

## Air Quality (CEST and EA)

General Requirements	Legislation	Regulation
The Clean Air Act is administered by the U.S. Environmental Protection Agency (EPA), which sets national standards on ambient pollutants. In addition, the Clean Air Act is administered by States, which must develop State Implementation Plans (SIPs) to regulate their state air quality. Projects funded by HUD must demonstrate that they conform to the appropriate SIP.	Clean Air Act (42 USC 7401 et seq.) as amended particularly Section 176(c) and (d) (42 USC 7506(c) and (d))	40 CFR Parts 6, 51 and 93
Reference		
<a href="https://www.hudexchange.info/environmental-review/air-quality">https://www.hudexchange.info/environmental-review/air-quality</a>		

### Scope of Work

- 1. Does your project include new construction or conversion of land use facilitating the development of public, commercial, or industrial facilities OR five or more dwelling units?**

Yes

→ Continue to Question 2.

No

Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.

### Air Quality Attainment Status of Project's County or Air Quality Management District

- 2. Is your project's air quality management district or county in non-attainment or maintenance status for any criteria pollutants?**

Follow the link below to determine compliance status of project county or air quality management district:

<http://www.epa.gov/oaqps001/greenbk/>

No, project's county or air quality management district is in attainment status for all criteria pollutants

→ Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.

Yes, project's management district or county is in non-attainment or maintenance status for one or more criteria pollutants.

Describe the findings:

The SMAQMD is currently designated as severe non-attainment for the federal 8-hour ozone standard and moderate maintenance area for the federal PM<sub>10</sub> and CO standards.

→ Continue to Question 3.

- 3. Determine the estimated emissions levels of your project for each of those criteria pollutants that are in non-attainment or maintenance status on your project area. Will your project exceed any of the *de minimis* or *threshold* emissions levels of non-attainment and maintenance level pollutants or exceed the screening levels established by the state or air quality management district?**

No, the project will not exceed *de minimis* or threshold emissions levels or screening levels

→ Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Explain how you determined that the project would not exceed *de minimis* or threshold emissions.

Yes, the project exceeds *de minimis* emissions levels or screening levels.

→ Continue to Question 4. Explain how you determined that the project would not exceed *de minimis* or threshold emissions in the Worksheet Summary.

- 4. For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

## **Worksheet Summary**

### **Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

The California Emissions Estimator Model (CalEEMod version 2013.2.2) was used to estimate construction and operational-related emissions resulting from the project to determine if it would exceed federal *de minimis* or local Sacramento Metropolitan Air Quality Management District (SMAQMD) construction and operational thresholds.

The SMAQMD currently designated as severe non-attainment for the federal 9-hour ozone standard and moderate maintenance status for the federal PM<sub>10</sub> and CO standards. Based on the 1990 amendments to the federal Clean Air Act, federal *de minimis* thresholds for SMAQMD is 25 tons per year (tpy) for ROG/VOC, NO<sub>x</sub> and 100 tpy for PM<sub>10</sub> and CO.

Model results indicate that maximum annual construction-related emissions would be 1 and 6.6 tons per year of ozone precursors (ROG and NO<sub>x</sub>), respectively), 0.4 tpy of PM<sub>10</sub>, and 4.9 tpy of CO. These construction emissions are estimated to be below the federal *de minimis* thresholds.

Model results indicate that maximum annual operational-related emissions would be 2.51 and 1.22 tons per year of ozone precursors (ROG and NO<sub>x</sub>) 1.44 tpy of PM<sub>10</sub>, and 10.32 tpy of CO. These construction emissions are estimated to be below the federal *de minimis* thresholds.

The SMAQMD construction emission significance thresholds are 85 pounds per day (ppd) NO<sub>x</sub>, and 0 per ppd PM<sub>10</sub> and PM<sub>2.5</sub>. There operational emissions significance thresholds are 65 ppd for ROG and NO<sub>x</sub>, and 0 ppd for PM<sub>10</sub> and PM<sub>2.5</sub>. According to the SMAQMD CEQA guidance, project-related construction and operational emissions that exceed zero pounds per day of PM<sub>10</sub> and PM<sub>2.5</sub> would result in a significant impact, unless all feasible Best Available Control Technologies/Best Management Practices (BACT/BMPs) are implemented. After implementation of all feasible SMAQMD's BACT/BMPs, the SMAQMD's significance threshold for PM<sub>10</sub> and PM<sub>2.5</sub> increases to 80 pounds per day (14.6 tons per year) of PM<sub>10</sub> and 82 pounds per day (15 tons per year) of PM<sub>2.5</sub>.

Model results indicate that maximum daily construction-related emissions would be 85 ppd of NO<sub>x</sub>, and 20 and 12 ppd of PM<sub>10</sub> and PM<sub>2.5</sub>, respectively. The project would include all of SMAQMD BACT/BMPs during construction. These construction emissions are estimated to be below the SMAQMD significance thresholds.

Model results indicate that maximum daily operation-related emissions would be 11.7 ppd of ROG, 5.9 ppd of NO<sub>x</sub>, 7.5 ppd of PM<sub>10</sub> and 2.2 ppd of PM<sub>2.5</sub>. The project would include all of SMAQMD BACT/BMPs during operation. These operational emissions are estimated to be below the SMAQMD significance thresholds.

Consequently, criteria pollutant emissions from construction and operation of the project would not be significant with respect to both federal and local air quality standards.

Attachments: Air Quality Attachment 1a

### **Are formal compliance steps or mitigation required?**

Yes

No

## Twin Rivers Blocks A&B Construction Sacramento County, Summer

### 1.0 Project Characteristics

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#### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	85.00	Space	0.76	34,000.00	0
Apartments Mid Rise	15.00	Dwelling Unit	0.39	15,000.00	40
Condo/Townhouse	70.00	Dwelling Unit	4.38	70,000.00	187

#### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2025
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MWhr)</b>	590.31	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

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

Project Characteristics -

Land Use -

Construction Phase - Adjust for construction phasing

Demolition -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	31.00
tblConstructionPhase	NumDays	230.00	226.00
tblConstructionPhase	NumDays	20.00	16.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	10.00	9.00
tblConstructionPhase	PhaseEndDate	9/11/2020	9/12/2020
tblConstructionPhase	PhaseEndDate	9/6/2019	9/7/2019
tblGrading	AcresOfGrading	12.50	10.00
tblProjectCharacteristics	OperationalYear	2014	2025
tblTripsAndVMT	HaulingTripNumber	136.00	0.00

## 2.0 Emissions Summary

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## 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	lb/day										lb/day					
Area	3.0531	0.0808	7.0146	3.7000e-004		0.0389	0.0389		0.0389	0.0389	0.0000	12.6456	12.6456	0.0121	0.0000	12.9005
Energy	0.0497	0.4251	0.1809	2.7100e-003		0.0344	0.0344		0.0344	0.0344		542.6231	542.6231	0.0104	9.9500e-003	545.9254
Mobile	1.5320	2.3952	14.5005	0.0494	3.3079	0.0495	3.3574	0.8838	0.0457	0.9295		3,564.6347	3,564.6347	0.1074		3,566.8893
<b>Total</b>	<b>4.6348</b>	<b>2.9011</b>	<b>21.6960</b>	<b>0.0525</b>	<b>3.3079</b>	<b>0.1228</b>	<b>3.4307</b>	<b>0.8838</b>	<b>0.1190</b>	<b>1.0027</b>	<b>0.0000</b>	<b>4,119.9033</b>	<b>4,119.9033</b>	<b>0.1299</b>	<b>9.9500e-003</b>	<b>4,125.7152</b>

### 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	lb/day										lb/day					
Area	3.0531	0.0808	7.0146	3.7000e-004		0.0389	0.0389		0.0389	0.0389	0.0000	12.6456	12.6456	0.0121	0.0000	12.9005
Energy	0.0497	0.4251	0.1809	2.7100e-003		0.0344	0.0344		0.0344	0.0344		542.6231	542.6231	0.0104	9.9500e-003	545.9254
Mobile	1.5320	2.3952	14.5005	0.0494	3.3079	0.0495	3.3574	0.8838	0.0457	0.9295		3,564.6347	3,564.6347	0.1074		3,566.8893
<b>Total</b>	<b>4.6348</b>	<b>2.9011</b>	<b>21.6960</b>	<b>0.0525</b>	<b>3.3079</b>	<b>0.1228</b>	<b>3.4307</b>	<b>0.8838</b>	<b>0.1190</b>	<b>1.0027</b>	<b>0.0000</b>	<b>4,119.9033</b>	<b>4,119.9033</b>	<b>0.1299</b>	<b>9.9500e-003</b>	<b>4,125.7152</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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/5/2019	8/26/2019	5	16	
2	Site Preparation	Site Preparation	8/27/2019	9/7/2019	5	9	
3	Grading	Grading	9/8/2019	10/10/2019	5	24	
4	Building Construction	Building Construction	10/11/2019	8/21/2020	5	226	
5	Paving	Paving	8/22/2020	9/12/2020	5	15	
6	Architectural Coating	Architectural Coating	9/13/2020	10/26/2020	5	31	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 172,125; Residential Outdoor: 57,375; Non-Residential Indoor: 1,530; Non-Residential Outdoor: 510 (Architectural Coating – sqft)

#### 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	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

**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	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	75.00	15.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

### 3.2 Demolition - 2019

#### 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	lb/day										lb/day					
Fugitive Dust					1.9143	0.0000	1.9143	0.2899	0.0000	0.2899			0.0000			0.0000
Off-Road	3.3224	33.9413	30.8050	0.0399		1.6448	1.6448		1.5316	1.5316		3,929.2327	3,929.2327	1.0974		3,952.2774
<b>Total</b>	<b>3.3224</b>	<b>33.9413</b>	<b>30.8050</b>	<b>0.0399</b>	<b>1.9143</b>	<b>1.6448</b>	<b>3.5591</b>	<b>0.2899</b>	<b>1.5316</b>	<b>1.8214</b>		<b>3,929.2327</b>	<b>3,929.2327</b>	<b>1.0974</b>		<b>3,952.2774</b>

### 3.2 Demolition - 2019

#### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0442	0.0399	0.5401	1.4500e-003	0.1141	7.8000e-004	0.1149	0.0303	7.3000e-004	0.0310		106.3500	106.3500	4.5200e-003			106.4450
<b>Total</b>	<b>0.0442</b>	<b>0.0399</b>	<b>0.5401</b>	<b>1.4500e-003</b>	<b>0.1141</b>	<b>7.8000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>106.3500</b>	<b>106.3500</b>	<b>4.5200e-003</b>			<b>106.4450</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	lb/day										lb/day						
Fugitive Dust					1.9143	0.0000	1.9143	0.2899	0.0000	0.2899			0.0000				0.0000
Off-Road	3.3224	33.9413	30.8050	0.0399		1.6448	1.6448		1.5316	1.5316	0.0000	3,929.2327	3,929.2327	1.0974			3,952.2774
<b>Total</b>	<b>3.3224</b>	<b>33.9413</b>	<b>30.8050</b>	<b>0.0399</b>	<b>1.9143</b>	<b>1.6448</b>	<b>3.5591</b>	<b>0.2899</b>	<b>1.5316</b>	<b>1.8214</b>	<b>0.0000</b>	<b>3,929.2327</b>	<b>3,929.2327</b>	<b>1.0974</b>			<b>3,952.2774</b>

### 3.2 Demolition - 2019

#### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0442	0.0399	0.5401	1.4500e-003	0.1141	7.8000e-004	0.1149	0.0303	7.3000e-004	0.0310		106.3500	106.3500	4.5200e-003			106.4450
<b>Total</b>	<b>0.0442</b>	<b>0.0399</b>	<b>0.5401</b>	<b>1.4500e-003</b>	<b>0.1141</b>	<b>7.8000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>106.3500</b>	<b>106.3500</b>	<b>4.5200e-003</b>			<b>106.4450</b>

### 3.3 Site Preparation - 2019

#### 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	lb/day										lb/day					
Fugitive Dust					16.0589	0.0000	16.0589	8.8273	0.0000	8.8273			0.0000			0.0000
Off-Road	4.0188	42.5046	34.8088	0.0391		2.1505	2.1505		1.9784	1.9784		3,876.7233	3,876.7233	1.2266		3,902.4810
<b>Total</b>	<b>4.0188</b>	<b>42.5046</b>	<b>34.8088</b>	<b>0.0391</b>	<b>16.0589</b>	<b>2.1505</b>	<b>18.2094</b>	<b>8.8273</b>	<b>1.9784</b>	<b>10.8057</b>		<b>3,876.7233</b>	<b>3,876.7233</b>	<b>1.2266</b>		<b>3,902.4810</b>

### 3.3 Site Preparation - 2019

#### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0531	0.0478	0.6481	1.7400e-003	0.1369	9.4000e-004	0.1379	0.0363	8.7000e-004	0.0372		127.6200	127.6200	5.4300e-003			127.7340
<b>Total</b>	<b>0.0531</b>	<b>0.0478</b>	<b>0.6481</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.4000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>8.7000e-004</b>	<b>0.0372</b>		<b>127.6200</b>	<b>127.6200</b>	<b>5.4300e-003</b>			<b>127.7340</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	lb/day										lb/day						
Fugitive Dust					16.0589	0.0000	16.0589	8.8273	0.0000	8.8273			0.0000			0.0000	
Off-Road	4.0188	42.5046	34.8088	0.0391		2.1505	2.1505		1.9784	1.9784	0.0000	3,876.7233	3,876.7233	1.2266			3,902.4810
<b>Total</b>	<b>4.0188</b>	<b>42.5046</b>	<b>34.8088</b>	<b>0.0391</b>	<b>16.0589</b>	<b>2.1505</b>	<b>18.2094</b>	<b>8.8273</b>	<b>1.9784</b>	<b>10.8057</b>	<b>0.0000</b>	<b>3,876.7233</b>	<b>3,876.7233</b>	<b>1.2266</b>			<b>3,902.4810</b>

### 3.3 Site Preparation - 2019

#### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0531	0.0478	0.6481	1.7400e-003	0.1369	9.4000e-004	0.1379	0.0363	8.7000e-004	0.0372		127.6200	127.6200	5.4300e-003			127.7340
<b>Total</b>	<b>0.0531</b>	<b>0.0478</b>	<b>0.6481</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.4000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>8.7000e-004</b>	<b>0.0372</b>		<b>127.6200</b>	<b>127.6200</b>	<b>5.4300e-003</b>			<b>127.7340</b>

### 3.4 Grading - 2019

#### 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	lb/day										lb/day						
Fugitive Dust					6.7149	0.0000	6.7149	3.4959	0.0000	3.4959			0.0000				0.0000
Off-Road	2.7610	28.3800	23.3864	0.0297		1.5329	1.5329		1.4103	1.4103		2,944.1998	2,944.1998	0.9315			2,963.7615
<b>Total</b>	<b>2.7610</b>	<b>28.3800</b>	<b>23.3864</b>	<b>0.0297</b>	<b>6.7149</b>	<b>1.5329</b>	<b>8.2478</b>	<b>3.4959</b>	<b>1.4103</b>	<b>4.9061</b>		<b>2,944.1998</b>	<b>2,944.1998</b>	<b>0.9315</b>			<b>2,963.7615</b>

### 3.4 Grading - 2019

#### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0442	0.0399	0.5401	1.4500e-003	0.1141	7.8000e-004	0.1149	0.0303	7.3000e-004	0.0310		106.3500	106.3500	4.5200e-003			106.4450
<b>Total</b>	<b>0.0442</b>	<b>0.0399</b>	<b>0.5401</b>	<b>1.4500e-003</b>	<b>0.1141</b>	<b>7.8000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>106.3500</b>	<b>106.3500</b>	<b>4.5200e-003</b>			<b>106.4450</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	lb/day										lb/day						
Fugitive Dust					6.7149	0.0000	6.7149	3.4959	0.0000	3.4959			0.0000			0.0000	
Off-Road	2.7610	28.3800	23.3864	0.0297		1.5329	1.5329		1.4103	1.4103	0.0000	2,944.1998	2,944.1998	0.9315			2,963.7615
<b>Total</b>	<b>2.7610</b>	<b>28.3800</b>	<b>23.3864</b>	<b>0.0297</b>	<b>6.7149</b>	<b>1.5329</b>	<b>8.2478</b>	<b>3.4959</b>	<b>1.4103</b>	<b>4.9061</b>	<b>0.0000</b>	<b>2,944.1998</b>	<b>2,944.1998</b>	<b>0.9315</b>			<b>2,963.7615</b>

### 3.4 Grading - 2019

#### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0442	0.0399	0.5401	1.4500e-003	0.1141	7.8000e-004	0.1149	0.0303	7.3000e-004	0.0310		106.3500	106.3500	4.5200e-003			106.4450
<b>Total</b>	<b>0.0442</b>	<b>0.0399</b>	<b>0.5401</b>	<b>1.4500e-003</b>	<b>0.1141</b>	<b>7.8000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>106.3500</b>	<b>106.3500</b>	<b>4.5200e-003</b>			<b>106.4450</b>

### 3.5 Building Construction - 2019

#### 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	lb/day										lb/day						
Off-Road	2.3516	20.9650	17.1204	0.0268		1.2850	1.2850		1.2083	1.2083		2,580.7618	2,580.7618	0.6279			2,593.9479
<b>Total</b>	<b>2.3516</b>	<b>20.9650</b>	<b>17.1204</b>	<b>0.0268</b>		<b>1.2850</b>	<b>1.2850</b>		<b>1.2083</b>	<b>1.2083</b>		<b>2,580.7618</b>	<b>2,580.7618</b>	<b>0.6279</b>			<b>2,593.9479</b>



### 3.5 Building Construction - 2019

#### 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	lb/day										lb/day						
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
Vendor	0.1179	0.8756	1.5385	3.1100e-003	0.0881	0.0142	0.1023	0.0251	0.0130	0.0381		297.3265	297.3265	2.1800e-003			297.3723
Worker	0.2211	0.1993	2.7004	7.2600e-003	0.5705	3.9200e-003	0.5745	0.1513	3.6400e-003	0.1550		531.7498	531.7498	0.0226			532.2249
<b>Total</b>	<b>0.3390</b>	<b>1.0749</b>	<b>4.2389</b>	<b>0.0104</b>	<b>0.6587</b>	<b>0.0181</b>	<b>0.6767</b>	<b>0.1764</b>	<b>0.0167</b>	<b>0.1931</b>		<b>829.0763</b>	<b>829.0763</b>	<b>0.0248</b>			<b>829.5971</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	lb/day										lb/day						
Off-Road	2.3516	20.9650	17.1204	0.0268		1.2850	1.2850		1.2083	1.2083	0.0000	2,580.7618	2,580.7618	0.6279			2,593.9479
<b>Total</b>	<b>2.3516</b>	<b>20.9650</b>	<b>17.1204</b>	<b>0.0268</b>		<b>1.2850</b>	<b>1.2850</b>		<b>1.2083</b>	<b>1.2083</b>	<b>0.0000</b>	<b>2,580.7618</b>	<b>2,580.7618</b>	<b>0.6279</b>			<b>2,593.9479</b>

### 3.5 Building Construction - 2019

#### 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	lb/day										lb/day						
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
Vendor	0.1179	0.8756	1.5385	3.1100e-003	0.0881	0.0142	0.1023	0.0251	0.0130	0.0381		297.3265	297.3265	2.1800e-003			297.3723
Worker	0.2211	0.1993	2.7004	7.2600e-003	0.5705	3.9200e-003	0.5745	0.1513	3.6400e-003	0.1550		531.7498	531.7498	0.0226			532.2249
<b>Total</b>	<b>0.3390</b>	<b>1.0749</b>	<b>4.2389</b>	<b>0.0104</b>	<b>0.6587</b>	<b>0.0181</b>	<b>0.6767</b>	<b>0.1764</b>	<b>0.0167</b>	<b>0.1931</b>		<b>829.0763</b>	<b>829.0763</b>	<b>0.0248</b>			<b>829.5971</b>

### 3.5 Building Construction - 2020

#### 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	lb/day										lb/day						
Off-Road	2.1113	19.0839	16.8084	0.0268		1.1128	1.1128		1.0465	1.0465		2,542.4799	2,542.4799	0.6194			2,555.4880
<b>Total</b>	<b>2.1113</b>	<b>19.0839</b>	<b>16.8084</b>	<b>0.0268</b>		<b>1.1128</b>	<b>1.1128</b>		<b>1.0465</b>	<b>1.0465</b>		<b>2,542.4799</b>	<b>2,542.4799</b>	<b>0.6194</b>			<b>2,555.4880</b>

### 3.5 Building Construction - 2020

#### 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	lb/day										lb/day						
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
Vendor	0.1003	0.7592	1.3724	3.1100e-003	0.0882	0.0126	0.1008	0.0251	0.0116	0.0367		290.5378	290.5378	2.1000e-003			290.5820
Worker	0.2065	0.1847	2.5165	7.2500e-003	0.5705	3.9200e-003	0.5745	0.1513	3.6400e-003	0.1550		510.7194	510.7194	0.0214			511.1683
<b>Total</b>	<b>0.3068</b>	<b>0.9438</b>	<b>3.8889</b>	<b>0.0104</b>	<b>0.6587</b>	<b>0.0165</b>	<b>0.6752</b>	<b>0.1764</b>	<b>0.0153</b>	<b>0.1917</b>		<b>801.2572</b>	<b>801.2572</b>	<b>0.0235</b>			<b>801.7503</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	lb/day										lb/day						
Off-Road	2.1113	19.0839	16.8084	0.0268		1.1128	1.1128		1.0465	1.0465	0.0000	2,542.4799	2,542.4799	0.6194			2,555.4880
<b>Total</b>	<b>2.1113</b>	<b>19.0839</b>	<b>16.8084</b>	<b>0.0268</b>		<b>1.1128</b>	<b>1.1128</b>		<b>1.0465</b>	<b>1.0465</b>	<b>0.0000</b>	<b>2,542.4799</b>	<b>2,542.4799</b>	<b>0.6194</b>			<b>2,555.4880</b>

### 3.5 Building Construction - 2020

#### 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	lb/day										lb/day						
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
Vendor	0.1003	0.7592	1.3724	3.1100e-003	0.0882	0.0126	0.1008	0.0251	0.0116	0.0367		290.5378	290.5378	2.1000e-003			290.5820
Worker	0.2065	0.1847	2.5165	7.2500e-003	0.5705	3.9200e-003	0.5745	0.1513	3.6400e-003	0.1550		510.7194	510.7194	0.0214			511.1683
<b>Total</b>	<b>0.3068</b>	<b>0.9438</b>	<b>3.8889</b>	<b>0.0104</b>	<b>0.6587</b>	<b>0.0165</b>	<b>0.6752</b>	<b>0.1764</b>	<b>0.0153</b>	<b>0.1917</b>		<b>801.2572</b>	<b>801.2572</b>	<b>0.0235</b>			<b>801.7503</b>

