	8.0101
Landscaping											0.0000	0.0842	0.0842	8.0000e-005	0.0000	0.0863
<b>Total</b>											<b>2.6555</b>	<b>5.1871</b>	<b>7.8426</b>	<b>8.0000e-003</b>	<b>1.8000e-004</b>	<b>8.0964</b>

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**6.2 Area by SubCategory**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											2.6555	5.1029	7.7584	7.9200e-003	1.8000e-004	8.0101
Landscaping											0.0000	0.0842	0.0842	8.0000e-005	0.0000	0.0863
<b>Total</b>											<b>2.6555</b>	<b>5.1871</b>	<b>7.8426</b>	<b>8.0000e-003</b>	<b>1.8000e-004</b>	<b>8.0964</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.1819	0.0107	2.7000e-004	2.5294
Unmitigated	2.1819	0.0107	2.7000e-004	2.5294

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.32577 / 0.205377	2.1819	0.0107	2.7000e-004	2.5294
<b>Total</b>		<b>2.1819</b>	<b>0.0107</b>	<b>2.7000e-004</b>	<b>2.5294</b>



Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**7.2 Water by Land Use**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.32577 / 0.205377	2.1819	0.0107	2.7000e-004	2.5294
<b>Total</b>		<b>2.1819</b>	<b>0.0107</b>	<b>2.7000e-004</b>	<b>2.5294</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.2484	0.0738	0.0000	3.0928
Unmitigated	1.2484	0.0738	0.0000	3.0928

Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	6.15	1.2484	0.0738	0.0000	3.0928
<b>Total</b>		<b>1.2484</b>	<b>0.0738</b>	<b>0.0000</b>	<b>3.0928</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	6.15	1.2484	0.0738	0.0000	3.0928
<b>Total</b>		<b>1.2484</b>	<b>0.0738</b>	<b>0.0000</b>	<b>3.0928</b>

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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## Tustin 5 acre lots residential project - South Coast Air Basin, Annual

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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