### 3.6 Paving - 2020

#### 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	lb/day										lb/day						
Off-Road	1.3301	13.7845	14.3523	0.0223		0.7390	0.7390		0.6799	0.6799		2,160.7571	2,160.7571	0.6988			2,175.4326
Paving	0.1328					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
<b>Total</b>	<b>1.4628</b>	<b>13.7845</b>	<b>14.3523</b>	<b>0.0223</b>		<b>0.7390</b>	<b>0.7390</b>		<b>0.6799</b>	<b>0.6799</b>		<b>2,160.7571</b>	<b>2,160.7571</b>	<b>0.6988</b>			<b>2,175.4326</b>

### 3.6 Paving - 2020

#### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0413	0.0369	0.5033	1.4500e-003	0.1141	7.8000e-004	0.1149	0.0303	7.3000e-004	0.0310		102.1439	102.1439	4.2800e-003			102.2337
<b>Total</b>	<b>0.0413</b>	<b>0.0369</b>	<b>0.5033</b>	<b>1.4500e-003</b>	<b>0.1141</b>	<b>7.8000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>102.1439</b>	<b>102.1439</b>	<b>4.2800e-003</b>			<b>102.2337</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	lb/day										lb/day						
Off-Road	1.3301	13.7845	14.3523	0.0223		0.7390	0.7390		0.6799	0.6799	0.0000	2,160.7571	2,160.7571	0.6988			2,175.4326
Paving	0.1328					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
<b>Total</b>	<b>1.4628</b>	<b>13.7845</b>	<b>14.3523</b>	<b>0.0223</b>		<b>0.7390</b>	<b>0.7390</b>		<b>0.6799</b>	<b>0.6799</b>	<b>0.0000</b>	<b>2,160.7571</b>	<b>2,160.7571</b>	<b>0.6988</b>			<b>2,175.4326</b>

### 3.6 Paving - 2020

#### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0413	0.0369	0.5033	1.4500e-003	0.1141	7.8000e-004	0.1149	0.0303	7.3000e-004	0.0310		102.1439	102.1439	4.2800e-003			102.2337
<b>Total</b>	<b>0.0413</b>	<b>0.0369</b>	<b>0.5033</b>	<b>1.4500e-003</b>	<b>0.1141</b>	<b>7.8000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>102.1439</b>	<b>102.1439</b>	<b>4.2800e-003</b>			<b>102.2337</b>

### 3.7 Architectural Coating - 2020

#### 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	lb/day										lb/day						
Archit. Coating	34.7715					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218			281.9057
<b>Total</b>	<b>35.0137</b>	<b>1.6838</b>	<b>1.8314</b>	<b>2.9700e-003</b>		<b>0.1109</b>	<b>0.1109</b>		<b>0.1109</b>	<b>0.1109</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0218</b>			<b>281.9057</b>

### 3.7 Architectural Coating - 2020

#### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0413	0.0369	0.5033	1.4500e-003	0.1141	7.8000e-004	0.1149	0.0303	7.3000e-004	0.0310		102.1439	102.1439	4.2800e-003			102.2337
<b>Total</b>	<b>0.0413</b>	<b>0.0369</b>	<b>0.5033</b>	<b>1.4500e-003</b>	<b>0.1141</b>	<b>7.8000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>102.1439</b>	<b>102.1439</b>	<b>4.2800e-003</b>			<b>102.2337</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	lb/day										lb/day						
Archit. Coating	34.7715					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218			281.9057
<b>Total</b>	<b>35.0137</b>	<b>1.6838</b>	<b>1.8314</b>	<b>2.9700e-003</b>		<b>0.1109</b>	<b>0.1109</b>		<b>0.1109</b>	<b>0.1109</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0218</b>			<b>281.9057</b>

### 3.7 Architectural Coating - 2020

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0413	0.0369	0.5033	1.4500e-003	0.1141	7.8000e-004	0.1149	0.0303	7.3000e-004	0.0310		102.1439	102.1439	4.2800e-003		102.2337
<b>Total</b>	<b>0.0413</b>	<b>0.0369</b>	<b>0.5033</b>	<b>1.4500e-003</b>	<b>0.1141</b>	<b>7.8000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>102.1439</b>	<b>102.1439</b>	<b>4.2800e-003</b>		<b>102.2337</b>

### 4.0 Operational Detail - Mobile

#### 4.1 Mitigation Measures Mobile

	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	lb/day										lb/day					
Mitigated	1.5320	2.3952	14.5005	0.0494	3.3079	0.0495	3.3574	0.8838	0.0457	0.9295		3,564.6347	3,564.6347	0.1074		3,566.8893
Unmitigated	1.5320	2.3952	14.5005	0.0494	3.3079	0.0495	3.3574	0.8838	0.0457	0.9295		3,564.6347	3,564.6347	0.1074		3,566.8893



### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	98.85	107.40	91.05	253,935	253,935
Condo/Townhouse	461.30	501.20	424.90	1,185,029	1,185,029
Parking Lot	0.00	0.00	0.00		
<b>Total</b>	<b>560.15</b>	<b>608.60</b>	<b>515.95</b>	<b>1,438,964</b>	<b>1,438,964</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
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Condo/Townhouse	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.507716	0.068869	0.175522	0.144726	0.043865	0.006529	0.021763	0.017270	0.002362	0.002281	0.006385	0.000530	0.002181

### 5.0 Energy Detail

#### 5.1 Fleet Mix

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	lb/day										lb/day					
NaturalGas Mitigated	0.0497	0.4251	0.1809	2.7100e-003		0.0344	0.0344		0.0344	0.0344		542.6231	542.6231	0.0104	9.9500e-003	545.9254
NaturalGas Unmitigated	0.0497	0.4251	0.1809	2.7100e-003		0.0344	0.0344		0.0344	0.0344		542.6231	542.6231	0.0104	9.9500e-003	545.9254

### 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	lb/day										lb/day					
Condo/Townhouse	4202.26	0.0453	0.3873	0.1648	2.4700e-003		0.0313	0.0313		0.0313	0.0313		494.3839	494.3839	9.4800e-003	9.0600e-003	497.3926
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Mid Rise	410.033	4.4200e-003	0.0378	0.0161	2.4000e-004		3.0600e-003	3.0600e-003		3.0600e-003	3.0600e-003		48.2392	48.2392	9.2000e-004	8.8000e-004	48.5328
<b>Total</b>		<b>0.0497</b>	<b>0.4251</b>	<b>0.1809</b>	<b>2.7100e-003</b>		<b>0.0344</b>	<b>0.0344</b>		<b>0.0344</b>	<b>0.0344</b>		<b>542.6231</b>	<b>542.6231</b>	<b>0.0104</b>	<b>9.9400e-003</b>	<b>545.9254</b>

### 5.2 Energy by Land Use - NaturalGas

#### 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	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Mid Rise	0.410033	4.4200e-003	0.0378	0.0161	2.4000e-004		3.0600e-003	3.0600e-003		3.0600e-003	3.0600e-003		48.2392	48.2392	9.2000e-004	8.8000e-004	48.5328
Condo/Townhouse	4.20226	0.0453	0.3873	0.1648	2.4700e-003		0.0313	0.0313		0.0313	0.0313		494.3839	494.3839	9.4800e-003	9.0600e-003	497.3926
<b>Total</b>		<b>0.0497</b>	<b>0.4251</b>	<b>0.1809</b>	<b>2.7100e-003</b>		<b>0.0344</b>	<b>0.0344</b>		<b>0.0344</b>	<b>0.0344</b>		<b>542.6231</b>	<b>542.6231</b>	<b>0.0104</b>	<b>9.9400e-003</b>	<b>545.9254</b>

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.0531	0.0808	7.0146	3.7000e-004		0.0389	0.0389		0.0389	0.0389	0.0000	12.6456	12.6456	0.0121	0.0000	12.9005
Unmitigated	3.0531	0.0808	7.0146	3.7000e-004		0.0389	0.0389		0.0389	0.0389	0.0000	12.6456	12.6456	0.0121	0.0000	12.9005

## 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	lb/day										lb/day					
Architectural Coating	0.2953					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.5466					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.2112	0.0808	7.0146	3.7000e-004		0.0389	0.0389		0.0389	0.0389		12.6456	12.6456	0.0121		12.9005
<b>Total</b>	<b>3.0531</b>	<b>0.0808</b>	<b>7.0146</b>	<b>3.7000e-004</b>		<b>0.0389</b>	<b>0.0389</b>		<b>0.0389</b>	<b>0.0389</b>	<b>0.0000</b>	<b>12.6456</b>	<b>12.6456</b>	<b>0.0121</b>	<b>0.0000</b>	<b>12.9005</b>

## 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	lb/day										lb/day					
Architectural Coating	0.2953					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.5466					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.2112	0.0808	7.0146	3.7000e-004		0.0389	0.0389		0.0389	0.0389		12.6456	12.6456	0.0121		12.9005
<b>Total</b>	<b>3.0531</b>	<b>0.0808</b>	<b>7.0146</b>	<b>3.7000e-004</b>		<b>0.0389</b>	<b>0.0389</b>		<b>0.0389</b>	<b>0.0389</b>	<b>0.0000</b>	<b>12.6456</b>	<b>12.6456</b>	<b>0.0121</b>	<b>0.0000</b>	<b>12.9005</b>

## 7.0 Water Detail

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### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

## 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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## 10.0 Vegetation

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## Twin Rivers Blocks C&D Construction Sacramento County, Summer

### 1.0 Project Characteristics

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#### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	119.00		0.00		0
Apartments Mid Rise	62.00	Dwelling Unit	1.63	62,000.00	166
Condo/Townhouse	60.00	Dwelling Unit	3.75	60,000.00	160

#### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2025
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MWhr)</b>	590.31	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

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

Project Characteristics -

Land Use -

Construction Phase - Adjust for construction dates

Off-road Equipment -

Demolition -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Residential_Exterior	82350	0
tblAreaCoating	Area_Residential_Interior	247050	0
tblConstructionPhase	NumDays	20.00	31.00
tblConstructionPhase	NumDays	230.00	226.00
tblConstructionPhase	NumDays	20.00	16.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	10.00	9.00
tblConstructionPhase	PhaseEndDate	11/12/2021	11/13/2021
tblConstructionPhase	PhaseEndDate	11/6/2020	11/7/2020
tblGrading	AcresOfGrading	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	OperationalYear	2014	2025

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### 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	lb/day										lb/day					
2020	1.1861	9.6686	11.5067	0.0225	2.1378	0.5355	2.6203	0.4512	0.4927	0.8871	0.0000	1,947.974 1	1,947.974 1	0.3817	0.0000	1,955.989 3
2021	49.5163	8.6859	11.1356	0.0225	0.7458	0.4599	1.2057	0.1993	0.4231	0.6225	0.0000	1,937.960 1	1,937.960 1	0.3805	0.0000	1,945.951 4
<b>Total</b>	<b>50.7023</b>	<b>18.3545</b>	<b>22.6424</b>	<b>0.0451</b>	<b>2.8836</b>	<b>0.9954</b>	<b>3.8260</b>	<b>0.6505</b>	<b>0.9158</b>	<b>1.5096</b>	<b>0.0000</b>	<b>3,885.934 2</b>	<b>3,885.934 2</b>	<b>0.7622</b>	<b>0.0000</b>	<b>3,901.940 6</b>

#### 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	lb/day										lb/day					
2020	1.1861	9.6686	11.5067	0.0225	2.1378	0.5355	2.6203	0.4512	0.4927	0.8871	0.0000	1,947.974 1	1,947.974 1	0.3817	0.0000	1,955.989 3
2021	49.5163	8.6859	11.1356	0.0225	0.7458	0.4599	1.2057	0.1993	0.4231	0.6225	0.0000	1,937.960 1	1,937.960 1	0.3805	0.0000	1,945.951 4
<b>Total</b>	<b>50.7023</b>	<b>18.3545</b>	<b>22.6424</b>	<b>0.0451</b>	<b>2.8836</b>	<b>0.9954</b>	<b>3.8260</b>	<b>0.6505</b>	<b>0.9158</b>	<b>1.5096</b>	<b>0.0000</b>	<b>3,885.934 2</b>	<b>3,885.934 2</b>	<b>0.7622</b>	<b>0.0000</b>	<b>3,901.940 6</b>





**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	lb/day										lb/day					
Area	2.9138	0.1159	10.0677	5.3000e-004		0.0558	0.0558		0.0558	0.0558	0.0000	18.1494	18.1494	0.0174	0.0000	18.5153
Energy	0.0571	0.4881	0.2077	3.1200e-003		0.0395	0.0395		0.0395	0.0395		623.1462	623.1462	0.0119	0.0114	626.9386
Mobile	2.1989	3.4379	20.8125	0.0709	4.7478	0.0710	4.8189	1.2685	0.0656	1.3341		5,116.299 2	5,116.299 2	0.1541		5,119.535 3
<b>Total</b>	<b>5.1699</b>	<b>4.0419</b>	<b>31.0880</b>	<b>0.0745</b>	<b>4.7478</b>	<b>0.1663</b>	<b>4.9142</b>	<b>1.2685</b>	<b>0.1609</b>	<b>1.4294</b>	<b>0.0000</b>	<b>5,757.594 8</b>	<b>5,757.594 8</b>	<b>0.1835</b>	<b>0.0114</b>	<b>5,764.989 2</b>

**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	lb/day										lb/day					
Area	2.9138	0.1159	10.0677	5.3000e-004		0.0558	0.0558		0.0558	0.0558	0.0000	18.1494	18.1494	0.0174	0.0000	18.5153
Energy	0.0571	0.4881	0.2077	3.1200e-003		0.0395	0.0395		0.0395	0.0395		623.1462	623.1462	0.0119	0.0114	626.9386
Mobile	2.1989	3.4379	20.8125	0.0709	4.7478	0.0710	4.8189	1.2685	0.0656	1.3341		5,116.299 2	5,116.299 2	0.1541		5,119.535 3
<b>Total</b>	<b>5.1699</b>	<b>4.0419</b>	<b>31.0880</b>	<b>0.0745</b>	<b>4.7478</b>	<b>0.1663</b>	<b>4.9142</b>	<b>1.2685</b>	<b>0.1609</b>	<b>1.4294</b>	<b>0.0000</b>	<b>5,757.594 8</b>	<b>5,757.594 8</b>	<b>0.1835</b>	<b>0.0114</b>	<b>5,764.989 2</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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/5/2020	10/26/2020	5	16	
2	Site Preparation	Site Preparation	10/27/2020	11/7/2020	5	9	
3	Grading	Grading	11/8/2020	12/10/2020	5	24	
4	Building Construction	Building Construction	12/11/2020	10/22/2021	5	226	
5	Paving	Paving	10/23/2021	11/13/2021	5	15	
6	Architectural Coating	Architectural Coating	11/14/2021	12/27/2021	5	31	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 247,050; Residential Outdoor: 82,350; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

#### 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	Rubber Tired Dozers	1	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

**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	4	10.00	0.00	136.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	88.00	13.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

### 3.2 Demolition - 2020

#### 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	lb/day										lb/day					
Fugitive Dust					1.9143	0.0000	1.9143	0.2899	0.0000	0.2899			0.0000			0.0000
Off-Road	0.8527	7.7248	8.0981	0.0120		0.4561	0.4561		0.4355	0.4355		1,151.701 1	1,151.701 1	0.2184		1,156.286 3
<b>Total</b>	<b>0.8527</b>	<b>7.7248</b>	<b>8.0981</b>	<b>0.0120</b>	<b>1.9143</b>	<b>0.4561</b>	<b>2.3704</b>	<b>0.2899</b>	<b>0.4355</b>	<b>0.7253</b>		<b>1,151.701 1</b>	<b>1,151.701 1</b>	<b>0.2184</b>		<b>1,156.286 3</b>

#### 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	lb/day										lb/day					
Hauling	0.1283	1.3099	1.9015	6.0900e-003	0.1474	0.0259	0.1733	0.0403	0.0238	0.0642		571.9198	571.9198	3.9200e-003		572.0020
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0275	0.0246	0.3355	9.7000e-004	0.0761	5.2000e-004	0.0766	0.0202	4.9000e-004	0.0207		68.0959	68.0959	2.8500e-003		68.1558
<b>Total</b>	<b>0.1558</b>	<b>1.3345</b>	<b>2.2370</b>	<b>7.0600e-003</b>	<b>0.2235</b>	<b>0.0264</b>	<b>0.2499</b>	<b>0.0605</b>	<b>0.0243</b>	<b>0.0848</b>		<b>640.0157</b>	<b>640.0157</b>	<b>6.7700e-003</b>		<b>640.1578</b>

### 3.2 Demolition - 2020

#### 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	lb/day										lb/day						
Fugitive Dust					1.9143	0.0000	1.9143	0.2899	0.0000	0.2899			0.0000				0.0000
Off-Road	0.8527	7.7248	8.0981	0.0120		0.4561	0.4561		0.4355	0.4355	0.0000	1,151.701 1	1,151.701 1	0.2184			1,156.286 3
<b>Total</b>	<b>0.8527</b>	<b>7.7248</b>	<b>8.0981</b>	<b>0.0120</b>	<b>1.9143</b>	<b>0.4561</b>	<b>2.3704</b>	<b>0.2899</b>	<b>0.4355</b>	<b>0.7253</b>	<b>0.0000</b>	<b>1,151.701 1</b>	<b>1,151.701 1</b>	<b>0.2184</b>			<b>1,156.286 3</b>

#### 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	lb/day										lb/day						
Hauling	0.1283	1.3099	1.9015	6.0900e-003	0.1474	0.0259	0.1733	0.0403	0.0238	0.0642		571.9198	571.9198	3.9200e-003			572.0020
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0275	0.0246	0.3355	9.7000e-004	0.0761	5.2000e-004	0.0766	0.0202	4.9000e-004	0.0207		68.0959	68.0959	2.8500e-003			68.1558
<b>Total</b>	<b>0.1558</b>	<b>1.3345</b>	<b>2.2370</b>	<b>7.0600e-003</b>	<b>0.2235</b>	<b>0.0264</b>	<b>0.2499</b>	<b>0.0605</b>	<b>0.0243</b>	<b>0.0848</b>		<b>640.0157</b>	<b>640.0157</b>	<b>6.7700e-003</b>			<b>640.1578</b>

**3.3 Site Preparation - 2020****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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9225	9.0637	6.8357	9.3100e-003		0.5213	0.5213		0.4796	0.4796		902.2494	902.2494	0.2918		908.3773
<b>Total</b>	<b>0.9225</b>	<b>9.0637</b>	<b>6.8357</b>	<b>9.3100e-003</b>	<b>0.0000</b>	<b>0.5213</b>	<b>0.5213</b>	<b>0.0000</b>	<b>0.4796</b>	<b>0.4796</b>		<b>902.2494</b>	<b>902.2494</b>	<b>0.2918</b>		<b>908.3773</b>

**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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0138	0.0123	0.1678	4.8000e-004	0.0380	2.6000e-004	0.0383	0.0101	2.4000e-004	0.0103		34.0480	34.0480	1.4300e-003		34.0779
<b>Total</b>	<b>0.0138</b>	<b>0.0123</b>	<b>0.1678</b>	<b>4.8000e-004</b>	<b>0.0380</b>	<b>2.6000e-004</b>	<b>0.0383</b>	<b>0.0101</b>	<b>2.4000e-004</b>	<b>0.0103</b>		<b>34.0480</b>	<b>34.0480</b>	<b>1.4300e-003</b>		<b>34.0779</b>

**3.3 Site Preparation - 2020****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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9225	9.0637	6.8357	9.3100e-003		0.5213	0.5213		0.4796	0.4796	0.0000	902.2494	902.2494	0.2918		908.3773
<b>Total</b>	<b>0.9225</b>	<b>9.0637</b>	<b>6.8357</b>	<b>9.3100e-003</b>	<b>0.0000</b>	<b>0.5213</b>	<b>0.5213</b>	<b>0.0000</b>	<b>0.4796</b>	<b>0.4796</b>	<b>0.0000</b>	<b>902.2494</b>	<b>902.2494</b>	<b>0.2918</b>		<b>908.3773</b>

**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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0138	0.0123	0.1678	4.8000e-004	0.0380	2.6000e-004	0.0383	0.0101	2.4000e-004	0.0103		34.0480	34.0480	1.4300e-003		34.0779
<b>Total</b>	<b>0.0138</b>	<b>0.0123</b>	<b>0.1678</b>	<b>4.8000e-004</b>	<b>0.0380</b>	<b>2.6000e-004</b>	<b>0.0383</b>	<b>0.0101</b>	<b>2.4000e-004</b>	<b>0.0103</b>		<b>34.0480</b>	<b>34.0480</b>	<b>1.4300e-003</b>		<b>34.0779</b>



### 3.4 Grading - 2020

#### 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	lb/day										lb/day					
Fugitive Dust					0.7841	0.0000	0.7841	0.4310	0.0000	0.4310			0.0000			0.0000
Off-Road	0.8527	7.7248	8.0981	0.0120		0.4561	0.4561		0.4355	0.4355		1,151.701 1	1,151.701 1	0.2184		1,156.286 3
<b>Total</b>	<b>0.8527</b>	<b>7.7248</b>	<b>8.0981</b>	<b>0.0120</b>	<b>0.7841</b>	<b>0.4561</b>	<b>1.2402</b>	<b>0.4310</b>	<b>0.4355</b>	<b>0.8665</b>		<b>1,151.701 1</b>	<b>1,151.701 1</b>	<b>0.2184</b>		<b>1,156.286 3</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0275	0.0246	0.3355	9.7000e-004	0.0761	5.2000e-004	0.0766	0.0202	4.9000e-004	0.0207		68.0959	68.0959	2.8500e-003		68.1558
<b>Total</b>	<b>0.0275</b>	<b>0.0246</b>	<b>0.3355</b>	<b>9.7000e-004</b>	<b>0.0761</b>	<b>5.2000e-004</b>	<b>0.0766</b>	<b>0.0202</b>	<b>4.9000e-004</b>	<b>0.0207</b>		<b>68.0959</b>	<b>68.0959</b>	<b>2.8500e-003</b>		<b>68.1558</b>

### 3.4 Grading - 2020

#### 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	lb/day										lb/day					
Fugitive Dust					0.7841	0.0000	0.7841	0.4310	0.0000	0.4310			0.0000			0.0000
Off-Road	0.8527	7.7248	8.0981	0.0120		0.4561	0.4561		0.4355	0.4355	0.0000	1,151.701 1	1,151.701 1	0.2184		1,156.286 3
<b>Total</b>	<b>0.8527</b>	<b>7.7248</b>	<b>8.0981</b>	<b>0.0120</b>	<b>0.7841</b>	<b>0.4561</b>	<b>1.2402</b>	<b>0.4310</b>	<b>0.4355</b>	<b>0.8665</b>	<b>0.0000</b>	<b>1,151.701 1</b>	<b>1,151.701 1</b>	<b>0.2184</b>		<b>1,156.286 3</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0275	0.0246	0.3355	9.7000e-004	0.0761	5.2000e-004	0.0766	0.0202	4.9000e-004	0.0207		68.0959	68.0959	2.8500e-003		68.1558
<b>Total</b>	<b>0.0275</b>	<b>0.0246</b>	<b>0.3355</b>	<b>9.7000e-004</b>	<b>0.0761</b>	<b>5.2000e-004</b>	<b>0.0766</b>	<b>0.0202</b>	<b>4.9000e-004</b>	<b>0.0207</b>		<b>68.0959</b>	<b>68.0959</b>	<b>2.8500e-003</b>		<b>68.1558</b>

**3.5 Building Construction - 2020****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	lb/day										lb/day					
Off-Road	0.8568	8.7940	7.3646	0.0113		0.5200	0.5200		0.4784	0.4784		1,096.9306	1,096.9306	0.3548		1,104.3807
<b>Total</b>	<b>0.8568</b>	<b>8.7940</b>	<b>7.3646</b>	<b>0.0113</b>		<b>0.5200</b>	<b>0.5200</b>		<b>0.4784</b>	<b>0.4784</b>		<b>1,096.9306</b>	<b>1,096.9306</b>	<b>0.3548</b>		<b>1,104.3807</b>

**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	lb/day										lb/day					
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
Vendor	0.0869	0.6579	1.1894	2.6900e-003	0.0764	0.0109	0.0873	0.0218	0.0101	0.0318		251.7995	251.7995	1.8200e-003		251.8377
Worker	0.2423	0.2167	2.9527	8.5100e-003	0.6694	4.6000e-003	0.6740	0.1776	4.2700e-003	0.1818		599.2440	599.2440	0.0251		599.7708
<b>Total</b>	<b>0.3292</b>	<b>0.8746</b>	<b>4.1422</b>	<b>0.0112</b>	<b>0.7458</b>	<b>0.0155</b>	<b>0.7614</b>	<b>0.1993</b>	<b>0.0143</b>	<b>0.2137</b>		<b>851.0435</b>	<b>851.0435</b>	<b>0.0269</b>		<b>851.6085</b>

### 3.5 Building Construction - 2020

#### 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	lb/day										lb/day					
Off-Road	0.8568	8.7940	7.3646	0.0113		0.5200	0.5200		0.4784	0.4784	0.0000	1,096.9306	1,096.9306	0.3548		1,104.3807
<b>Total</b>	<b>0.8568</b>	<b>8.7940</b>	<b>7.3646</b>	<b>0.0113</b>		<b>0.5200</b>	<b>0.5200</b>		<b>0.4784</b>	<b>0.4784</b>	<b>0.0000</b>	<b>1,096.9306</b>	<b>1,096.9306</b>	<b>0.3548</b>		<b>1,104.3807</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0869	0.6579	1.1894	2.6900e-003	0.0764	0.0109	0.0873	0.0218	0.0101	0.0318		251.7995	251.7995	1.8200e-003		251.8377
Worker	0.2423	0.2167	2.9527	8.5100e-003	0.6694	4.6000e-003	0.6740	0.1776	4.2700e-003	0.1818		599.2440	599.2440	0.0251		599.7708
<b>Total</b>	<b>0.3292</b>	<b>0.8746</b>	<b>4.1422</b>	<b>0.0112</b>	<b>0.7458</b>	<b>0.0155</b>	<b>0.7614</b>	<b>0.1993</b>	<b>0.0143</b>	<b>0.2137</b>		<b>851.0435</b>	<b>851.0435</b>	<b>0.0269</b>		<b>851.6085</b>

**3.5 Building Construction - 2021****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	lb/day										lb/day					
Off-Road	0.7705	7.9325	7.2422	0.0113		0.4454	0.4454		0.4098	0.4098		1,097.1688	1,097.1688	0.3549		1,104.6206
<b>Total</b>	<b>0.7705</b>	<b>7.9325</b>	<b>7.2422</b>	<b>0.0113</b>		<b>0.4454</b>	<b>0.4454</b>		<b>0.4098</b>	<b>0.4098</b>		<b>1,097.1688</b>	<b>1,097.1688</b>	<b>0.3549</b>		<b>1,104.6206</b>

**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	lb/day										lb/day					
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
Vendor	0.0801	0.5510	1.1183	2.6900e-003	0.0764	9.8500e-003	0.0863	0.0218	9.0700e-003	0.0308		251.6596	251.6596	1.8100e-003		251.6976
Worker	0.2286	0.2025	2.7752	8.5100e-003	0.6694	4.6300e-003	0.6740	0.1776	4.2900e-003	0.1819		589.1317	589.1317	0.0239		589.6332
<b>Total</b>	<b>0.3086</b>	<b>0.7534</b>	<b>3.8934</b>	<b>0.0112</b>	<b>0.7458</b>	<b>0.0145</b>	<b>0.7603</b>	<b>0.1993</b>	<b>0.0134</b>	<b>0.2127</b>		<b>840.7913</b>	<b>840.7913</b>	<b>0.0257</b>		<b>841.3308</b>

### 3.5 Building Construction - 2021

#### 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	lb/day										lb/day					
Off-Road	0.7705	7.9325	7.2422	0.0113		0.4454	0.4454		0.4098	0.4098	0.0000	1,097.1688	1,097.1688	0.3549		1,104.6206
<b>Total</b>	<b>0.7705</b>	<b>7.9325</b>	<b>7.2422</b>	<b>0.0113</b>		<b>0.4454</b>	<b>0.4454</b>		<b>0.4098</b>	<b>0.4098</b>	<b>0.0000</b>	<b>1,097.1688</b>	<b>1,097.1688</b>	<b>0.3549</b>		<b>1,104.6206</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0801	0.5510	1.1183	2.6900e-003	0.0764	9.8500e-003	0.0863	0.0218	9.0700e-003	0.0308		251.6596	251.6596	1.8100e-003		251.6976
Worker	0.2286	0.2025	2.7752	8.5100e-003	0.6694	4.6300e-003	0.6740	0.1776	4.2900e-003	0.1819		589.1317	589.1317	0.0239		589.6332
<b>Total</b>	<b>0.3086</b>	<b>0.7534</b>	<b>3.8934</b>	<b>0.0112</b>	<b>0.7458</b>	<b>0.0145</b>	<b>0.7603</b>	<b>0.1993</b>	<b>0.0134</b>	<b>0.2127</b>		<b>840.7913</b>	<b>840.7913</b>	<b>0.0257</b>		<b>841.3308</b>

### 3.6 Paving - 2021

#### 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	lb/day										lb/day					
Off-Road	0.7131	6.6304	6.9921	0.0111		0.3492	0.3492		0.3247	0.3247		1,020.0280	1,020.0280	0.2966		1,026.2569
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.7131</b>	<b>6.6304</b>	<b>6.9921</b>	<b>0.0111</b>		<b>0.3492</b>	<b>0.3492</b>		<b>0.3247</b>	<b>0.3247</b>		<b>1,020.0280</b>	<b>1,020.0280</b>	<b>0.2966</b>		<b>1,026.2569</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0468	0.0414	0.5677	1.7400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		120.5042	120.5042	4.8800e-003		120.6068
<b>Total</b>	<b>0.0468</b>	<b>0.0414</b>	<b>0.5677</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.5000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>8.8000e-004</b>	<b>0.0372</b>		<b>120.5042</b>	<b>120.5042</b>	<b>4.8800e-003</b>		<b>120.6068</b>

**3.6 Paving - 2021****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	lb/day										lb/day					
Off-Road	0.7131	6.6304	6.9921	0.0111		0.3492	0.3492		0.3247	0.3247	0.0000	1,020.0280	1,020.0280	0.2966		1,026.2569
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.7131</b>	<b>6.6304</b>	<b>6.9921</b>	<b>0.0111</b>		<b>0.3492</b>	<b>0.3492</b>		<b>0.3247</b>	<b>0.3247</b>	<b>0.0000</b>	<b>1,020.0280</b>	<b>1,020.0280</b>	<b>0.2966</b>		<b>1,026.2569</b>

**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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0468	0.0414	0.5677	1.7400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		120.5042	120.5042	4.8800e-003		120.6068
<b>Total</b>	<b>0.0468</b>	<b>0.0414</b>	<b>0.5677</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.5000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>8.8000e-004</b>	<b>0.0372</b>		<b>120.5042</b>	<b>120.5042</b>	<b>4.8800e-003</b>		<b>120.6068</b>



### 3.7 Architectural Coating - 2021

#### 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	lb/day										lb/day					
Archit. Coating	49.2506					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.8537
<b>Total</b>	<b>49.4695</b>	<b>1.5268</b>	<b>1.8176</b>	<b>2.9700e-003</b>		<b>0.0941</b>	<b>0.0941</b>		<b>0.0941</b>	<b>0.0941</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0193</b>		<b>281.8537</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0468	0.0414	0.5677	1.7400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		120.5042	120.5042	4.8800e-003		120.6068
<b>Total</b>	<b>0.0468</b>	<b>0.0414</b>	<b>0.5677</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.5000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>8.8000e-004</b>	<b>0.0372</b>		<b>120.5042</b>	<b>120.5042</b>	<b>4.8800e-003</b>		<b>120.6068</b>

### 3.7 Architectural Coating - 2021

#### 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	lb/day										lb/day					
Archit. Coating	49.2506					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.8537
<b>Total</b>	<b>49.4695</b>	<b>1.5268</b>	<b>1.8176</b>	<b>2.9700e-003</b>		<b>0.0941</b>	<b>0.0941</b>		<b>0.0941</b>	<b>0.0941</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0193</b>		<b>281.8537</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0468	0.0414	0.5677	1.7400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		120.5042	120.5042	4.8800e-003		120.6068
<b>Total</b>	<b>0.0468</b>	<b>0.0414</b>	<b>0.5677</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.5000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>8.8000e-004</b>	<b>0.0372</b>		<b>120.5042</b>	<b>120.5042</b>	<b>4.8800e-003</b>		<b>120.6068</b>

### 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

	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	lb/day										lb/day					
Mitigated	2.1989	3.4379	20.8125	0.0709	4.7478	0.0710	4.8189	1.2685	0.0656	1.3341		5,116.299 2	5,116.299 2	0.1541		5,119.535 3
Unmitigated	2.1989	3.4379	20.8125	0.0709	4.7478	0.0710	4.8189	1.2685	0.0656	1.3341		5,116.299 2	5,116.299 2	0.1541		5,119.535 3

### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	408.58	443.92	376.34	1,049,597	1,049,597
Condo/Townhouse	395.40	429.60	364.20	1,015,739	1,015,739
Total	803.98	873.52	740.54	2,065,336	2,065,336

### 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
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Condo/Townhouse	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.507716	0.068869	0.175522	0.144726	0.043865	0.006529	0.021763	0.017270	0.002362	0.002281	0.006385	0.000530	0.002181

### 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	lb/day										lb/day					
NaturalGas Mitigated	0.0571	0.4881	0.2077	3.1200e-003		0.0395	0.0395		0.0395	0.0395		623.1462	623.1462	0.0119	0.0114	626.9386
NaturalGas Unmitigated	0.0571	0.4881	0.2077	3.1200e-003		0.0395	0.0395		0.0395	0.0395		623.1462	623.1462	0.0119	0.0114	626.9386

### 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	lb/day										lb/day					
Condo/Townhouse	3601.94	0.0388	0.3319	0.1413	2.1200e-003		0.0268	0.0268		0.0268	0.0268		423.7576	423.7576	8.1200e-003	7.7700e-003	426.3365
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Mid Rise	1694.8	0.0183	0.1562	0.0665	1.0000e-003		0.0126	0.0126		0.0126	0.0126		199.3886	199.3886	3.8200e-003	3.6600e-003	200.6021
<b>Total</b>		<b>0.0571</b>	<b>0.4881</b>	<b>0.2077</b>	<b>3.1200e-003</b>		<b>0.0395</b>	<b>0.0395</b>		<b>0.0395</b>	<b>0.0395</b>		<b>623.1462</b>	<b>623.1462</b>	<b>0.0119</b>	<b>0.0114</b>	<b>626.9386</b>

### 5.2 Energy by Land Use - NaturalGas

#### 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	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Mid Rise	1.6948	0.0183	0.1562	0.0665	1.0000e-003		0.0126	0.0126		0.0126	0.0126		199.3886	199.3886	3.8200e-003	3.6600e-003	200.6021
Condo/Townhouse	3.60194	0.0388	0.3319	0.1413	2.1200e-003		0.0268	0.0268		0.0268	0.0268		423.7576	423.7576	8.1200e-003	7.7700e-003	426.3365
<b>Total</b>		<b>0.0571</b>	<b>0.4881</b>	<b>0.2077</b>	<b>3.1200e-003</b>		<b>0.0395</b>	<b>0.0395</b>		<b>0.0395</b>	<b>0.0395</b>		<b>623.1462</b>	<b>623.1462</b>	<b>0.0119</b>	<b>0.0114</b>	<b>626.9386</b>

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.9138	0.1159	10.0677	5.3000e-004		0.0558	0.0558		0.0558	0.0558	0.0000	18.1494	18.1494	0.0174	0.0000	18.5153
Unmitigated	2.9138	0.1159	10.0677	5.3000e-004		0.0558	0.0558		0.0558	0.0558	0.0000	18.1494	18.1494	0.0174	0.0000	18.5153

## 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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.6108					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.3030	0.1159	10.0677	5.3000e-004		0.0558	0.0558		0.0558	0.0558		18.1494	18.1494	0.0174		18.5153
<b>Total</b>	<b>2.9138</b>	<b>0.1159</b>	<b>10.0677</b>	<b>5.3000e-004</b>		<b>0.0558</b>	<b>0.0558</b>		<b>0.0558</b>	<b>0.0558</b>	<b>0.0000</b>	<b>18.1494</b>	<b>18.1494</b>	<b>0.0174</b>	<b>0.0000</b>	<b>18.5153</b>

## 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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.6108					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.3030	0.1159	10.0677	5.3000e-004		0.0558	0.0558		0.0558	0.0558		18.1494	18.1494	0.0174		18.5153
<b>Total</b>	<b>2.9138</b>	<b>0.1159</b>	<b>10.0677</b>	<b>5.3000e-004</b>		<b>0.0558</b>	<b>0.0558</b>		<b>0.0558</b>	<b>0.0558</b>	<b>0.0000</b>	<b>18.1494</b>	<b>18.1494</b>	<b>0.0174</b>	<b>0.0000</b>	<b>18.5153</b>

## 7.0 Water Detail

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### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

## 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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## 10.0 Vegetation

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## Twin Rivers Blocks E&F Construction Sacramento County, Summer

### 1.0 Project Characteristics

#### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	81.00	Space	0.73	32,400.00	0
Apartments Mid Rise	10.00	Dwelling Unit	0.26	10,000.00	27
Condo/Townhouse	71.00	Dwelling Unit	4.44	71,000.00	190

#### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2025
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MWhr)</b>	590.31	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

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

Project Characteristics -

Land Use -

Construction Phase - adjust for construction dates

Demolition -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Interior	1458	0
tblAreaCoating	Area_Residential_Exterior	54675	0
tblAreaCoating	Area_Residential_Interior	164025	0



tblConstructionPhase	NumDays	20.00	31.00
tblConstructionPhase	NumDays	230.00	226.00
tblConstructionPhase	NumDays	20.00	277.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	10.00	9.00
tblConstructionPhase	PhaseEndDate	1/13/2023	1/14/2023
tblConstructionPhase	PhaseEndDate	1/9/2023	1/8/2022
tblConstructionPhase	PhaseStartDate	12/28/2022	12/28/2021
tblGrading	AcresOfGrading	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	OperationalYear	2014	2025

**2.0 Emissions Summary**

## 2.1 Overall Construction (Maximum Daily Emission)

### 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	lb/day										lb/day					
2021	1.6455	15.1077	15.2895	0.0232	0.3166	0.8467	1.1633	0.0698	0.7928	0.8626	0.0000	2,188.175 2	2,188.175 2	0.5116	0.0000	2,198.918 2
2022	1.6867	14.1415	18.7470	0.0346	1.0559	0.7211	1.7280	0.4906	0.6754	1.1330	0.0000	3,094.932 4	3,094.932 4	0.5919	0.0000	3,107.362 7
2023	33.3595	5.4780	7.4317	0.0129	0.1369	0.2623	0.3992	0.0363	0.2447	0.2810	0.0000	1,137.779 5	1,137.779 5	0.3014	0.0000	1,144.107 9
<b>Total</b>	<b>36.6917</b>	<b>34.7272</b>	<b>41.4681</b>	<b>0.0706</b>	<b>1.5094</b>	<b>1.8300</b>	<b>3.2905</b>	<b>0.5967</b>	<b>1.7130</b>	<b>2.2766</b>	<b>0.0000</b>	<b>6,420.887 1</b>	<b>6,420.887 1</b>	<b>1.4048</b>	<b>0.0000</b>	<b>6,450.388 8</b>

### 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	lb/day										lb/day					
2021	1.6455	15.1077	15.2895	0.0232	0.3166	0.8467	1.1633	0.0698	0.7928	0.8626	0.0000	2,188.175 2	2,188.175 2	0.5116	0.0000	2,198.918 2
2022	1.6867	14.1415	18.7470	0.0346	1.0559	0.7211	1.7280	0.4906	0.6754	1.1330	0.0000	3,094.932 4	3,094.932 4	0.5919	0.0000	3,107.362 7
2023	33.3595	5.4780	7.4317	0.0129	0.1369	0.2623	0.3992	0.0363	0.2447	0.2810	0.0000	1,137.779 5	1,137.779 5	0.3014	0.0000	1,144.107 9
<b>Total</b>	<b>36.6917</b>	<b>34.7272</b>	<b>41.4681</b>	<b>0.0706</b>	<b>1.5094</b>	<b>1.8300</b>	<b>3.2905</b>	<b>0.5967</b>	<b>1.7130</b>	<b>2.2766</b>	<b>0.0000</b>	<b>6,420.887 1</b>	<b>6,420.887 1</b>	<b>1.4048</b>	<b>0.0000</b>	<b>6,450.388 8</b>



**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	lb/day										lb/day					
Area	2.6289	0.0770	6.6845	3.5000e-004		0.0371	0.0371		0.0371	0.0371	0.0000	12.0505	12.0505	0.0116	0.0000	12.2934
Energy	0.0489	0.4180	0.1779	2.6700e-003		0.0338	0.0338		0.0338	0.0338		533.6060	533.6060	0.0102	9.7800e-003	536.8534
Mobile	1.4599	2.2825	13.8182	0.0471	3.1523	0.0472	3.1994	0.8422	0.0436	0.8857		3,396.8871	3,396.8871	0.1023		3,399.0357
<b>Total</b>	<b>4.1377</b>	<b>2.7775</b>	<b>20.6806</b>	<b>0.0501</b>	<b>3.1523</b>	<b>0.1180</b>	<b>3.2703</b>	<b>0.8422</b>	<b>0.1144</b>	<b>0.9566</b>	<b>0.0000</b>	<b>3,942.5436</b>	<b>3,942.5436</b>	<b>0.1241</b>	<b>9.7800e-003</b>	<b>3,948.1825</b>

**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	lb/day										lb/day					
Area	2.6289	0.0770	6.6845	3.5000e-004		0.0371	0.0371		0.0371	0.0371	0.0000	12.0505	12.0505	0.0116	0.0000	12.2934
Energy	0.0489	0.4180	0.1779	2.6700e-003		0.0338	0.0338		0.0338	0.0338		533.6060	533.6060	0.0102	9.7800e-003	536.8534
Mobile	1.4599	2.2825	13.8182	0.0471	3.1523	0.0472	3.1994	0.8422	0.0436	0.8857		3,396.8871	3,396.8871	0.1023		3,399.0357
<b>Total</b>	<b>4.1377</b>	<b>2.7775</b>	<b>20.6806</b>	<b>0.0501</b>	<b>3.1523</b>	<b>0.1180</b>	<b>3.2703</b>	<b>0.8422</b>	<b>0.1144</b>	<b>0.9566</b>	<b>0.0000</b>	<b>3,942.5436</b>	<b>3,942.5436</b>	<b>0.1241</b>	<b>9.7800e-003</b>	<b>3,948.1825</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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/6/2021	12/27/2022	5	277	
2	Site Preparation	Site Preparation	12/28/2021	1/8/2022	5	9	
3	Grading	Grading	1/9/2022	2/10/2022	5	24	
4	Building Construction	Building Construction	2/11/2022	12/23/2022	5	226	
5	Paving	Paving	12/24/2022	1/14/2023	5	15	
6	Architectural Coating	Architectural Coating	1/15/2023	2/27/2023	5	31	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 164,025; Residential Outdoor: 54,675; Non-Residential Indoor: 1,458; Non-Residential Outdoor: 486 (Architectural Coating – sqft)

#### 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	Rubber Tired Dozers	1	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

**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	4	10.00	0.00	136.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	72.00	14.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

### 3.2 Demolition - 2021

#### 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	lb/day										lb/day					
Fugitive Dust					0.1106	0.0000	0.1106	0.0167	0.0000	0.0167			0.0000			0.0000
Off-Road	0.7764	7.0242	7.9731	0.0120		0.3930	0.3930		0.3754	0.3754		1,151.7252	1,151.7252	0.2152		1,156.2450
<b>Total</b>	<b>0.7764</b>	<b>7.0242</b>	<b>7.9731</b>	<b>0.0120</b>	<b>0.1106</b>	<b>0.3930</b>	<b>0.5035</b>	<b>0.0167</b>	<b>0.3754</b>	<b>0.3921</b>		<b>1,151.7252</b>	<b>1,151.7252</b>	<b>0.2152</b>		<b>1,156.2450</b>

#### 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	lb/day										lb/day					
Hauling	7.0600e-003	0.0641	0.1051	3.5000e-004	0.0919	1.4700e-003	0.0934	0.0228	1.3500e-003	0.0242		33.0340	33.0340	2.3000e-004		33.0388
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0260	0.0230	0.3154	9.7000e-004	0.0761	5.3000e-004	0.0766	0.0202	4.9000e-004	0.0207		66.9468	66.9468	2.7100e-003		67.0038
<b>Total</b>	<b>0.0330</b>	<b>0.0871</b>	<b>0.4205</b>	<b>1.3200e-003</b>	<b>0.1680</b>	<b>2.0000e-003</b>	<b>0.1700</b>	<b>0.0430</b>	<b>1.8400e-003</b>	<b>0.0448</b>		<b>99.9808</b>	<b>99.9808</b>	<b>2.9400e-003</b>		<b>100.0426</b>

### 3.2 Demolition - 2021

#### 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	lb/day										lb/day					
Fugitive Dust					0.1106	0.0000	0.1106	0.0167	0.0000	0.0167			0.0000			0.0000
Off-Road	0.7764	7.0242	7.9731	0.0120		0.3930	0.3930		0.3754	0.3754	0.0000	1,151.725 2	1,151.725 2	0.2152		1,156.245 0
<b>Total</b>	<b>0.7764</b>	<b>7.0242</b>	<b>7.9731</b>	<b>0.0120</b>	<b>0.1106</b>	<b>0.3930</b>	<b>0.5035</b>	<b>0.0167</b>	<b>0.3754</b>	<b>0.3921</b>	<b>0.0000</b>	<b>1,151.725 2</b>	<b>1,151.725 2</b>	<b>0.2152</b>		<b>1,156.245 0</b>

#### 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	lb/day										lb/day					
Hauling	7.0600e-003	0.0641	0.1051	3.5000e-004	0.0919	1.4700e-003	0.0934	0.0228	1.3500e-003	0.0242		33.0340	33.0340	2.3000e-004		33.0388
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0260	0.0230	0.3154	9.7000e-004	0.0761	5.3000e-004	0.0766	0.0202	4.9000e-004	0.0207		66.9468	66.9468	2.7100e-003		67.0038
<b>Total</b>	<b>0.0330</b>	<b>0.0871</b>	<b>0.4205</b>	<b>1.3200e-003</b>	<b>0.1680</b>	<b>2.0000e-003</b>	<b>0.1700</b>	<b>0.0430</b>	<b>1.8400e-003</b>	<b>0.0448</b>		<b>99.9808</b>	<b>99.9808</b>	<b>2.9400e-003</b>		<b>100.0426</b>



### 3.2 Demolition - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1106	0.0000	0.1106	0.0167	0.0000	0.0167			0.0000			0.0000
Off-Road	0.7115	6.3958	7.8974	0.0120		0.3348	0.3348		0.3200	0.3200		1,152.3064	1,152.3064	0.2133		1,156.7863
<b>Total</b>	<b>0.7115</b>	<b>6.3958</b>	<b>7.8974</b>	<b>0.0120</b>	<b>0.1106</b>	<b>0.3348</b>	<b>0.4454</b>	<b>0.0167</b>	<b>0.3200</b>	<b>0.3368</b>		<b>1,152.3064</b>	<b>1,152.3064</b>	<b>0.2133</b>		<b>1,156.7863</b>

#### 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	lb/day										lb/day					
Hauling	7.0200e-003	0.0566	0.1033	3.5000e-004	9.0300e-003	1.4500e-003	0.0105	2.4600e-003	1.3300e-003	3.7900e-003		33.0642	33.0642	2.3000e-004		33.0690
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0246	0.0216	0.2976	9.7000e-004	0.0761	5.3000e-004	0.0766	0.0202	4.9000e-004	0.0207		65.9200	65.9200	2.6000e-003		65.9745
<b>Total</b>	<b>0.0316</b>	<b>0.0782</b>	<b>0.4009</b>	<b>1.3200e-003</b>	<b>0.0851</b>	<b>1.9800e-003</b>	<b>0.0871</b>	<b>0.0226</b>	<b>1.8200e-003</b>	<b>0.0245</b>		<b>98.9841</b>	<b>98.9841</b>	<b>2.8300e-003</b>		<b>99.0435</b>

**3.2 Demolition - 2022****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	lb/day										lb/day					
Fugitive Dust					0.1106	0.0000	0.1106	0.0167	0.0000	0.0167			0.0000			0.0000
Off-Road	0.7115	6.3958	7.8974	0.0120		0.3348	0.3348		0.3200	0.3200	0.0000	1,152.306 4	1,152.306 4	0.2133		1,156.786 3
<b>Total</b>	<b>0.7115</b>	<b>6.3958</b>	<b>7.8974</b>	<b>0.0120</b>	<b>0.1106</b>	<b>0.3348</b>	<b>0.4454</b>	<b>0.0167</b>	<b>0.3200</b>	<b>0.3368</b>	<b>0.0000</b>	<b>1,152.306 4</b>	<b>1,152.306 4</b>	<b>0.2133</b>		<b>1,156.786 3</b>

**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	lb/day										lb/day					
Hauling	7.0200e-003	0.0566	0.1033	3.5000e-004	9.0300e-003	1.4500e-003	0.0105	2.4600e-003	1.3300e-003	3.7900e-003		33.0642	33.0642	2.3000e-004		33.0690
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0246	0.0216	0.2976	9.7000e-004	0.0761	5.3000e-004	0.0766	0.0202	4.9000e-004	0.0207		65.9200	65.9200	2.6000e-003		65.9745
<b>Total</b>	<b>0.0316</b>	<b>0.0782</b>	<b>0.4009</b>	<b>1.3200e-003</b>	<b>0.0851</b>	<b>1.9800e-003</b>	<b>0.0871</b>	<b>0.0226</b>	<b>1.8200e-003</b>	<b>0.0245</b>		<b>98.9841</b>	<b>98.9841</b>	<b>2.8300e-003</b>		<b>99.0435</b>

### 3.3 Site Preparation - 2021

#### 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	lb/day										lb/day						
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000				0.0000
Off-Road	0.8231	7.9849	6.7382	9.3200e-003		0.4515	0.4515		0.4154	0.4154		902.9958	902.9958	0.2921			909.1288
<b>Total</b>	<b>0.8231</b>	<b>7.9849</b>	<b>6.7382</b>	<b>9.3200e-003</b>	<b>0.0000</b>	<b>0.4515</b>	<b>0.4515</b>	<b>0.0000</b>	<b>0.4154</b>	<b>0.4154</b>		<b>902.9958</b>	<b>902.9958</b>	<b>0.2921</b>			<b>909.1288</b>

#### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0130	0.0115	0.1577	4.8000e-004	0.0380	2.6000e-004	0.0383	0.0101	2.4000e-004	0.0103		33.4734	33.4734	1.3600e-003			33.5019
<b>Total</b>	<b>0.0130</b>	<b>0.0115</b>	<b>0.1577</b>	<b>4.8000e-004</b>	<b>0.0380</b>	<b>2.6000e-004</b>	<b>0.0383</b>	<b>0.0101</b>	<b>2.4000e-004</b>	<b>0.0103</b>		<b>33.4734</b>	<b>33.4734</b>	<b>1.3600e-003</b>			<b>33.5019</b>

### 3.3 Site Preparation - 2021

#### 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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.8231	7.9849	6.7382	9.3200e-003		0.4515	0.4515		0.4154	0.4154	0.0000	902.9958	902.9958	0.2921		909.1288
<b>Total</b>	<b>0.8231</b>	<b>7.9849</b>	<b>6.7382</b>	<b>9.3200e-003</b>	<b>0.0000</b>	<b>0.4515</b>	<b>0.4515</b>	<b>0.0000</b>	<b>0.4154</b>	<b>0.4154</b>	<b>0.0000</b>	<b>902.9958</b>	<b>902.9958</b>	<b>0.2921</b>		<b>909.1288</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0130	0.0115	0.1577	4.8000e-004	0.0380	2.6000e-004	0.0383	0.0101	2.4000e-004	0.0103		33.4734	33.4734	1.3600e-003		33.5019
<b>Total</b>	<b>0.0130</b>	<b>0.0115</b>	<b>0.1577</b>	<b>4.8000e-004</b>	<b>0.0380</b>	<b>2.6000e-004</b>	<b>0.0383</b>	<b>0.0101</b>	<b>2.4000e-004</b>	<b>0.0103</b>		<b>33.4734</b>	<b>33.4734</b>	<b>1.3600e-003</b>		<b>33.5019</b>

### 3.3 Site Preparation - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7187	6.8657	6.6327	9.3200e-003		0.3786	0.3786		0.3483	0.3483		903.3818	903.3818	0.2922		909.5174
<b>Total</b>	<b>0.7187</b>	<b>6.8657</b>	<b>6.6327</b>	<b>9.3200e-003</b>	<b>0.0000</b>	<b>0.3786</b>	<b>0.3786</b>	<b>0.0000</b>	<b>0.3483</b>	<b>0.3483</b>		<b>903.3818</b>	<b>903.3818</b>	<b>0.2922</b>		<b>909.5174</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0123	0.0108	0.1488	4.8000e-004	0.0380	2.6000e-004	0.0383	0.0101	2.5000e-004	0.0103		32.9600	32.9600	1.3000e-003		32.9873
<b>Total</b>	<b>0.0123</b>	<b>0.0108</b>	<b>0.1488</b>	<b>4.8000e-004</b>	<b>0.0380</b>	<b>2.6000e-004</b>	<b>0.0383</b>	<b>0.0101</b>	<b>2.5000e-004</b>	<b>0.0103</b>		<b>32.9600</b>	<b>32.9600</b>	<b>1.3000e-003</b>		<b>32.9873</b>

### 3.3 Site Preparation - 2022

#### 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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7187	6.8657	6.6327	9.3200e-003		0.3786	0.3786		0.3483	0.3483	0.0000	903.3818	903.3818	0.2922		909.5174
<b>Total</b>	<b>0.7187</b>	<b>6.8657</b>	<b>6.6327</b>	<b>9.3200e-003</b>	<b>0.0000</b>	<b>0.3786</b>	<b>0.3786</b>	<b>0.0000</b>	<b>0.3483</b>	<b>0.3483</b>	<b>0.0000</b>	<b>903.3818</b>	<b>903.3818</b>	<b>0.2922</b>		<b>909.5174</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0123	0.0108	0.1488	4.8000e-004	0.0380	2.6000e-004	0.0383	0.0101	2.5000e-004	0.0103		32.9600	32.9600	1.3000e-003		32.9873
<b>Total</b>	<b>0.0123</b>	<b>0.0108</b>	<b>0.1488</b>	<b>4.8000e-004</b>	<b>0.0380</b>	<b>2.6000e-004</b>	<b>0.0383</b>	<b>0.0101</b>	<b>2.5000e-004</b>	<b>0.0103</b>		<b>32.9600</b>	<b>32.9600</b>	<b>1.3000e-003</b>		<b>32.9873</b>

### 3.4 Grading - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7841	0.0000	0.7841	0.4310	0.0000	0.4310			0.0000			0.0000
Off-Road	0.7115	6.3958	7.8974	0.0120		0.3348	0.3348		0.3200	0.3200		1,152.3064	1,152.3064	0.2133		1,156.7863
<b>Total</b>	<b>0.7115</b>	<b>6.3958</b>	<b>7.8974</b>	<b>0.0120</b>	<b>0.7841</b>	<b>0.3348</b>	<b>1.1189</b>	<b>0.4310</b>	<b>0.3200</b>	<b>0.7511</b>		<b>1,152.3064</b>	<b>1,152.3064</b>	<b>0.2133</b>		<b>1,156.7863</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0246	0.0216	0.2976	9.7000e-004	0.0761	5.3000e-004	0.0766	0.0202	4.9000e-004	0.0207		65.9200	65.9200	2.6000e-003		65.9745
<b>Total</b>	<b>0.0246</b>	<b>0.0216</b>	<b>0.2976</b>	<b>9.7000e-004</b>	<b>0.0761</b>	<b>5.3000e-004</b>	<b>0.0766</b>	<b>0.0202</b>	<b>4.9000e-004</b>	<b>0.0207</b>		<b>65.9200</b>	<b>65.9200</b>	<b>2.6000e-003</b>		<b>65.9745</b>

### 3.4 Grading - 2022

#### 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	lb/day										lb/day					
Fugitive Dust					0.7841	0.0000	0.7841	0.4310	0.0000	0.4310			0.0000			0.0000
Off-Road	0.7115	6.3958	7.8974	0.0120		0.3348	0.3348		0.3200	0.3200	0.0000	1,152.3064	1,152.3064	0.2133		1,156.7863
<b>Total</b>	<b>0.7115</b>	<b>6.3958</b>	<b>7.8974</b>	<b>0.0120</b>	<b>0.7841</b>	<b>0.3348</b>	<b>1.1189</b>	<b>0.4310</b>	<b>0.3200</b>	<b>0.7511</b>	<b>0.0000</b>	<b>1,152.3064</b>	<b>1,152.3064</b>	<b>0.2133</b>		<b>1,156.7863</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0246	0.0216	0.2976	9.7000e-004	0.0761	5.3000e-004	0.0766	0.0202	4.9000e-004	0.0207		65.9200	65.9200	2.6000e-003		65.9745
<b>Total</b>	<b>0.0246</b>	<b>0.0216</b>	<b>0.2976</b>	<b>9.7000e-004</b>	<b>0.0761</b>	<b>5.3000e-004</b>	<b>0.0766</b>	<b>0.0202</b>	<b>4.9000e-004</b>	<b>0.0207</b>		<b>65.9200</b>	<b>65.9200</b>	<b>2.6000e-003</b>		<b>65.9745</b>



### 3.5 Building Construction - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6823	6.9805	7.1322	0.0113		0.3700	0.3700		0.3404	0.3404		1,097.8914	1,097.8914	0.3551		1,105.3481
<b>Total</b>	<b>0.6823</b>	<b>6.9805</b>	<b>7.1322</b>	<b>0.0113</b>		<b>0.3700</b>	<b>0.3700</b>		<b>0.3404</b>	<b>0.3404</b>		<b>1,097.8914</b>	<b>1,097.8914</b>	<b>0.3551</b>		<b>1,105.3481</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0843	0.5314	1.1737	2.9000e-003	0.0823	0.0104	0.0928	0.0235	9.5900e-003	0.0330		271.1269	271.1269	1.9800e-003		271.1684
Worker	0.1770	0.1557	2.1427	6.9600e-003	0.5477	3.8100e-003	0.5515	0.1453	3.5300e-003	0.1488		474.6237	474.6237	0.0187		475.0165
<b>Total</b>	<b>0.2613</b>	<b>0.6871</b>	<b>3.3164</b>	<b>9.8600e-003</b>	<b>0.6300</b>	<b>0.0142</b>	<b>0.6443</b>	<b>0.1687</b>	<b>0.0131</b>	<b>0.1819</b>		<b>745.7506</b>	<b>745.7506</b>	<b>0.0207</b>		<b>746.1849</b>

### 3.5 Building Construction - 2022

#### 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	lb/day										lb/day					
Off-Road	0.6823	6.9805	7.1322	0.0113		0.3700	0.3700		0.3404	0.3404	0.0000	1,097.8914	1,097.8914	0.3551		1,105.3481
<b>Total</b>	<b>0.6823</b>	<b>6.9805</b>	<b>7.1322</b>	<b>0.0113</b>		<b>0.3700</b>	<b>0.3700</b>		<b>0.3404</b>	<b>0.3404</b>	<b>0.0000</b>	<b>1,097.8914</b>	<b>1,097.8914</b>	<b>0.3551</b>		<b>1,105.3481</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0843	0.5314	1.1737	2.9000e-003	0.0823	0.0104	0.0928	0.0235	9.5900e-003	0.0330		271.1269	271.1269	1.9800e-003		271.1684
Worker	0.1770	0.1557	2.1427	6.9600e-003	0.5477	3.8100e-003	0.5515	0.1453	3.5300e-003	0.1488		474.6237	474.6237	0.0187		475.0165
<b>Total</b>	<b>0.2613</b>	<b>0.6871</b>	<b>3.3164</b>	<b>9.8600e-003</b>	<b>0.6300</b>	<b>0.0142</b>	<b>0.6443</b>	<b>0.1687</b>	<b>0.0131</b>	<b>0.1819</b>		<b>745.7506</b>	<b>745.7506</b>	<b>0.0207</b>		<b>746.1849</b>

### 3.6 Paving - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6400	5.8468	6.9377	0.0111		0.2927	0.2927		0.2727	0.2727		1,020.5034	1,020.5034	0.2968		1,026.7356
Paving	0.1275					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.7675</b>	<b>5.8468</b>	<b>6.9377</b>	<b>0.0111</b>		<b>0.2927</b>	<b>0.2927</b>		<b>0.2727</b>	<b>0.2727</b>		<b>1,020.5034</b>	<b>1,020.5034</b>	<b>0.2968</b>		<b>1,026.7356</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0443	0.0389	0.5357	1.7400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		118.6559	118.6559	4.6800e-003		118.7541
<b>Total</b>	<b>0.0443</b>	<b>0.0389</b>	<b>0.5357</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.5000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>8.8000e-004</b>	<b>0.0372</b>		<b>118.6559</b>	<b>118.6559</b>	<b>4.6800e-003</b>		<b>118.7541</b>

### 3.6 Paving - 2022

#### 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	lb/day										lb/day					
Off-Road	0.6400	5.8468	6.9377	0.0111		0.2927	0.2927		0.2727	0.2727	0.0000	1,020.503 4	1,020.503 4	0.2968		1,026.735 6
Paving	0.1275					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.7675</b>	<b>5.8468</b>	<b>6.9377</b>	<b>0.0111</b>		<b>0.2927</b>	<b>0.2927</b>		<b>0.2727</b>	<b>0.2727</b>	<b>0.0000</b>	<b>1,020.503 4</b>	<b>1,020.503 4</b>	<b>0.2968</b>		<b>1,026.735 6</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0443	0.0389	0.5357	1.7400e-003	0.1369	9.5000e-004	0.1379	0.0363	8.8000e-004	0.0372		118.6559	118.6559	4.6800e-003		118.7541
<b>Total</b>	<b>0.0443</b>	<b>0.0389</b>	<b>0.5357</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.5000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>8.8000e-004</b>	<b>0.0372</b>		<b>118.6559</b>	<b>118.6559</b>	<b>4.6800e-003</b>		<b>118.7541</b>

### 3.6 Paving - 2023

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6047	5.4412	6.9239	0.0111		0.2613	0.2613		0.2438	0.2438		1,020.7680	1,020.7680	0.2969		1,027.0020
Paving	0.1275					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.7322</b>	<b>5.4412</b>	<b>6.9239</b>	<b>0.0111</b>		<b>0.2613</b>	<b>0.2613</b>		<b>0.2438</b>	<b>0.2438</b>		<b>1,020.7680</b>	<b>1,020.7680</b>	<b>0.2969</b>		<b>1,027.0020</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0420	0.0368	0.5078	1.7400e-003	0.1369	9.6000e-004	0.1379	0.0363	8.9000e-004	0.0372		117.0115	117.0115	4.5000e-003		117.1060
<b>Total</b>	<b>0.0420</b>	<b>0.0368</b>	<b>0.5078</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.6000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>8.9000e-004</b>	<b>0.0372</b>		<b>117.0115</b>	<b>117.0115</b>	<b>4.5000e-003</b>		<b>117.1060</b>

### 3.6 Paving - 2023

#### 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	lb/day										lb/day					
Off-Road	0.6047	5.4412	6.9239	0.0111		0.2613	0.2613		0.2438	0.2438	0.0000	1,020.7680	1,020.7680	0.2969		1,027.0020
Paving	0.1275					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.7322</b>	<b>5.4412</b>	<b>6.9239</b>	<b>0.0111</b>		<b>0.2613</b>	<b>0.2613</b>		<b>0.2438</b>	<b>0.2438</b>	<b>0.0000</b>	<b>1,020.7680</b>	<b>1,020.7680</b>	<b>0.2969</b>		<b>1,027.0020</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0420	0.0368	0.5078	1.7400e-003	0.1369	9.6000e-004	0.1379	0.0363	8.9000e-004	0.0372		117.0115	117.0115	4.5000e-003		117.1060
<b>Total</b>	<b>0.0420</b>	<b>0.0368</b>	<b>0.5078</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.6000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>8.9000e-004</b>	<b>0.0372</b>		<b>117.0115</b>	<b>117.0115</b>	<b>4.5000e-003</b>		<b>117.1060</b>

### 3.7 Architectural Coating - 2023

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	33.1352					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8017
<b>Total</b>	<b>33.3268</b>	<b>1.3030</b>	<b>1.8111</b>	<b>2.9700e-003</b>		<b>0.0708</b>	<b>0.0708</b>		<b>0.0708</b>	<b>0.0708</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0168</b>		<b>281.8017</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0327	0.0286	0.3949	1.3500e-003	0.1065	7.5000e-004	0.1072	0.0283	6.9000e-004	0.0289		91.0090	91.0090	3.5000e-003		91.0824
<b>Total</b>	<b>0.0327</b>	<b>0.0286</b>	<b>0.3949</b>	<b>1.3500e-003</b>	<b>0.1065</b>	<b>7.5000e-004</b>	<b>0.1072</b>	<b>0.0283</b>	<b>6.9000e-004</b>	<b>0.0289</b>		<b>91.0090</b>	<b>91.0090</b>	<b>3.5000e-003</b>		<b>91.0824</b>

### 3.7 Architectural Coating - 2023

#### 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	lb/day										lb/day					
Archit. Coating	33.1352					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8017
<b>Total</b>	<b>33.3268</b>	<b>1.3030</b>	<b>1.8111</b>	<b>2.9700e-003</b>		<b>0.0708</b>	<b>0.0708</b>		<b>0.0708</b>	<b>0.0708</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0168</b>		<b>281.8017</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0327	0.0286	0.3949	1.3500e-003	0.1065	7.5000e-004	0.1072	0.0283	6.9000e-004	0.0289		91.0090	91.0090	3.5000e-003		91.0824
<b>Total</b>	<b>0.0327</b>	<b>0.0286</b>	<b>0.3949</b>	<b>1.3500e-003</b>	<b>0.1065</b>	<b>7.5000e-004</b>	<b>0.1072</b>	<b>0.0283</b>	<b>6.9000e-004</b>	<b>0.0289</b>		<b>91.0090</b>	<b>91.0090</b>	<b>3.5000e-003</b>		<b>91.0824</b>

### 4.0 Operational Detail - Mobile



### 4.1 Mitigation Measures Mobile

	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	lb/day										lb/day					
Mitigated	1.4599	2.2825	13.8182	0.0471	3.1523	0.0472	3.1994	0.8422	0.0436	0.8857		3,396.887 1	3,396.887 1	0.1023		3,399.035 7
Unmitigated	1.4599	2.2825	13.8182	0.0471	3.1523	0.0472	3.1994	0.8422	0.0436	0.8857		3,396.887 1	3,396.887 1	0.1023		3,399.035 7

### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	65.90	71.60	60.70	169,290	169,290
Condo/Townhouse	467.89	508.36	430.97	1,201,958	1,201,958
Parking Lot	0.00	0.00	0.00		
<b>Total</b>	<b>533.79</b>	<b>579.96</b>	<b>491.67</b>	<b>1,371,248</b>	<b>1,371,248</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
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Condo/Townhouse	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.507716	0.068869	0.175522	0.144726	0.043865	0.006529	0.021763	0.017270	0.002362	0.002281	0.006385	0.000530	0.002181

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
NaturalGas Mitigated	0.0489	0.4180	0.1779	2.6700e-003		0.0338	0.0338		0.0338	0.0338		533.6060	533.6060	0.0102	9.7800e-003	536.8534
NaturalGas Unmitigated	0.0489	0.4180	0.1779	2.6700e-003		0.0338	0.0338		0.0338	0.0338		533.6060	533.6060	0.0102	9.7800e-003	536.8534

### 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	lb/day										lb/day					
Condo/Townhouse	4262.3	0.0460	0.3928	0.1672	2.5100e-003		0.0318	0.0318		0.0318	0.0318		501.4465	501.4465	9.6100e-003	9.1900e-003	504.4982
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Mid Rise	273.355	2.9500e-003	0.0252	0.0107	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1595	32.1595	6.2000e-004	5.9000e-004	32.3552
<b>Total</b>		<b>0.0489</b>	<b>0.4180</b>	<b>0.1779</b>	<b>2.6700e-003</b>		<b>0.0338</b>	<b>0.0338</b>		<b>0.0338</b>	<b>0.0338</b>		<b>533.6060</b>	<b>533.6060</b>	<b>0.0102</b>	<b>9.7800e-003</b>	<b>536.8534</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	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Mid Rise	0.273355	2.9500e-003	0.0252	0.0107	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1595	32.1595	6.2000e-004	5.9000e-004	32.3552
Condo/Townhouse	4.2623	0.0460	0.3928	0.1672	2.5100e-003		0.0318	0.0318		0.0318	0.0318		501.4465	501.4465	9.6100e-003	9.1900e-003	504.4982
<b>Total</b>		<b>0.0489</b>	<b>0.4180</b>	<b>0.1779</b>	<b>2.6700e-003</b>		<b>0.0338</b>	<b>0.0338</b>		<b>0.0338</b>	<b>0.0338</b>		<b>533.6060</b>	<b>533.6060</b>	<b>0.0102</b>	<b>9.7800e-003</b>	<b>536.8534</b>

### 6.0 Area Detail

### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.6289	0.0770	6.6845	3.5000e-004		0.0371	0.0371		0.0371	0.0371	0.0000	12.0505	12.0505	0.0116	0.0000	12.2934
Unmitigated	2.6289	0.0770	6.6845	3.5000e-004		0.0371	0.0371		0.0371	0.0371	0.0000	12.0505	12.0505	0.0116	0.0000	12.2934

### 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	lb/day										lb/day					
Architectural Coating	9.3000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4268					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.2012	0.0770	6.6845	3.5000e-004		0.0371	0.0371		0.0371	0.0371		12.0505	12.0505	0.0116		12.2934
<b>Total</b>	<b>2.6289</b>	<b>0.0770</b>	<b>6.6845</b>	<b>3.5000e-004</b>		<b>0.0371</b>	<b>0.0371</b>		<b>0.0371</b>	<b>0.0371</b>	<b>0.0000</b>	<b>12.0505</b>	<b>12.0505</b>	<b>0.0116</b>	<b>0.0000</b>	<b>12.2934</b>

## 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	lb/day										lb/day					
Architectural Coating	9.3000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4268					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.2012	0.0770	6.6845	3.5000e-004		0.0371	0.0371		0.0371	0.0371		12.0505	12.0505	0.0116		12.2934
<b>Total</b>	<b>2.6289</b>	<b>0.0770</b>	<b>6.6845</b>	<b>3.5000e-004</b>		<b>0.0371</b>	<b>0.0371</b>		<b>0.0371</b>	<b>0.0371</b>	<b>0.0000</b>	<b>12.0505</b>	<b>12.0505</b>	<b>0.0116</b>	<b>0.0000</b>	<b>12.2934</b>

## 7.0 Water Detail

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### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

## 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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## 10.0 Vegetation

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## Twin Rivers Blocks G&H Construction Sacramento County, Summer

### 1.0 Project Characteristics

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#### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	20.00	Space	0.18	8,000.00	0
Condo/Townhouse	20.00	Dwelling Unit	1.25	20,000.00	53

#### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2025
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MW hr)</b>	590.31	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

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

Project Characteristics -

Land Use -

Construction Phase - adjust for construction dates

Demolition -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Interior	360	0
tblAreaCoating	Area_Residential_Exterior	13500	0
tblAreaCoating	Area_Residential_Interior	40500	0
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	200.00	226.00
tblConstructionPhase	NumDays	20.00	16.00
tblConstructionPhase	NumDays	4.00	24.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	2.00	9.00
tblConstructionPhase	PhaseEndDate	4/5/2024	4/7/2024
tblConstructionPhase	PhaseEndDate	3/15/2024	3/16/2024
tblConstructionPhase	PhaseEndDate	3/10/2023	3/11/2023
tblGrading	AcresOfGrading	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	6.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	OperationalYear	2014	2025

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### 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	lb/day										lb/day					
2023	0.7996	6.7858	9.8385	0.0191	2.1379	0.3219	2.4498	0.4512	0.2972	0.7263	0.0000	1,790.3665	1,790.3665	0.3602	0.0000	1,797.9306
2024	17.0982	6.0727	7.7696	0.0137	0.1546	0.2839	0.4385	0.0414	0.2612	0.3025	0.0000	1,272.6575	1,272.6575	0.3602	0.0000	1,280.2211
<b>Total</b>	<b>17.8978</b>	<b>12.8586</b>	<b>17.6081</b>	<b>0.0328</b>	<b>2.2925</b>	<b>0.6057</b>	<b>2.8882</b>	<b>0.4926</b>	<b>0.5583</b>	<b>1.0288</b>	<b>0.0000</b>	<b>3,063.0240</b>	<b>3,063.0240</b>	<b>0.7204</b>	<b>0.0000</b>	<b>3,078.1517</b>

#### 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	lb/day										lb/day					
2023	0.7996	6.7858	9.8385	0.0191	2.1379	0.3219	2.4498	0.4512	0.2972	0.7263	0.0000	1,790.3665	1,790.3665	0.3602	0.0000	1,797.9306
2024	17.0982	6.0727	7.7696	0.0137	0.1546	0.2839	0.4385	0.0414	0.2612	0.3025	0.0000	1,272.6575	1,272.6575	0.3602	0.0000	1,280.2211
<b>Total</b>	<b>17.8978</b>	<b>12.8586</b>	<b>17.6081</b>	<b>0.0328</b>	<b>2.2925</b>	<b>0.6057</b>	<b>2.8882</b>	<b>0.4926</b>	<b>0.5583</b>	<b>1.0288</b>	<b>0.0000</b>	<b>3,063.0240</b>	<b>3,063.0240</b>	<b>0.7204</b>	<b>0.0000</b>	<b>3,078.1517</b>





**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	lb/day										lb/day					
Area	0.6491	0.0190	1.6505	9.0000e-005		9.1500e-003	9.1500e-003		9.1500e-003	9.1500e-003	0.0000	2.9754	2.9754	2.8600e-003	0.0000	3.0354
Energy	0.0130	0.1107	0.0471	7.1000e-004		8.9500e-003	8.9500e-003		8.9500e-003	8.9500e-003		141.2525	141.2525	2.7100e-003	2.5900e-003	142.1122
Mobile	0.3605	0.5636	3.4119	0.0116	0.7783	0.0117	0.7900	0.2080	0.0108	0.2187		838.7376	838.7376	0.0253		839.2681
<b>Total</b>	<b>1.0225</b>	<b>0.6932</b>	<b>5.1095</b>	<b>0.0124</b>	<b>0.7783</b>	<b>0.0298</b>	<b>0.8081</b>	<b>0.2080</b>	<b>0.0289</b>	<b>0.2368</b>	<b>0.0000</b>	<b>982.9655</b>	<b>982.9655</b>	<b>0.0308</b>	<b>2.5900e-003</b>	<b>984.4157</b>

**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	lb/day										lb/day					
Area	0.6491	0.0190	1.6505	9.0000e-005		9.1500e-003	9.1500e-003		9.1500e-003	9.1500e-003	0.0000	2.9754	2.9754	2.8600e-003	0.0000	3.0354
Energy	0.0130	0.1107	0.0471	7.1000e-004		8.9500e-003	8.9500e-003		8.9500e-003	8.9500e-003		141.2525	141.2525	2.7100e-003	2.5900e-003	142.1122
Mobile	0.3605	0.5636	3.4119	0.0116	0.7783	0.0117	0.7900	0.2080	0.0108	0.2187		838.7376	838.7376	0.0253		839.2681
<b>Total</b>	<b>1.0225</b>	<b>0.6932</b>	<b>5.1095</b>	<b>0.0124</b>	<b>0.7783</b>	<b>0.0298</b>	<b>0.8081</b>	<b>0.2080</b>	<b>0.0289</b>	<b>0.2368</b>	<b>0.0000</b>	<b>982.9655</b>	<b>982.9655</b>	<b>0.0308</b>	<b>2.5900e-003</b>	<b>984.4157</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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/6/2023	2/27/2023	5	16	
2	Site Preparation	Site Preparation	2/28/2023	3/11/2023	5	9	
3	Grading	Grading	3/12/2023	4/13/2023	5	24	
4	Building Construction	Building Construction	4/14/2023	2/23/2024	5	226	
5	Paving	Paving	2/24/2024	3/16/2024	5	15	
6	Architectural Coating	Architectural Coating	3/17/2024	4/7/2024	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 40,500; Residential Outdoor: 13,500; Non-Residential Indoor: 360; Non-Residential Outdoor: 120 (Architectural Coating – sqft)

#### 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	Rubber Tired Dozers	1	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

**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	4	10.00	0.00	136.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	18.00	3.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

### 3.2 Demolition - 2023

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9143	0.0000	1.9143	0.2899	0.0000	0.2899			0.0000			0.0000
Off-Road	0.6612	5.8791	7.8333	0.0120		0.2873	0.2873		0.2746	0.2746		1,152.849 1	1,152.849 1	0.2104		1,157.267 0
<b>Total</b>	<b>0.6612</b>	<b>5.8791</b>	<b>7.8333</b>	<b>0.0120</b>	<b>1.9143</b>	<b>0.2873</b>	<b>2.2016</b>	<b>0.2899</b>	<b>0.2746</b>	<b>0.5644</b>		<b>1,152.849 1</b>	<b>1,152.849 1</b>	<b>0.2104</b>		<b>1,157.267 0</b>

#### 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	lb/day										lb/day					
Hauling	0.1151	0.8863	1.7231	6.1000e-003	0.1476	0.0240	0.1716	0.0404	0.0221	0.0625		572.5110	572.5110	3.8400e-003		572.5916
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0234	0.0204	0.2821	9.7000e-004	0.0761	5.3000e-004	0.0766	0.0202	4.9000e-004	0.0207		65.0064	65.0064	2.5000e-003		65.0589
<b>Total</b>	<b>0.1385</b>	<b>0.9067</b>	<b>2.0052</b>	<b>7.0700e-003</b>	<b>0.2236</b>	<b>0.0245</b>	<b>0.2482</b>	<b>0.0606</b>	<b>0.0226</b>	<b>0.0831</b>		<b>637.5174</b>	<b>637.5174</b>	<b>6.3400e-003</b>		<b>637.6505</b>

### 3.2 Demolition - 2023

#### 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	lb/day										lb/day					
Fugitive Dust					1.9143	0.0000	1.9143	0.2899	0.0000	0.2899			0.0000			0.0000
Off-Road	0.6612	5.8791	7.8333	0.0120		0.2873	0.2873		0.2746	0.2746	0.0000	1,152.849 1	1,152.849 1	0.2104		1,157.267 0
<b>Total</b>	<b>0.6612</b>	<b>5.8791</b>	<b>7.8333</b>	<b>0.0120</b>	<b>1.9143</b>	<b>0.2873</b>	<b>2.2016</b>	<b>0.2899</b>	<b>0.2746</b>	<b>0.5644</b>	<b>0.0000</b>	<b>1,152.849 1</b>	<b>1,152.849 1</b>	<b>0.2104</b>		<b>1,157.267 0</b>

#### 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	lb/day										lb/day					
Hauling	0.1151	0.8863	1.7231	6.1000e-003	0.1476	0.0240	0.1716	0.0404	0.0221	0.0625		572.5110	572.5110	3.8400e-003		572.5916
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0234	0.0204	0.2821	9.7000e-004	0.0761	5.3000e-004	0.0766	0.0202	4.9000e-004	0.0207		65.0064	65.0064	2.5000e-003		65.0589
<b>Total</b>	<b>0.1385</b>	<b>0.9067</b>	<b>2.0052</b>	<b>7.0700e-003</b>	<b>0.2236</b>	<b>0.0245</b>	<b>0.2482</b>	<b>0.0606</b>	<b>0.0226</b>	<b>0.0831</b>		<b>637.5174</b>	<b>637.5174</b>	<b>6.3400e-003</b>		<b>637.6505</b>

### 3.3 Site Preparation - 2023

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6419	5.9997	6.5723	9.3300e-003		0.3216	0.3216		0.2959	0.2959		903.5892	903.5892	0.2922		909.7262
<b>Total</b>	<b>0.6419</b>	<b>5.9997</b>	<b>6.5723</b>	<b>9.3300e-003</b>	<b>0.0000</b>	<b>0.3216</b>	<b>0.3216</b>	<b>0.0000</b>	<b>0.2959</b>	<b>0.2959</b>		<b>903.5892</b>	<b>903.5892</b>	<b>0.2922</b>		<b>909.7262</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0117	0.0102	0.1410	4.8000e-004	0.0380	2.7000e-004	0.0383	0.0101	2.5000e-004	0.0103		32.5032	32.5032	1.2500e-003		32.5294
<b>Total</b>	<b>0.0117</b>	<b>0.0102</b>	<b>0.1410</b>	<b>4.8000e-004</b>	<b>0.0380</b>	<b>2.7000e-004</b>	<b>0.0383</b>	<b>0.0101</b>	<b>2.5000e-004</b>	<b>0.0103</b>		<b>32.5032</b>	<b>32.5032</b>	<b>1.2500e-003</b>		<b>32.5294</b>

### 3.3 Site Preparation - 2023

#### 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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6419	5.9997	6.5723	9.3300e-003		0.3216	0.3216		0.2959	0.2959	0.0000	903.5892	903.5892	0.2922		909.7262
<b>Total</b>	<b>0.6419</b>	<b>5.9997</b>	<b>6.5723</b>	<b>9.3300e-003</b>	<b>0.0000</b>	<b>0.3216</b>	<b>0.3216</b>	<b>0.0000</b>	<b>0.2959</b>	<b>0.2959</b>	<b>0.0000</b>	<b>903.5892</b>	<b>903.5892</b>	<b>0.2922</b>		<b>909.7262</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0117	0.0102	0.1410	4.8000e-004	0.0380	2.7000e-004	0.0383	0.0101	2.5000e-004	0.0103		32.5032	32.5032	1.2500e-003		32.5294
<b>Total</b>	<b>0.0117</b>	<b>0.0102</b>	<b>0.1410</b>	<b>4.8000e-004</b>	<b>0.0380</b>	<b>2.7000e-004</b>	<b>0.0383</b>	<b>0.0101</b>	<b>2.5000e-004</b>	<b>0.0103</b>		<b>32.5032</b>	<b>32.5032</b>	<b>1.2500e-003</b>		<b>32.5294</b>



### 3.4 Grading - 2023

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7841	0.0000	0.7841	0.4310	0.0000	0.4310			0.0000			0.0000
Off-Road	0.6612	5.8791	7.8333	0.0120		0.2873	0.2873		0.2746	0.2746		1,152.8491	1,152.8491	0.2104		1,157.2670
<b>Total</b>	<b>0.6612</b>	<b>5.8791</b>	<b>7.8333</b>	<b>0.0120</b>	<b>0.7841</b>	<b>0.2873</b>	<b>1.0714</b>	<b>0.4310</b>	<b>0.2746</b>	<b>0.7056</b>		<b>1,152.8491</b>	<b>1,152.8491</b>	<b>0.2104</b>		<b>1,157.2670</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0234	0.0204	0.2821	9.7000e-004	0.0761	5.3000e-004	0.0766	0.0202	4.9000e-004	0.0207		65.0064	65.0064	2.5000e-003		65.0589
<b>Total</b>	<b>0.0234</b>	<b>0.0204</b>	<b>0.2821</b>	<b>9.7000e-004</b>	<b>0.0761</b>	<b>5.3000e-004</b>	<b>0.0766</b>	<b>0.0202</b>	<b>4.9000e-004</b>	<b>0.0207</b>		<b>65.0064</b>	<b>65.0064</b>	<b>2.5000e-003</b>		<b>65.0589</b>

### 3.4 Grading - 2023

#### 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	lb/day										lb/day					
Fugitive Dust					0.7841	0.0000	0.7841	0.4310	0.0000	0.4310			0.0000			0.0000
Off-Road	0.6612	5.8791	7.8333	0.0120		0.2873	0.2873		0.2746	0.2746	0.0000	1,152.849 1	1,152.849 1	0.2104		1,157.267 0
<b>Total</b>	<b>0.6612</b>	<b>5.8791</b>	<b>7.8333</b>	<b>0.0120</b>	<b>0.7841</b>	<b>0.2873</b>	<b>1.0714</b>	<b>0.4310</b>	<b>0.2746</b>	<b>0.7056</b>	<b>0.0000</b>	<b>1,152.849 1</b>	<b>1,152.849 1</b>	<b>0.2104</b>		<b>1,157.267 0</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0234	0.0204	0.2821	9.7000e-004	0.0761	5.3000e-004	0.0766	0.0202	4.9000e-004	0.0207		65.0064	65.0064	2.5000e-003		65.0589
<b>Total</b>	<b>0.0234</b>	<b>0.0204</b>	<b>0.2821</b>	<b>9.7000e-004</b>	<b>0.0761</b>	<b>5.3000e-004</b>	<b>0.0766</b>	<b>0.0202</b>	<b>4.9000e-004</b>	<b>0.0207</b>		<b>65.0064</b>	<b>65.0064</b>	<b>2.5000e-003</b>		<b>65.0589</b>

**3.5 Building Construction - 2023****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6284	6.3773	7.0772	0.0114		0.3185	0.3185		0.2930	0.2930		1,098.5610	1,098.5610	0.3553		1,106.0223
<b>Total</b>	<b>0.6284</b>	<b>6.3773</b>	<b>7.0772</b>	<b>0.0114</b>		<b>0.3185</b>	<b>0.3185</b>		<b>0.2930</b>	<b>0.2930</b>		<b>1,098.5610</b>	<b>1,098.5610</b>	<b>0.3553</b>		<b>1,106.0223</b>

**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	lb/day										lb/day					
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
Vendor	0.0170	0.1029	0.2413	6.2000e-004	0.0177	2.1000e-003	0.0198	5.0300e-003	1.9300e-003	6.9600e-003		58.0898	58.0898	4.0000e-004		58.0983
Worker	0.0420	0.0368	0.5078	1.7400e-003	0.1369	9.6000e-004	0.1379	0.0363	8.9000e-004	0.0372		117.0115	117.0115	4.5000e-003		117.1060
<b>Total</b>	<b>0.0590</b>	<b>0.1397</b>	<b>0.7491</b>	<b>2.3600e-003</b>	<b>0.1546</b>	<b>3.0600e-003</b>	<b>0.1576</b>	<b>0.0414</b>	<b>2.8200e-003</b>	<b>0.0442</b>		<b>175.1014</b>	<b>175.1014</b>	<b>4.9000e-003</b>		<b>175.2043</b>

### 3.5 Building Construction - 2023

#### 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	lb/day										lb/day					
Off-Road	0.6284	6.3773	7.0772	0.0114		0.3185	0.3185		0.2930	0.2930	0.0000	1,098.5610	1,098.5610	0.3553		1,106.0223
<b>Total</b>	<b>0.6284</b>	<b>6.3773</b>	<b>7.0772</b>	<b>0.0114</b>		<b>0.3185</b>	<b>0.3185</b>		<b>0.2930</b>	<b>0.2930</b>	<b>0.0000</b>	<b>1,098.5610</b>	<b>1,098.5610</b>	<b>0.3553</b>		<b>1,106.0223</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0170	0.1029	0.2413	6.2000e-004	0.0177	2.1000e-003	0.0198	5.0300e-003	1.9300e-003	6.9600e-003		58.0898	58.0898	4.0000e-004		58.0983
Worker	0.0420	0.0368	0.5078	1.7400e-003	0.1369	9.6000e-004	0.1379	0.0363	8.9000e-004	0.0372		117.0115	117.0115	4.5000e-003		117.1060
<b>Total</b>	<b>0.0590</b>	<b>0.1397</b>	<b>0.7491</b>	<b>2.3600e-003</b>	<b>0.1546</b>	<b>3.0600e-003</b>	<b>0.1576</b>	<b>0.0414</b>	<b>2.8200e-003</b>	<b>0.0442</b>		<b>175.1014</b>	<b>175.1014</b>	<b>4.9000e-003</b>		<b>175.2043</b>

### 3.5 Building Construction - 2024

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5914	5.9360	7.0483	0.0114		0.2808	0.2808		0.2583	0.2583		1,098.9357	1,098.9357	0.3554		1,106.3995
<b>Total</b>	<b>0.5914</b>	<b>5.9360</b>	<b>7.0483</b>	<b>0.0114</b>		<b>0.2808</b>	<b>0.2808</b>		<b>0.2583</b>	<b>0.2583</b>		<b>1,098.9357</b>	<b>1,098.9357</b>	<b>0.3554</b>		<b>1,106.3995</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0167	0.1017	0.2366	6.2000e-004	0.0177	2.1100e-003	0.0198	5.0300e-003	1.9400e-003	6.9700e-003		58.1568	58.1568	4.0000e-004		58.1653
Worker	0.0401	0.0350	0.4847	1.7400e-003	0.1369	9.7000e-004	0.1379	0.0363	9.0000e-004	0.0372		115.5651	115.5651	4.3500e-003		115.6563
<b>Total</b>	<b>0.0568</b>	<b>0.1367</b>	<b>0.7213</b>	<b>2.3600e-003</b>	<b>0.1546</b>	<b>3.0800e-003</b>	<b>0.1577</b>	<b>0.0414</b>	<b>2.8400e-003</b>	<b>0.0442</b>		<b>173.7218</b>	<b>173.7218</b>	<b>4.7500e-003</b>		<b>173.8216</b>

### 3.5 Building Construction - 2024

#### 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	lb/day										lb/day					
Off-Road	0.5914	5.9360	7.0483	0.0114		0.2808	0.2808		0.2583	0.2583	0.0000	1,098.9357	1,098.9357	0.3554		1,106.3995
<b>Total</b>	<b>0.5914</b>	<b>5.9360</b>	<b>7.0483</b>	<b>0.0114</b>		<b>0.2808</b>	<b>0.2808</b>		<b>0.2583</b>	<b>0.2583</b>	<b>0.0000</b>	<b>1,098.9357</b>	<b>1,098.9357</b>	<b>0.3554</b>		<b>1,106.3995</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0167	0.1017	0.2366	6.2000e-004	0.0177	2.1100e-003	0.0198	5.0300e-003	1.9400e-003	6.9700e-003		58.1568	58.1568	4.0000e-004		58.1653
Worker	0.0401	0.0350	0.4847	1.7400e-003	0.1369	9.7000e-004	0.1379	0.0363	9.0000e-004	0.0372		115.5651	115.5651	4.3500e-003		115.6563
<b>Total</b>	<b>0.0568</b>	<b>0.1367</b>	<b>0.7213</b>	<b>2.3600e-003</b>	<b>0.1546</b>	<b>3.0800e-003</b>	<b>0.1577</b>	<b>0.0414</b>	<b>2.8400e-003</b>	<b>0.0442</b>		<b>173.7218</b>	<b>173.7218</b>	<b>4.7500e-003</b>		<b>173.8216</b>

### 3.6 Paving - 2024

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5842	5.1711	6.9340	0.0111		0.2401	0.2401		0.2243	0.2243		1,020.9213	1,020.9213	0.2969		1,027.1563
Paving	0.0314					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.6156</b>	<b>5.1711</b>	<b>6.9340</b>	<b>0.0111</b>		<b>0.2401</b>	<b>0.2401</b>		<b>0.2243</b>	<b>0.2243</b>		<b>1,020.9213</b>	<b>1,020.9213</b>	<b>0.2969</b>		<b>1,027.1563</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0401	0.0350	0.4847	1.7400e-003	0.1369	9.7000e-004	0.1379	0.0363	9.0000e-004	0.0372		115.5651	115.5651	4.3500e-003		115.6563
<b>Total</b>	<b>0.0401</b>	<b>0.0350</b>	<b>0.4847</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.7000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>9.0000e-004</b>	<b>0.0372</b>		<b>115.5651</b>	<b>115.5651</b>	<b>4.3500e-003</b>		<b>115.6563</b>

### 3.6 Paving - 2024

#### 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	lb/day										lb/day					
Off-Road	0.5842	5.1711	6.9340	0.0111		0.2401	0.2401		0.2243	0.2243	0.0000	1,020.9213	1,020.9213	0.2969		1,027.1563
Paving	0.0314					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.6156</b>	<b>5.1711</b>	<b>6.9340</b>	<b>0.0111</b>		<b>0.2401</b>	<b>0.2401</b>		<b>0.2243</b>	<b>0.2243</b>	<b>0.0000</b>	<b>1,020.9213</b>	<b>1,020.9213</b>	<b>0.2969</b>		<b>1,027.1563</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0401	0.0350	0.4847	1.7400e-003	0.1369	9.7000e-004	0.1379	0.0363	9.0000e-004	0.0372		115.5651	115.5651	4.3500e-003		115.6563
<b>Total</b>	<b>0.0401</b>	<b>0.0350</b>	<b>0.4847</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.7000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>9.0000e-004</b>	<b>0.0372</b>		<b>115.5651</b>	<b>115.5651</b>	<b>4.3500e-003</b>		<b>115.6563</b>



### 3.7 Architectural Coating - 2024

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Archit. Coating	16.9085					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159			281.7809
<b>Total</b>	<b>17.0892</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>			<b>281.7809</b>

#### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	8.9000e-003	7.7700e-003	0.1077	3.9000e-004	0.0304	2.1000e-004	0.0306	8.0700e-003	2.0000e-004	8.2700e-003		25.6811	25.6811	9.7000e-004			25.7014
<b>Total</b>	<b>8.9000e-003</b>	<b>7.7700e-003</b>	<b>0.1077</b>	<b>3.9000e-004</b>	<b>0.0304</b>	<b>2.1000e-004</b>	<b>0.0306</b>	<b>8.0700e-003</b>	<b>2.0000e-004</b>	<b>8.2700e-003</b>		<b>25.6811</b>	<b>25.6811</b>	<b>9.7000e-004</b>			<b>25.7014</b>

### 3.7 Architectural Coating - 2024

#### 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	lb/day										lb/day						
Archit. Coating	16.9085					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159			281.7809
<b>Total</b>	<b>17.0892</b>	<b>1.2188</b>	<b>1.8101</b>	<b>2.9700e-003</b>		<b>0.0609</b>	<b>0.0609</b>		<b>0.0609</b>	<b>0.0609</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0159</b>			<b>281.7809</b>

#### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	8.9000e-003	7.7700e-003	0.1077	3.9000e-004	0.0304	2.1000e-004	0.0306	8.0700e-003	2.0000e-004	8.2700e-003		25.6811	25.6811	9.7000e-004			25.7014
<b>Total</b>	<b>8.9000e-003</b>	<b>7.7700e-003</b>	<b>0.1077</b>	<b>3.9000e-004</b>	<b>0.0304</b>	<b>2.1000e-004</b>	<b>0.0306</b>	<b>8.0700e-003</b>	<b>2.0000e-004</b>	<b>8.2700e-003</b>		<b>25.6811</b>	<b>25.6811</b>	<b>9.7000e-004</b>			<b>25.7014</b>

### 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

	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	lb/day										lb/day					
Mitigated	0.3605	0.5636	3.4119	0.0116	0.7783	0.0117	0.7900	0.2080	0.0108	0.2187		838.7376	838.7376	0.0253		839.2681
Unmitigated	0.3605	0.5636	3.4119	0.0116	0.7783	0.0117	0.7900	0.2080	0.0108	0.2187		838.7376	838.7376	0.0253		839.2681

### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	131.80	143.20	121.40	338,580	338,580
Parking Lot	0.00	0.00	0.00		
Total	131.80	143.20	121.40	338,580	338,580

### 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
Condo/Townhouse	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.507716	0.068869	0.175522	0.144726	0.043865	0.006529	0.021763	0.017270	0.002362	0.002281	0.006385	0.000530	0.002181

### 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	lb/day										lb/day					
NaturalGas Mitigated	0.0130	0.1107	0.0471	7.1000e-004		8.9500e-003	8.9500e-003		8.9500e-003	8.9500e-003		141.2525	141.2525	2.7100e-003	2.5900e-003	142.1122
NaturalGas Unmitigated	0.0130	0.1107	0.0471	7.1000e-004		8.9500e-003	8.9500e-003		8.9500e-003	8.9500e-003		141.2525	141.2525	2.7100e-003	2.5900e-003	142.1122

### 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	lb/day										lb/day					
Condo/Townhouse	1200.65	0.0130	0.1107	0.0471	7.1000e-004		8.9500e-003	8.9500e-003		8.9500e-003	8.9500e-003		141.2525	141.2525	2.7100e-003	2.5900e-003	142.1122
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0130</b>	<b>0.1107</b>	<b>0.0471</b>	<b>7.1000e-004</b>		<b>8.9500e-003</b>	<b>8.9500e-003</b>		<b>8.9500e-003</b>	<b>8.9500e-003</b>		<b>141.2525</b>	<b>141.2525</b>	<b>2.7100e-003</b>	<b>2.5900e-003</b>	<b>142.1122</b>

### 5.2 Energy by Land Use - NaturalGas

#### 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	lb/day										lb/day					
Condo/Townhouse	1.20065	0.0130	0.1107	0.0471	7.1000e-004		8.9500e-003	8.9500e-003		8.9500e-003	8.9500e-003		141.2525	141.2525	2.7100e-003	2.5900e-003	142.1122
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0130</b>	<b>0.1107</b>	<b>0.0471</b>	<b>7.1000e-004</b>		<b>8.9500e-003</b>	<b>8.9500e-003</b>		<b>8.9500e-003</b>	<b>8.9500e-003</b>		<b>141.2525</b>	<b>141.2525</b>	<b>2.7100e-003</b>	<b>2.5900e-003</b>	<b>142.1122</b>

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6491	0.0190	1.6505	9.0000e-005		9.1500e-003	9.1500e-003		9.1500e-003	9.1500e-003	0.0000	2.9754	2.9754	2.8600e-003	0.0000	3.0354
Unmitigated	0.6491	0.0190	1.6505	9.0000e-005		9.1500e-003	9.1500e-003		9.1500e-003	9.1500e-003	0.0000	2.9754	2.9754	2.8600e-003	0.0000	3.0354

### 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	lb/day										lb/day					
Architectural Coating	2.3000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5992					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.0497	0.0190	1.6505	9.0000e-005		9.1500e-003	9.1500e-003		9.1500e-003	9.1500e-003		2.9754	2.9754	2.8600e-003		3.0354
<b>Total</b>	<b>0.6491</b>	<b>0.0190</b>	<b>1.6505</b>	<b>9.0000e-005</b>		<b>9.1500e-003</b>	<b>9.1500e-003</b>		<b>9.1500e-003</b>	<b>9.1500e-003</b>	<b>0.0000</b>	<b>2.9754</b>	<b>2.9754</b>	<b>2.8600e-003</b>	<b>0.0000</b>	<b>3.0354</b>

## 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	lb/day										lb/day					
Architectural Coating	2.3000e-004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5992					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.0497	0.0190	1.6505	9.0000e-005		9.1500e-003	9.1500e-003		9.1500e-003	9.1500e-003		2.9754	2.9754	2.8600e-003		3.0354
<b>Total</b>	<b>0.6491</b>	<b>0.0190</b>	<b>1.6505</b>	<b>9.0000e-005</b>		<b>9.1500e-003</b>	<b>9.1500e-003</b>		<b>9.1500e-003</b>	<b>9.1500e-003</b>	<b>0.0000</b>	<b>2.9754</b>	<b>2.9754</b>	<b>2.8600e-003</b>	<b>0.0000</b>	<b>3.0354</b>

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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## 10.0 Vegetation

## Twin Rivers Blocks I&J Construction Sacramento County, Summer

### 1.0 Project Characteristics

#### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	103.00	Space	0.93	41,200.00	0
Apartments Mid Rise	41.00	Dwelling Unit	1.08	41,000.00	109
Condo/Townhouse	27.00	Dwelling Unit	1.69	27,000.00	72

#### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2025
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MWhr)</b>	590.31	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

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

Project Characteristics -

Land Use -

Construction Phase - adjust for construction dates

Demolition -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Interior	1854	0
tblAreaCoating	Area_Residential_Exterior	45900	0
tblAreaCoating	Area_Residential_Interior	137700	0



tblConstructionPhase	NumDays	18.00	31.00
tblConstructionPhase	NumDays	230.00	226.00
tblConstructionPhase	NumDays	20.00	16.00
tblConstructionPhase	NumDays	8.00	24.00
tblConstructionPhase	NumDays	18.00	15.00
tblConstructionPhase	NumDays	5.00	9.00
tblConstructionPhase	PhaseEndDate	5/16/2025	5/17/2025
tblConstructionPhase	PhaseEndDate	5/10/2024	5/11/2024
tblGrading	AcresOfGrading	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	OperationalYear	2014	2025

**2.0 Emissions Summary**



**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	lb/day										lb/day					
Area	2.5073	0.0647	5.6153	3.0000e-004		0.0311	0.0311		0.0311	0.0311	0.0000	10.1241	10.1241	9.7300e-003	0.0000	10.3285
Energy	0.0296	0.2527	0.1075	1.6100e-003		0.0204	0.0204		0.0204	0.0204		322.5447	322.5447	6.1800e-003	5.9100e-003	324.5076
Mobile	1.2256	1.9162	11.6004	0.0395	2.6463	0.0396	2.6859	0.7070	0.0366	0.7436		2,851.7077	2,851.7077	0.0859		2,853.5115
<b>Total</b>	<b>3.7625</b>	<b>2.2335</b>	<b>17.3232</b>	<b>0.0414</b>	<b>2.6463</b>	<b>0.0912</b>	<b>2.7375</b>	<b>0.7070</b>	<b>0.0881</b>	<b>0.7952</b>	<b>0.0000</b>	<b>3,184.3765</b>	<b>3,184.3765</b>	<b>0.1018</b>	<b>5.9100e-003</b>	<b>3,188.3476</b>

**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	lb/day										lb/day					
Area	2.5073	0.0647	5.6153	3.0000e-004		0.0311	0.0311		0.0311	0.0311	0.0000	10.1241	10.1241	9.7300e-003	0.0000	10.3285
Energy	0.0296	0.2527	0.1075	1.6100e-003		0.0204	0.0204		0.0204	0.0204		322.5447	322.5447	6.1800e-003	5.9100e-003	324.5076
Mobile	1.2256	1.9162	11.6004	0.0395	2.6463	0.0396	2.6859	0.7070	0.0366	0.7436		2,851.7077	2,851.7077	0.0859		2,853.5115
<b>Total</b>	<b>3.7625</b>	<b>2.2335</b>	<b>17.3232</b>	<b>0.0414</b>	<b>2.6463</b>	<b>0.0912</b>	<b>2.7375</b>	<b>0.7070</b>	<b>0.0881</b>	<b>0.7952</b>	<b>0.0000</b>	<b>3,184.3765</b>	<b>3,184.3765</b>	<b>0.1018</b>	<b>5.9100e-003</b>	<b>3,188.3476</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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/8/2024	4/29/2024	5	16	
2	Site Preparation	Site Preparation	4/30/2024	5/11/2024	5	9	
3	Grading	Grading	5/12/2024	6/13/2024	5	24	
4	Building Construction	Building Construction	6/14/2024	4/25/2025	5	226	
5	Paving	Paving	4/26/2025	5/17/2025	5	15	
6	Architectural Coating	Architectural Coating	5/18/2025	6/30/2025	5	31	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 137,700; Residential Outdoor: 45,900; Non-Residential Indoor: 1,854; Non-Residential Outdoor: 618 (Architectural Coating – sqft)

#### 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	Rubber Tired Dozers	1	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

**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	4	10.00	0.00	136.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	66.00	14.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

### 3.2 Demolition - 2024

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9143	0.0000	1.9143	0.2899	0.0000	0.2899			0.0000			0.0000
Off-Road	0.6224	5.4930	7.7810	0.0121		0.2512	0.2512		0.2400	0.2400		1,153.1168	1,153.1168	0.2094		1,157.5146
<b>Total</b>	<b>0.6224</b>	<b>5.4930</b>	<b>7.7810</b>	<b>0.0121</b>	<b>1.9143</b>	<b>0.2512</b>	<b>2.1655</b>	<b>0.2899</b>	<b>0.2400</b>	<b>0.5298</b>		<b>1,153.1168</b>	<b>1,153.1168</b>	<b>0.2094</b>		<b>1,157.5146</b>

#### 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	lb/day										lb/day					
Hauling	0.1144	0.8798	1.9655	6.1100e-003	0.1476	0.0241	0.1717	0.0404	0.0222	0.0626		573.3803	573.3803	3.8600e-003		573.4613
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0223	0.0194	0.2693	9.7000e-004	0.0761	5.4000e-004	0.0766	0.0202	5.0000e-004	0.0207		64.2028	64.2028	2.4100e-003		64.2535
<b>Total</b>	<b>0.1367</b>	<b>0.8992</b>	<b>1.9658</b>	<b>7.0800e-003</b>	<b>0.2237</b>	<b>0.0247</b>	<b>0.2483</b>	<b>0.0606</b>	<b>0.0227</b>	<b>0.0833</b>		<b>637.5831</b>	<b>637.5831</b>	<b>6.2700e-003</b>		<b>637.7148</b>

### 3.2 Demolition - 2024

#### 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	lb/day										lb/day						
Fugitive Dust					1.9143	0.0000	1.9143	0.2899	0.0000	0.2899			0.0000				0.0000
Off-Road	0.6224	5.4930	7.7810	0.0121		0.2512	0.2512		0.2400	0.2400	0.0000	1,153.1167	1,153.1167	0.2094			1,157.5146
<b>Total</b>	<b>0.6224</b>	<b>5.4930</b>	<b>7.7810</b>	<b>0.0121</b>	<b>1.9143</b>	<b>0.2512</b>	<b>2.1655</b>	<b>0.2899</b>	<b>0.2400</b>	<b>0.5298</b>	<b>0.0000</b>	<b>1,153.1167</b>	<b>1,153.1167</b>	<b>0.2094</b>			<b>1,157.5146</b>

#### 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	lb/day										lb/day						
Hauling	0.1144	0.8798	1.6965	6.1100e-003	0.1476	0.0241	0.1717	0.0404	0.0222	0.0626		573.3803	573.3803	3.8600e-003			573.4613
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0223	0.0194	0.2693	9.7000e-004	0.0761	5.4000e-004	0.0766	0.0202	5.0000e-004	0.0207		64.2028	64.2028	2.4100e-003			64.2535
<b>Total</b>	<b>0.1367</b>	<b>0.8992</b>	<b>1.9658</b>	<b>7.0800e-003</b>	<b>0.2237</b>	<b>0.0247</b>	<b>0.2483</b>	<b>0.0606</b>	<b>0.0227</b>	<b>0.0833</b>		<b>637.5831</b>	<b>637.5831</b>	<b>6.2700e-003</b>			<b>637.7148</b>

### 3.3 Site Preparation - 2024

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6017	5.4773	6.5543	9.3300e-003		0.2889	0.2889		0.2658	0.2658		903.8218	903.8218	0.2923		909.9604
<b>Total</b>	<b>0.6017</b>	<b>5.4773</b>	<b>6.5543</b>	<b>9.3300e-003</b>	<b>0.0000</b>	<b>0.2889</b>	<b>0.2889</b>	<b>0.0000</b>	<b>0.2658</b>	<b>0.2658</b>		<b>903.8218</b>	<b>903.8218</b>	<b>0.2923</b>		<b>909.9604</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0111	9.7200e-003	0.1346	4.8000e-004	0.0380	2.7000e-004	0.0383	0.0101	2.5000e-004	0.0103		32.1014	32.1014	1.2100e-003		32.1268
<b>Total</b>	<b>0.0111</b>	<b>9.7200e-003</b>	<b>0.1346</b>	<b>4.8000e-004</b>	<b>0.0380</b>	<b>2.7000e-004</b>	<b>0.0383</b>	<b>0.0101</b>	<b>2.5000e-004</b>	<b>0.0103</b>		<b>32.1014</b>	<b>32.1014</b>	<b>1.2100e-003</b>		<b>32.1268</b>



### 3.3 Site Preparation - 2024

#### 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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6017	5.4773	6.5543	9.3300e-003		0.2889	0.2889		0.2658	0.2658	0.0000	903.8218	903.8218	0.2923		909.9604
<b>Total</b>	<b>0.6017</b>	<b>5.4773</b>	<b>6.5543</b>	<b>9.3300e-003</b>	<b>0.0000</b>	<b>0.2889</b>	<b>0.2889</b>	<b>0.0000</b>	<b>0.2658</b>	<b>0.2658</b>	<b>0.0000</b>	<b>903.8218</b>	<b>903.8218</b>	<b>0.2923</b>		<b>909.9604</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0111	9.7200e-003	0.1346	4.8000e-004	0.0380	2.7000e-004	0.0383	0.0101	2.5000e-004	0.0103		32.1014	32.1014	1.2100e-003		32.1268
<b>Total</b>	<b>0.0111</b>	<b>9.7200e-003</b>	<b>0.1346</b>	<b>4.8000e-004</b>	<b>0.0380</b>	<b>2.7000e-004</b>	<b>0.0383</b>	<b>0.0101</b>	<b>2.5000e-004</b>	<b>0.0103</b>		<b>32.1014</b>	<b>32.1014</b>	<b>1.2100e-003</b>		<b>32.1268</b>

### 3.4 Grading - 2024

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7841	0.0000	0.7841	0.4310	0.0000	0.4310			0.0000			0.0000
Off-Road	0.6224	5.4930	7.7810	0.0121		0.2512	0.2512		0.2400	0.2400		1,153.1168	1,153.1168	0.2094		1,157.5146
<b>Total</b>	<b>0.6224</b>	<b>5.4930</b>	<b>7.7810</b>	<b>0.0121</b>	<b>0.7841</b>	<b>0.2512</b>	<b>1.0354</b>	<b>0.4310</b>	<b>0.2400</b>	<b>0.6710</b>		<b>1,153.1168</b>	<b>1,153.1168</b>	<b>0.2094</b>		<b>1,157.5146</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0223	0.0194	0.2693	9.7000e-004	0.0761	5.4000e-004	0.0766	0.0202	5.0000e-004	0.0207		64.2028	64.2028	2.4100e-003		64.2535
<b>Total</b>	<b>0.0223</b>	<b>0.0194</b>	<b>0.2693</b>	<b>9.7000e-004</b>	<b>0.0761</b>	<b>5.4000e-004</b>	<b>0.0766</b>	<b>0.0202</b>	<b>5.0000e-004</b>	<b>0.0207</b>		<b>64.2028</b>	<b>64.2028</b>	<b>2.4100e-003</b>		<b>64.2535</b>

### 3.4 Grading - 2024

#### 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	lb/day										lb/day					
Fugitive Dust					0.7841	0.0000	0.7841	0.4310	0.0000	0.4310			0.0000			0.0000
Off-Road	0.6224	5.4930	7.7810	0.0121		0.2512	0.2512		0.2400	0.2400	0.0000	1,153.1167	1,153.1167	0.2094		1,157.5146
<b>Total</b>	<b>0.6224</b>	<b>5.4930</b>	<b>7.7810</b>	<b>0.0121</b>	<b>0.7841</b>	<b>0.2512</b>	<b>1.0354</b>	<b>0.4310</b>	<b>0.2400</b>	<b>0.6710</b>	<b>0.0000</b>	<b>1,153.1167</b>	<b>1,153.1167</b>	<b>0.2094</b>		<b>1,157.5146</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0223	0.0194	0.2693	9.7000e-004	0.0761	5.4000e-004	0.0766	0.0202	5.0000e-004	0.0207		64.2028	64.2028	2.4100e-003		64.2535
<b>Total</b>	<b>0.0223</b>	<b>0.0194</b>	<b>0.2693</b>	<b>9.7000e-004</b>	<b>0.0761</b>	<b>5.4000e-004</b>	<b>0.0766</b>	<b>0.0202</b>	<b>5.0000e-004</b>	<b>0.0207</b>		<b>64.2028</b>	<b>64.2028</b>	<b>2.4100e-003</b>		<b>64.2535</b>

### 3.5 Building Construction - 2024

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5914	5.9360	7.0483	0.0114		0.2808	0.2808		0.2583	0.2583		1,098.9357	1,098.9357	0.3554		1,106.3995
<b>Total</b>	<b>0.5914</b>	<b>5.9360</b>	<b>7.0483</b>	<b>0.0114</b>		<b>0.2808</b>	<b>0.2808</b>		<b>0.2583</b>	<b>0.2583</b>		<b>1,098.9357</b>	<b>1,098.9357</b>	<b>0.3554</b>		<b>1,106.3995</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0780	0.4748	1.1041	2.9000e-003	0.0824	9.8400e-003	0.0922	0.0235	9.0600e-003	0.0325		271.3983	271.3983	1.8800e-003		271.4379
Worker	0.1469	0.1283	1.7772	6.3800e-003	0.5021	3.5400e-003	0.5056	0.1332	3.2900e-003	0.1365		423.7385	423.7385	0.0159		424.0732
<b>Total</b>	<b>0.2250</b>	<b>0.6031</b>	<b>2.8813</b>	<b>9.2800e-003</b>	<b>0.5845</b>	<b>0.0134</b>	<b>0.5978</b>	<b>0.1567</b>	<b>0.0124</b>	<b>0.1690</b>		<b>695.1368</b>	<b>695.1368</b>	<b>0.0178</b>		<b>695.5111</b>

### 3.5 Building Construction - 2024

#### 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	lb/day										lb/day					
Off-Road	0.5914	5.9360	7.0483	0.0114		0.2808	0.2808		0.2583	0.2583	0.0000	1,098.9357	1,098.9357	0.3554		1,106.3995
<b>Total</b>	<b>0.5914</b>	<b>5.9360</b>	<b>7.0483</b>	<b>0.0114</b>		<b>0.2808</b>	<b>0.2808</b>		<b>0.2583</b>	<b>0.2583</b>	<b>0.0000</b>	<b>1,098.9357</b>	<b>1,098.9357</b>	<b>0.3554</b>		<b>1,106.3995</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0780	0.4748	1.1041	2.9000e-003	0.0824	9.8400e-003	0.0922	0.0235	9.0600e-003	0.0325		271.3983	271.3983	1.8800e-003		271.4379
Worker	0.1469	0.1283	1.7772	6.3800e-003	0.5021	3.5400e-003	0.5056	0.1332	3.2900e-003	0.1365		423.7385	423.7385	0.0159		424.0732
<b>Total</b>	<b>0.2250</b>	<b>0.6031</b>	<b>2.8813</b>	<b>9.2800e-003</b>	<b>0.5845</b>	<b>0.0134</b>	<b>0.5978</b>	<b>0.1567</b>	<b>0.0124</b>	<b>0.1690</b>		<b>695.1368</b>	<b>695.1368</b>	<b>0.0178</b>		<b>695.5111</b>

### 3.5 Building Construction - 2025

#### 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	lb/day										lb/day					
Off-Road	0.5476	5.4477	7.0094	0.0114		0.2398	0.2398		0.2206	0.2206		1,099.5232	1,099.5232	0.3556		1,106.9909
<b>Total</b>	<b>0.5476</b>	<b>5.4477</b>	<b>7.0094</b>	<b>0.0114</b>		<b>0.2398</b>	<b>0.2398</b>		<b>0.2206</b>	<b>0.2206</b>		<b>1,099.5232</b>	<b>1,099.5232</b>	<b>0.3556</b>		<b>1,106.9909</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0767	0.4698	1.0836	2.9000e-003	0.0824	9.8800e-003	0.0923	0.0235	9.0900e-003	0.0326		271.6309	271.6309	1.8900e-003		271.6706
Worker	0.1410	0.1228	1.7077	6.3800e-003	0.5021	3.5700e-003	0.5056	0.1332	3.3200e-003	0.1365		419.1324	419.1324	0.0155		419.4575
<b>Total</b>	<b>0.2177</b>	<b>0.5925</b>	<b>2.7914</b>	<b>9.2800e-003</b>	<b>0.5845</b>	<b>0.0135</b>	<b>0.5979</b>	<b>0.1567</b>	<b>0.0124</b>	<b>0.1691</b>		<b>690.7633</b>	<b>690.7633</b>	<b>0.0174</b>		<b>691.1281</b>

### 3.5 Building Construction - 2025

#### 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	lb/day										lb/day					
Off-Road	0.5476	5.4477	7.0094	0.0114		0.2398	0.2398		0.2206	0.2206	0.0000	1,099.523 2	1,099.523 2	0.3556		1,106.990 9
<b>Total</b>	<b>0.5476</b>	<b>5.4477</b>	<b>7.0094</b>	<b>0.0114</b>		<b>0.2398</b>	<b>0.2398</b>		<b>0.2206</b>	<b>0.2206</b>	<b>0.0000</b>	<b>1,099.523 2</b>	<b>1,099.523 2</b>	<b>0.3556</b>		<b>1,106.990 9</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0767	0.4698	1.0836	2.9000e-003	0.0824	9.8800e-003	0.0923	0.0235	9.0900e-003	0.0326		271.6309	271.6309	1.8900e-003		271.6706
Worker	0.1410	0.1228	1.7077	6.3800e-003	0.5021	3.5700e-003	0.5056	0.1332	3.3200e-003	0.1365		419.1324	419.1324	0.0155		419.4575
<b>Total</b>	<b>0.2177</b>	<b>0.5925</b>	<b>2.7914</b>	<b>9.2800e-003</b>	<b>0.5845</b>	<b>0.0135</b>	<b>0.5979</b>	<b>0.1567</b>	<b>0.0124</b>	<b>0.1691</b>		<b>690.7633</b>	<b>690.7633</b>	<b>0.0174</b>		<b>691.1281</b>

### 3.6 Paving - 2025

#### 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	lb/day										lb/day					
Off-Road	0.5580	4.8673	6.9283	0.0111		0.2162	0.2162		0.2023	0.2023		1,020.9588	1,020.9588	0.2969		1,027.1941
Paving	0.1624					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.7204</b>	<b>4.8673</b>	<b>6.9283</b>	<b>0.0111</b>		<b>0.2162</b>	<b>0.2162</b>		<b>0.2023</b>	<b>0.2023</b>		<b>1,020.9588</b>	<b>1,020.9588</b>	<b>0.2969</b>		<b>1,027.1941</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0385	0.0335	0.4658	1.7400e-003	0.1369	9.7000e-004	0.1379	0.0363	9.0000e-004	0.0372		114.3088	114.3088	4.2200e-003		114.3975
<b>Total</b>	<b>0.0385</b>	<b>0.0335</b>	<b>0.4658</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.7000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>9.0000e-004</b>	<b>0.0372</b>		<b>114.3088</b>	<b>114.3088</b>	<b>4.2200e-003</b>		<b>114.3975</b>



### 3.6 Paving - 2025

#### 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	lb/day										lb/day					
Off-Road	0.5580	4.8673	6.9283	0.0111		0.2162	0.2162		0.2023	0.2023	0.0000	1,020.9588	1,020.9588	0.2969		1,027.1941
Paving	0.1624					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.7204</b>	<b>4.8673</b>	<b>6.9283</b>	<b>0.0111</b>		<b>0.2162</b>	<b>0.2162</b>		<b>0.2023</b>	<b>0.2023</b>	<b>0.0000</b>	<b>1,020.9588</b>	<b>1,020.9588</b>	<b>0.2969</b>		<b>1,027.1941</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0385	0.0335	0.4658	1.7400e-003	0.1369	9.7000e-004	0.1379	0.0363	9.0000e-004	0.0372		114.3088	114.3088	4.2200e-003		114.3975
<b>Total</b>	<b>0.0385</b>	<b>0.0335</b>	<b>0.4658</b>	<b>1.7400e-003</b>	<b>0.1369</b>	<b>9.7000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>9.0000e-004</b>	<b>0.0372</b>		<b>114.3088</b>	<b>114.3088</b>	<b>4.2200e-003</b>		<b>114.3975</b>

### 3.7 Architectural Coating - 2025

#### 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	lb/day										lb/day					
Archit. Coating	28.0056					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.7705
<b>Total</b>	<b>28.1764</b>	<b>1.1455</b>	<b>1.8091</b>	<b>2.9700e-003</b>		<b>0.0515</b>	<b>0.0515</b>		<b>0.0515</b>	<b>0.0515</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0154</b>		<b>281.7705</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0278	0.0242	0.3364	1.2600e-003	0.0989	7.0000e-004	0.0996	0.0262	6.5000e-004	0.0269		82.5564	82.5564	3.0500e-003		82.6204
<b>Total</b>	<b>0.0278</b>	<b>0.0242</b>	<b>0.3364</b>	<b>1.2600e-003</b>	<b>0.0989</b>	<b>7.0000e-004</b>	<b>0.0996</b>	<b>0.0262</b>	<b>6.5000e-004</b>	<b>0.0269</b>		<b>82.5564</b>	<b>82.5564</b>	<b>3.0500e-003</b>		<b>82.6204</b>

### 3.7 Architectural Coating - 2025

#### 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	lb/day										lb/day					
Archit. Coating	28.0056					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.7705
<b>Total</b>	<b>28.1764</b>	<b>1.1455</b>	<b>1.8091</b>	<b>2.9700e-003</b>		<b>0.0515</b>	<b>0.0515</b>		<b>0.0515</b>	<b>0.0515</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0154</b>		<b>281.7705</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0278	0.0242	0.3364	1.2600e-003	0.0989	7.0000e-004	0.0996	0.0262	6.5000e-004	0.0269		82.5564	82.5564	3.0500e-003		82.6204
<b>Total</b>	<b>0.0278</b>	<b>0.0242</b>	<b>0.3364</b>	<b>1.2600e-003</b>	<b>0.0989</b>	<b>7.0000e-004</b>	<b>0.0996</b>	<b>0.0262</b>	<b>6.5000e-004</b>	<b>0.0269</b>		<b>82.5564</b>	<b>82.5564</b>	<b>3.0500e-003</b>		<b>82.6204</b>

### 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

	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	lb/day										lb/day					
Mitigated	1.2256	1.9162	11.6004	0.0395	2.6463	0.0396	2.6859	0.7070	0.0366	0.7436		2,851.7077	2,851.7077	0.0859		2,853.5115
Unmitigated	1.2256	1.9162	11.6004	0.0395	2.6463	0.0396	2.6859	0.7070	0.0366	0.7436		2,851.7077	2,851.7077	0.0859		2,853.5115

### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	270.19	293.56	248.87	694,088	694,088
Condo/Townhouse	177.93	193.32	163.89	457,083	457,083
Parking Lot	0.00	0.00	0.00		
<b>Total</b>	<b>448.12</b>	<b>486.88</b>	<b>412.76</b>	<b>1,151,171</b>	<b>1,151,171</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
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Condo/Townhouse	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.507716	0.068869	0.175522	0.144726	0.043865	0.006529	0.021763	0.017270	0.002362	0.002281	0.006385	0.000530	0.002181

**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	lb/day										lb/day					
NaturalGas Mitigated	0.0296	0.2527	0.1075	1.6100e-003		0.0204	0.0204		0.0204	0.0204		322.5447	322.5447	6.1800e-003	5.9100e-003	324.5076
NaturalGas Unmitigated	0.0296	0.2527	0.1075	1.6100e-003		0.0204	0.0204		0.0204	0.0204		322.5447	322.5447	6.1800e-003	5.9100e-003	324.5076

### 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	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Mid Rise	1120.76	0.0121	0.1033	0.0440	6.6000e-004		8.3500e-003	8.3500e-003		8.3500e-003	8.3500e-003		131.8538	131.8538	2.5300e-003	2.4200e-003	132.6562
Condo/Townhouse	1620.87	0.0175	0.1494	0.0636	9.5000e-004		0.0121	0.0121		0.0121	0.0121		190.6909	190.6909	3.6500e-003	3.5000e-003	191.8514
<b>Total</b>		<b>0.0296</b>	<b>0.2527</b>	<b>0.1075</b>	<b>1.6100e-003</b>		<b>0.0204</b>	<b>0.0204</b>		<b>0.0204</b>	<b>0.0204</b>		<b>322.5447</b>	<b>322.5447</b>	<b>6.1800e-003</b>	<b>5.9200e-003</b>	<b>324.5076</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	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Mid Rise	1.12076	0.0121	0.1033	0.0440	6.6000e-004		8.3500e-003	8.3500e-003		8.3500e-003	8.3500e-003		131.8538	131.8538	2.5300e-003	2.4200e-003	132.6562
Condo/Townhouse	1.62087	0.0175	0.1494	0.0636	9.5000e-004		0.0121	0.0121		0.0121	0.0121		190.6909	190.6909	3.6500e-003	3.5000e-003	191.8514
<b>Total</b>		<b>0.0296</b>	<b>0.2527</b>	<b>0.1075</b>	<b>1.6100e-003</b>		<b>0.0204</b>	<b>0.0204</b>		<b>0.0204</b>	<b>0.0204</b>		<b>322.5447</b>	<b>322.5447</b>	<b>6.1800e-003</b>	<b>5.9200e-003</b>	<b>324.5076</b>

### 6.0 Area Detail

### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.5073	0.0647	5.6153	3.0000e-004		0.0311	0.0311		0.0311	0.0311	0.0000	10.1241	10.1241	9.7300e-003	0.0000	10.3285
Unmitigated	2.5073	0.0647	5.6153	3.0000e-004		0.0311	0.0311		0.0311	0.0311	0.0000	10.1241	10.1241	9.7300e-003	0.0000	10.3285

### 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	lb/day										lb/day					
Architectural Coating	1.1800e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3369					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.1693	0.0647	5.6153	3.0000e-004		0.0311	0.0311		0.0311	0.0311		10.1241	10.1241	9.7300e-003		10.3285
<b>Total</b>	<b>2.5073</b>	<b>0.0647</b>	<b>5.6153</b>	<b>3.0000e-004</b>		<b>0.0311</b>	<b>0.0311</b>		<b>0.0311</b>	<b>0.0311</b>	<b>0.0000</b>	<b>10.1241</b>	<b>10.1241</b>	<b>9.7300e-003</b>	<b>0.0000</b>	<b>10.3285</b>

## 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	lb/day										lb/day					
Architectural Coating	1.1800e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3369					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.1693	0.0647	5.6153	3.0000e-004		0.0311	0.0311		0.0311	0.0311		10.1241	10.1241	9.7300e-003		10.3285
<b>Total</b>	<b>2.5073</b>	<b>0.0647</b>	<b>5.6153</b>	<b>3.0000e-004</b>		<b>0.0311</b>	<b>0.0311</b>		<b>0.0311</b>	<b>0.0311</b>	<b>0.0000</b>	<b>10.1241</b>	<b>10.1241</b>	<b>9.7300e-003</b>	<b>0.0000</b>	<b>10.3285</b>

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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## 10.0 Vegetation



## Twin Rivers Blocks K&L Construction Sacramento County, Summer

### 1.0 Project Characteristics

#### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	114.00	Space	1.03	45,600.00	0
----- Apartments Mid Rise	----- 110.00	----- Dwelling Unit	----- 2.89	----- 110,000.00	----- 294

#### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2025
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MW hr)</b>	590.31	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

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

Project Characteristics -

Land Use -

Construction Phase - adjust for dates of construction

Demolition -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	684.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	2,052.00	0.00
tblAreaCoating	Area_Nonresidential_Interior	2052	0
tblConstructionPhase	NumDays	18.00	31.00

tblConstructionPhase	NumDays	230.00	226.00
tblConstructionPhase	NumDays	8.00	24.00
tblConstructionPhase	NumDays	18.00	15.00
tblConstructionPhase	NumDays	5.00	9.00
tblConstructionPhase	PhaseEndDate	7/12/2019	7/13/2019
tblConstructionPhase	PhaseEndDate	7/6/2018	7/7/2018
tblGrading	AcresOfGrading	12.00	3.00
tblGrading	AcresOfGrading	13.50	4.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	OperationalYear	2014	2025
tblTripsAndVMT	VendorTripNumber	19.00	12.00
tblTripsAndVMT	WorkerTripNumber	98.00	79.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### 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	lb/day										lb/day					
2018	3.2575	24.6378	20.0635	0.0351	6.2307	1.3338	7.5645	3.3447	1.2271	4.5718	0.0000	3,142.7369	3,142.7369	0.7496	0.0000	3,158.4774
2019	44.7199	19.6906	19.2801	0.0350	0.6715	1.1001	1.7715	0.1795	1.0541	1.2336	0.0000	3,097.7526	3,097.7526	0.5387	0.0000	3,109.0649
<b>Total</b>	<b>47.9774</b>	<b>44.3284</b>	<b>39.3436</b>	<b>0.0701</b>	<b>6.9022</b>	<b>2.4339</b>	<b>9.3361</b>	<b>3.5242</b>	<b>2.2812</b>	<b>5.8054</b>	<b>0.0000</b>	<b>6,240.4895</b>	<b>6,240.4895</b>	<b>1.2882</b>	<b>0.0000</b>	<b>6,267.5423</b>

#### 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	lb/day										lb/day					
2018	3.2575	24.6378	20.0635	0.0351	6.2307	1.3338	7.5645	3.3447	1.2271	4.5718	0.0000	3,142.7369	3,142.7369	0.7496	0.0000	3,158.4774
2019	44.7199	19.6906	19.2801	0.0350	0.6715	1.1001	1.7715	0.1795	1.0541	1.2336	0.0000	3,097.7526	3,097.7526	0.5387	0.0000	3,109.0649
<b>Total</b>	<b>47.9774</b>	<b>44.3284</b>	<b>39.3436</b>	<b>0.0701</b>	<b>6.9022</b>	<b>2.4339</b>	<b>9.3361</b>	<b>3.5242</b>	<b>2.2812</b>	<b>5.8054</b>	<b>0.0000</b>	<b>6,240.4895</b>	<b>6,240.4895</b>	<b>1.2882</b>	<b>0.0000</b>	<b>6,267.5423</b>



**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	lb/day										lb/day					
Area	3.9816	0.1045	9.0782	4.8000e-004		0.0504	0.0504		0.0504	0.0504	0.0000	16.3657	16.3657	0.0157	0.0000	16.6957
Energy	0.0324	0.2771	0.1179	1.7700e-003		0.0224	0.0224		0.0224	0.0224		353.7540	353.7540	6.7800e-003	6.4900e-003	355.9069
Mobile	1.9826	3.0997	18.7654	0.0639	4.2808	0.0641	4.3449	1.1437	0.0591	1.2029		4,613.0566	4,613.0566	0.1389		4,615.9744
<b>Total</b>	<b>5.9966</b>	<b>3.4814</b>	<b>27.9615</b>	<b>0.0662</b>	<b>4.2808</b>	<b>0.1368</b>	<b>4.4176</b>	<b>1.1437</b>	<b>0.1319</b>	<b>1.2756</b>	<b>0.0000</b>	<b>4,983.1763</b>	<b>4,983.1763</b>	<b>0.1614</b>	<b>6.4900e-003</b>	<b>4,988.5770</b>

**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	lb/day										lb/day					
Area	3.9816	0.1045	9.0782	4.8000e-004		0.0504	0.0504		0.0504	0.0504	0.0000	16.3657	16.3657	0.0157	0.0000	16.6957
Energy	0.0324	0.2771	0.1179	1.7700e-003		0.0224	0.0224		0.0224	0.0224		353.7540	353.7540	6.7800e-003	6.4900e-003	355.9069
Mobile	1.9826	3.0997	18.7654	0.0639	4.2808	0.0641	4.3449	1.1437	0.0591	1.2029		4,613.0566	4,613.0566	0.1389		4,615.9744
<b>Total</b>	<b>5.9966</b>	<b>3.4814</b>	<b>27.9615</b>	<b>0.0662</b>	<b>4.2808</b>	<b>0.1368</b>	<b>4.4176</b>	<b>1.1437</b>	<b>0.1319</b>	<b>1.2756</b>	<b>0.0000</b>	<b>4,983.1763</b>	<b>4,983.1763</b>	<b>0.1614</b>	<b>6.4900e-003</b>	<b>4,988.5770</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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/26/2018	7/7/2018	5	9	
2	Grading	Grading	7/8/2018	8/9/2018	5	24	
3	Building Construction	Building Construction	8/10/2018	6/21/2019	5	226	
4	Paving	Paving	6/22/2019	7/13/2019	5	15	
5	Architectural Coating	Architectural Coating	7/14/2019	8/26/2019	5	31	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 222,750; Residential Outdoor: 74,250; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Scrapers	1	8.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	226	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

**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
Site Preparation	3	8.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	79.00	12.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	16.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

### 3.2 Site Preparation - 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	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	2.1932	24.5707	15.3552	0.0238		1.1803	1.1803		1.0859	1.0859		2,399.3596	2,399.3596	0.7470		2,415.0456
<b>Total</b>	<b>2.1932</b>	<b>24.5707</b>	<b>15.3552</b>	<b>0.0238</b>	<b>0.5303</b>	<b>1.1803</b>	<b>1.7106</b>	<b>0.0573</b>	<b>1.0859</b>	<b>1.1432</b>		<b>2,399.3596</b>	<b>2,399.3596</b>	<b>0.7470</b>		<b>2,415.0456</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0256	0.0232	0.3117	7.8000e-004	0.0609	4.2000e-004	0.0613	0.0161	3.9000e-004	0.0165		59.1140	59.1140	2.5900e-003		59.1685
<b>Total</b>	<b>0.0256</b>	<b>0.0232</b>	<b>0.3117</b>	<b>7.8000e-004</b>	<b>0.0609</b>	<b>4.2000e-004</b>	<b>0.0613</b>	<b>0.0161</b>	<b>3.9000e-004</b>	<b>0.0165</b>		<b>59.1140</b>	<b>59.1140</b>	<b>2.5900e-003</b>		<b>59.1685</b>



### 3.2 Site Preparation - 2018

#### 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	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	2.1932	24.5707	15.3552	0.0238		1.1803	1.1803		1.0859	1.0859	0.0000	2,399.3596	2,399.3596	0.7470		2,415.0456
<b>Total</b>	<b>2.1932</b>	<b>24.5707</b>	<b>15.3552</b>	<b>0.0238</b>	<b>0.5303</b>	<b>1.1803</b>	<b>1.7106</b>	<b>0.0573</b>	<b>1.0859</b>	<b>1.1432</b>	<b>0.0000</b>	<b>2,399.3596</b>	<b>2,399.3596</b>	<b>0.7470</b>		<b>2,415.0456</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0256	0.0232	0.3117	7.8000e-004	0.0609	4.2000e-004	0.0613	0.0161	3.9000e-004	0.0165		59.1140	59.1140	2.5900e-003		59.1685
<b>Total</b>	<b>0.0256</b>	<b>0.0232</b>	<b>0.3117</b>	<b>7.8000e-004</b>	<b>0.0609</b>	<b>4.2000e-004</b>	<b>0.0613</b>	<b>0.0161</b>	<b>3.9000e-004</b>	<b>0.0165</b>		<b>59.1140</b>	<b>59.1140</b>	<b>2.5900e-003</b>		<b>59.1685</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	lb/day										lb/day					
Fugitive Dust					6.1547	0.0000	6.1547	3.3245	0.0000	3.3245			0.0000			0.0000
Off-Road	2.3737	24.6088	17.7193	0.0205		1.3333	1.3333		1.2266	1.2266		2,069.3914	2,069.3914	0.6442		2,082.9202
<b>Total</b>	<b>2.3737</b>	<b>24.6088</b>	<b>17.7193</b>	<b>0.0205</b>	<b>6.1547</b>	<b>1.3333</b>	<b>7.4879</b>	<b>3.3245</b>	<b>1.2266</b>	<b>4.5511</b>		<b>2,069.3914</b>	<b>2,069.3914</b>	<b>0.6442</b>		<b>2,082.9202</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0321	0.0290	0.3897	9.7000e-004	0.0761	5.3000e-004	0.0766	0.0202	4.9000e-004	0.0207		73.8925	73.8925	3.2400e-003		73.9606
<b>Total</b>	<b>0.0321</b>	<b>0.0290</b>	<b>0.3897</b>	<b>9.7000e-004</b>	<b>0.0761</b>	<b>5.3000e-004</b>	<b>0.0766</b>	<b>0.0202</b>	<b>4.9000e-004</b>	<b>0.0207</b>		<b>73.8925</b>	<b>73.8925</b>	<b>3.2400e-003</b>		<b>73.9606</b>

### 3.3 Grading - 2018

#### 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	lb/day										lb/day					
Fugitive Dust					6.1547	0.0000	6.1547	3.3245	0.0000	3.3245			0.0000			0.0000
Off-Road	2.3737	24.6088	17.7193	0.0205		1.3333	1.3333		1.2266	1.2266	0.0000	2,069.3914	2,069.3914	0.6442		2,082.9202
<b>Total</b>	<b>2.3737</b>	<b>24.6088</b>	<b>17.7193</b>	<b>0.0205</b>	<b>6.1547</b>	<b>1.3333</b>	<b>7.4879</b>	<b>3.3245</b>	<b>1.2266</b>	<b>4.5511</b>	<b>0.0000</b>	<b>2,069.3914</b>	<b>2,069.3914</b>	<b>0.6442</b>		<b>2,082.9202</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0321	0.0290	0.3897	9.7000e-004	0.0761	5.3000e-004	0.0766	0.0202	4.9000e-004	0.0207		73.8925	73.8925	3.2400e-003		73.9606
<b>Total</b>	<b>0.0321</b>	<b>0.0290</b>	<b>0.3897</b>	<b>9.7000e-004</b>	<b>0.0761</b>	<b>5.3000e-004</b>	<b>0.0766</b>	<b>0.0202</b>	<b>4.9000e-004</b>	<b>0.0207</b>		<b>73.8925</b>	<b>73.8925</b>	<b>3.2400e-003</b>		<b>73.9606</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	lb/day										lb/day					
Off-Road	2.9004	20.5600	15.6637	0.0249		1.2511	1.2511		1.1992	1.1992		2,317.2089	2,317.2089	0.4980		2,327.6664
<b>Total</b>	<b>2.9004</b>	<b>20.5600</b>	<b>15.6637</b>	<b>0.0249</b>		<b>1.2511</b>	<b>1.2511</b>		<b>1.1992</b>	<b>1.1992</b>		<b>2,317.2089</b>	<b>2,317.2089</b>	<b>0.4980</b>		<b>2,327.6664</b>

**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	lb/day										lb/day					
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
Vendor	0.1039	0.7694	1.3214	2.4900e-003	0.0705	0.0122	0.0827	0.0201	0.0113	0.0313		241.7774	241.7774	1.7900e-003		241.8151
Worker	0.2532	0.2294	3.0783	7.6800e-003	0.6010	4.1800e-003	0.6051	0.1594	3.8700e-003	0.1633		583.7506	583.7506	0.0256		584.2885
<b>Total</b>	<b>0.3572</b>	<b>0.9988</b>	<b>4.3998</b>	<b>0.0102</b>	<b>0.6714</b>	<b>0.0164</b>	<b>0.6879</b>	<b>0.1795</b>	<b>0.0151</b>	<b>0.1946</b>		<b>825.5281</b>	<b>825.5281</b>	<b>0.0274</b>		<b>826.1035</b>

### 3.4 Building Construction - 2018

#### 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	lb/day										lb/day					
Off-Road	2.9004	20.5600	15.6637	0.0249		1.2511	1.2511		1.1992	1.1992	0.0000	2,317.2089	2,317.2089	0.4980		2,327.6664
<b>Total</b>	<b>2.9004</b>	<b>20.5600</b>	<b>15.6637</b>	<b>0.0249</b>		<b>1.2511</b>	<b>1.2511</b>		<b>1.1992</b>	<b>1.1992</b>	<b>0.0000</b>	<b>2,317.2089</b>	<b>2,317.2089</b>	<b>0.4980</b>		<b>2,327.6664</b>

#### 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	lb/day										lb/day					
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
Vendor	0.1039	0.7694	1.3214	2.4900e-003	0.0705	0.0122	0.0827	0.0201	0.0113	0.0313		241.7774	241.7774	1.7900e-003		241.8151
Worker	0.2532	0.2294	3.0783	7.6800e-003	0.6010	4.1800e-003	0.6051	0.1594	3.8700e-003	0.1633		583.7506	583.7506	0.0256		584.2885
<b>Total</b>	<b>0.3572</b>	<b>0.9988</b>	<b>4.3998</b>	<b>0.0102</b>	<b>0.6714</b>	<b>0.0164</b>	<b>0.6879</b>	<b>0.1795</b>	<b>0.0151</b>	<b>0.1946</b>		<b>825.5281</b>	<b>825.5281</b>	<b>0.0274</b>		<b>826.1035</b>

**3.4 Building Construction - 2019****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	lb/day										lb/day					
Off-Road	2.5471	18.7802	15.2049	0.0249		1.0846	1.0846		1.0399	1.0399		2,299.7816	2,299.7816	0.4771		2,309.8005
<b>Total</b>	<b>2.5471</b>	<b>18.7802</b>	<b>15.2049</b>	<b>0.0249</b>		<b>1.0846</b>	<b>1.0846</b>		<b>1.0399</b>	<b>1.0399</b>		<b>2,299.7816</b>	<b>2,299.7816</b>	<b>0.4771</b>		<b>2,309.8005</b>

**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	lb/day										lb/day					
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
Vendor	0.0943	0.7005	1.2308	2.4900e-003	0.0705	0.0113	0.0818	0.0201	0.0104	0.0305		237.8612	237.8612	1.7400e-003		237.8978
Worker	0.2329	0.2099	2.8444	7.6400e-003	0.6010	4.1300e-003	0.6051	0.1594	3.8300e-003	0.1632		560.1098	560.1098	0.0238		560.6102
<b>Total</b>	<b>0.3272</b>	<b>0.9104</b>	<b>4.0752</b>	<b>0.0101</b>	<b>0.6715</b>	<b>0.0155</b>	<b>0.6869</b>	<b>0.1795</b>	<b>0.0142</b>	<b>0.1937</b>		<b>797.9710</b>	<b>797.9710</b>	<b>0.0256</b>		<b>798.5080</b>

### 3.4 Building Construction - 2019

#### 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	lb/day										lb/day					
Off-Road	2.5471	18.7802	15.2049	0.0249		1.0846	1.0846		1.0399	1.0399	0.0000	2,299.7816	2,299.7816	0.4771		2,309.8005
<b>Total</b>	<b>2.5471</b>	<b>18.7802</b>	<b>15.2049</b>	<b>0.0249</b>		<b>1.0846</b>	<b>1.0846</b>		<b>1.0399</b>	<b>1.0399</b>	<b>0.0000</b>	<b>2,299.7816</b>	<b>2,299.7816</b>	<b>0.4771</b>		<b>2,309.8005</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0943	0.7005	1.2308	2.4900e-003	0.0705	0.0113	0.0818	0.0201	0.0104	0.0305		237.8612	237.8612	1.7400e-003		237.8978
Worker	0.2329	0.2099	2.8444	7.6400e-003	0.6010	4.1300e-003	0.6051	0.1594	3.8300e-003	0.1632		560.1098	560.1098	0.0238		560.6102
<b>Total</b>	<b>0.3272</b>	<b>0.9104</b>	<b>4.0752</b>	<b>0.0101</b>	<b>0.6715</b>	<b>0.0155</b>	<b>0.6869</b>	<b>0.1795</b>	<b>0.0142</b>	<b>0.1937</b>		<b>797.9710</b>	<b>797.9710</b>	<b>0.0256</b>		<b>798.5080</b>

### 3.5 Paving - 2019

#### 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	lb/day										lb/day					
Off-Road	1.2310	12.4141	11.7009	0.0176		0.7225	0.7225		0.6658	0.6658		1,722.2285	1,722.2285	0.5342		1,733.4458
Paving	0.1799					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.4109</b>	<b>12.4141</b>	<b>11.7009</b>	<b>0.0176</b>		<b>0.7225</b>	<b>0.7225</b>		<b>0.6658</b>	<b>0.6658</b>		<b>1,722.2285</b>	<b>1,722.2285</b>	<b>0.5342</b>		<b>1,733.4458</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0442	0.0399	0.5401	1.4500e-003	0.1141	7.8000e-004	0.1149	0.0303	7.3000e-004	0.0310		106.3500	106.3500	4.5200e-003		106.4450
<b>Total</b>	<b>0.0442</b>	<b>0.0399</b>	<b>0.5401</b>	<b>1.4500e-003</b>	<b>0.1141</b>	<b>7.8000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>106.3500</b>	<b>106.3500</b>	<b>4.5200e-003</b>		<b>106.4450</b>



**3.5 Paving - 2019****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	lb/day										lb/day					
Off-Road	1.2310	12.4141	11.7009	0.0176		0.7225	0.7225		0.6658	0.6658	0.0000	1,722.2285	1,722.2285	0.5342		1,733.4458
Paving	0.1799					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.4109</b>	<b>12.4141</b>	<b>11.7009</b>	<b>0.0176</b>		<b>0.7225</b>	<b>0.7225</b>		<b>0.6658</b>	<b>0.6658</b>	<b>0.0000</b>	<b>1,722.2285</b>	<b>1,722.2285</b>	<b>0.5342</b>		<b>1,733.4458</b>

**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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0442	0.0399	0.5401	1.4500e-003	0.1141	7.8000e-004	0.1149	0.0303	7.3000e-004	0.0310		106.3500	106.3500	4.5200e-003		106.4450
<b>Total</b>	<b>0.0442</b>	<b>0.0399</b>	<b>0.5401</b>	<b>1.4500e-003</b>	<b>0.1141</b>	<b>7.8000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>106.3500</b>	<b>106.3500</b>	<b>4.5200e-003</b>		<b>106.4450</b>

### 3.6 Architectural Coating - 2019

#### 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	lb/day										lb/day					
Archit. Coating	44.4063					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		281.9473
<b>Total</b>	<b>44.6727</b>	<b>1.8354</b>	<b>1.8413</b>	<b>2.9700e-003</b>		<b>0.1288</b>	<b>0.1288</b>		<b>0.1288</b>	<b>0.1288</b>		<b>281.4481</b>	<b>281.4481</b>	<b>0.0238</b>		<b>281.9473</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0472	0.0425	0.5761	1.5500e-003	0.1217	8.4000e-004	0.1226	0.0323	7.8000e-004	0.0331		113.4400	113.4400	4.8300e-003		113.5413
<b>Total</b>	<b>0.0472</b>	<b>0.0425</b>	<b>0.5761</b>	<b>1.5500e-003</b>	<b>0.1217</b>	<b>8.4000e-004</b>	<b>0.1226</b>	<b>0.0323</b>	<b>7.8000e-004</b>	<b>0.0331</b>		<b>113.4400</b>	<b>113.4400</b>	<b>4.8300e-003</b>		<b>113.5413</b>

### 3.6 Architectural Coating - 2019

#### 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	lb/day										lb/day					
Archit. Coating	44.4063					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		281.9473
<b>Total</b>	<b>44.6727</b>	<b>1.8354</b>	<b>1.8413</b>	<b>2.9700e-003</b>		<b>0.1288</b>	<b>0.1288</b>		<b>0.1288</b>	<b>0.1288</b>	<b>0.0000</b>	<b>281.4481</b>	<b>281.4481</b>	<b>0.0238</b>		<b>281.9473</b>

#### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0472	0.0425	0.5761	1.5500e-003	0.1217	8.4000e-004	0.1226	0.0323	7.8000e-004	0.0331		113.4400	113.4400	4.8300e-003		113.5413
<b>Total</b>	<b>0.0472</b>	<b>0.0425</b>	<b>0.5761</b>	<b>1.5500e-003</b>	<b>0.1217</b>	<b>8.4000e-004</b>	<b>0.1226</b>	<b>0.0323</b>	<b>7.8000e-004</b>	<b>0.0331</b>		<b>113.4400</b>	<b>113.4400</b>	<b>4.8300e-003</b>		<b>113.5413</b>

### 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

	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	lb/day										lb/day					
Mitigated	1.9826	3.0997	18.7654	0.0639	4.2808	0.0641	4.3449	1.1437	0.0591	1.2029		4,613.0566	4,613.0566	0.1389		4,615.9744
Unmitigated	1.9826	3.0997	18.7654	0.0639	4.2808	0.0641	4.3449	1.1437	0.0591	1.2029		4,613.0566	4,613.0566	0.1389		4,615.9744

### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	724.90	787.60	667.70	1,862,189	1,862,189
Parking Lot	0.00	0.00	0.00		
Total	724.90	787.60	667.70	1,862,189	1,862,189

### 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
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.507716	0.068869	0.175522	0.144726	0.043865	0.006529	0.021763	0.017270	0.002362	0.002281	0.006385	0.000530	0.002181

### 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	lb/day										lb/day					
NaturalGas Mitigated	0.0324	0.2771	0.1179	1.7700e-003		0.0224	0.0224		0.0224	0.0224		353.7540	353.7540	6.7800e-003	6.4900e-003	355.9069
NaturalGas Unmitigated	0.0324	0.2771	0.1179	1.7700e-003		0.0224	0.0224		0.0224	0.0224		353.7540	353.7540	6.7800e-003	6.4900e-003	355.9069

### 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	lb/day										lb/day					
Apartments Mid Rise	3006.91	0.0324	0.2771	0.1179	1.7700e-003		0.0224	0.0224		0.0224	0.0224		353.7540	353.7540	6.7800e-003	6.4900e-003	355.9069
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0324</b>	<b>0.2771</b>	<b>0.1179</b>	<b>1.7700e-003</b>		<b>0.0224</b>	<b>0.0224</b>		<b>0.0224</b>	<b>0.0224</b>		<b>353.7540</b>	<b>353.7540</b>	<b>6.7800e-003</b>	<b>6.4900e-003</b>	<b>355.9069</b>

### 5.2 Energy by Land Use - NaturalGas

#### 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	lb/day										lb/day					
Apartments Mid Rise	3.00691	0.0324	0.2771	0.1179	1.7700e-003		0.0224	0.0224		0.0224	0.0224		353.7540	353.7540	6.7800e-003	6.4900e-003	355.9069
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0324</b>	<b>0.2771</b>	<b>0.1179</b>	<b>1.7700e-003</b>		<b>0.0224</b>	<b>0.0224</b>		<b>0.0224</b>	<b>0.0224</b>		<b>353.7540</b>	<b>353.7540</b>	<b>6.7800e-003</b>	<b>6.4900e-003</b>	<b>355.9069</b>

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.9816	0.1045	9.0782	4.8000e-004		0.0504	0.0504		0.0504	0.0504	0.0000	16.3657	16.3657	0.0157	0.0000	16.6957
Unmitigated	3.9816	0.1045	9.0782	4.8000e-004		0.0504	0.0504		0.0504	0.0504	0.0000	16.3657	16.3657	0.0157	0.0000	16.6957

## 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	lb/day										lb/day					
Architectural Coating	0.3785					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.3298					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.2733	0.1045	9.0782	4.8000e-004		0.0504	0.0504		0.0504	0.0504		16.3657	16.3657	0.0157		16.6957
<b>Total</b>	<b>3.9816</b>	<b>0.1045</b>	<b>9.0782</b>	<b>4.8000e-004</b>		<b>0.0504</b>	<b>0.0504</b>		<b>0.0504</b>	<b>0.0504</b>	<b>0.0000</b>	<b>16.3657</b>	<b>16.3657</b>	<b>0.0157</b>	<b>0.0000</b>	<b>16.6957</b>

## 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	lb/day										lb/day					
Architectural Coating	0.3785					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.3298					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.2733	0.1045	9.0782	4.8000e-004		0.0504	0.0504		0.0504	0.0504		16.3657	16.3657	0.0157		16.6957
<b>Total</b>	<b>3.9816</b>	<b>0.1045</b>	<b>9.0782</b>	<b>4.8000e-004</b>		<b>0.0504</b>	<b>0.0504</b>		<b>0.0504</b>	<b>0.0504</b>	<b>0.0000</b>	<b>16.3657</b>	<b>16.3657</b>	<b>0.0157</b>	<b>0.0000</b>	<b>16.6957</b>

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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## 10.0 Vegetation



## Twin Rivers Existing Operational Sacramento County, Summer

### 1.0 Project Characteristics

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#### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	218.00	Dwelling Unit	13.63	218,000.00	582

#### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2025
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MW hr)</b>	590.31	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

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

Project Characteristics -

Land Use -

Energy Use - Adjust for 2013 Title-24 values

Table Name	Column Name	Default Value	New Value
tblEnergyUse	T24E	301.15	225.86
tblEnergyUse	T24NG	18,960.80	14,220.60
tblProjectCharacteristics	OperationalYear	2014	2025

### 2.0 Emissions Summary

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**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	lb/day										lb/day					
Area	5.9521	0.2070	17.9682	9.5000e-004		0.0997	0.0997		0.0997	0.0997	0.0000	32.3844	32.3844	0.0310	0.0000	33.0357
Energy	0.1106	0.9452	0.4022	6.0300e-003		0.0764	0.0764		0.0764	0.0764		1,206.578 2	1,206.578 2	0.0231	0.0221	1,213.921 2
Mobile	4.1932	6.6020	40.0541	0.1268	8.4832	0.1266	8.6098	2.2664	0.1169	2.3832		9,306.362 4	9,306.362 4	0.2947		9,312.550 2
<b>Total</b>	<b>10.2559</b>	<b>7.7541</b>	<b>58.4245</b>	<b>0.1338</b>	<b>8.4832</b>	<b>0.3027</b>	<b>8.7859</b>	<b>2.2664</b>	<b>0.2930</b>	<b>2.5594</b>	<b>0.0000</b>	<b>10,545.32 50</b>	<b>10,545.32 50</b>	<b>0.3488</b>	<b>0.0221</b>	<b>10,559.50 71</b>

**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	lb/day										lb/day					
Area	5.9521	0.2070	17.9682	9.5000e-004		0.0997	0.0997		0.0997	0.0997	0.0000	32.3844	32.3844	0.0310	0.0000	33.0357
Energy	0.1106	0.9452	0.4022	6.0300e-003		0.0764	0.0764		0.0764	0.0764		1,206.578 2	1,206.578 2	0.0231	0.0221	1,213.921 2
Mobile	4.1932	6.6020	40.0541	0.1268	8.4832	0.1266	8.6098	2.2664	0.1169	2.3832		9,306.362 4	9,306.362 4	0.2947		9,312.550 2
<b>Total</b>	<b>10.2559</b>	<b>7.7541</b>	<b>58.4245</b>	<b>0.1338</b>	<b>8.4832</b>	<b>0.3027</b>	<b>8.7859</b>	<b>2.2664</b>	<b>0.2930</b>	<b>2.5594</b>	<b>0.0000</b>	<b>10,545.32 50</b>	<b>10,545.32 50</b>	<b>0.3488</b>	<b>0.0221</b>	<b>10,559.50 71</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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	1/27/2017	5	20	
2	Site Preparation	Site Preparation	1/28/2017	2/10/2017	5	10	
3	Grading	Grading	2/11/2017	3/24/2017	5	30	
4	Building Construction	Building Construction	3/25/2017	5/18/2018	5	300	
5	Paving	Paving	5/19/2018	6/15/2018	5	20	
6	Architectural Coating	Architectural Coating	6/16/2018	7/13/2018	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 441,450; Residential Outdoor: 147,150; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

#### 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	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

**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	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	157.00	23.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

### 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	lb/day										lb/day					
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797		4,036.4674	4,036.4674	1.1073		4,059.7211
<b>Total</b>	<b>4.0482</b>	<b>42.6971</b>	<b>33.8934</b>	<b>0.0399</b>		<b>2.1252</b>	<b>2.1252</b>		<b>1.9797</b>	<b>1.9797</b>		<b>4,036.4674</b>	<b>4,036.4674</b>	<b>1.1073</b>		<b>4,059.7211</b>

### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0536	0.0483	0.6480	1.4600e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		115.1849	115.1849	5.2800e-003			115.2959
<b>Total</b>	<b>0.0536</b>	<b>0.0483</b>	<b>0.6480</b>	<b>1.4600e-003</b>	<b>0.1141</b>	<b>8.1000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.5000e-004</b>	<b>0.0310</b>		<b>115.1849</b>	<b>115.1849</b>	<b>5.2800e-003</b>			<b>115.2959</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	lb/day										lb/day						
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797	0.0000	4,036.4674	4,036.4674	1.1073			4,059.7211
<b>Total</b>	<b>4.0482</b>	<b>42.6971</b>	<b>33.8934</b>	<b>0.0399</b>		<b>2.1252</b>	<b>2.1252</b>		<b>1.9797</b>	<b>1.9797</b>	<b>0.0000</b>	<b>4,036.4674</b>	<b>4,036.4674</b>	<b>1.1073</b>			<b>4,059.7211</b>

### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0536	0.0483	0.6480	1.4600e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		115.1849	115.1849	5.2800e-003			115.2959
<b>Total</b>	<b>0.0536</b>	<b>0.0483</b>	<b>0.6480</b>	<b>1.4600e-003</b>	<b>0.1141</b>	<b>8.1000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.5000e-004</b>	<b>0.0310</b>		<b>115.1849</b>	<b>115.1849</b>	<b>5.2800e-003</b>			<b>115.2959</b>

### 3.3 Site Preparation - 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	lb/day										lb/day						
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000	
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339		4,003.0859	4,003.0859	1.2265			4,028.8432
<b>Total</b>	<b>4.8382</b>	<b>51.7535</b>	<b>39.3970</b>	<b>0.0391</b>	<b>18.0663</b>	<b>2.7542</b>	<b>20.8205</b>	<b>9.9307</b>	<b>2.5339</b>	<b>12.4646</b>		<b>4,003.0859</b>	<b>4,003.0859</b>	<b>1.2265</b>			<b>4,028.8432</b>



### 3.3 Site Preparation - 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0643	0.0580	0.7776	1.7500e-003	0.1369	9.7000e-004	0.1379	0.0363	9.0000e-004	0.0372		138.2218	138.2218	6.3400e-003			138.3550
<b>Total</b>	<b>0.0643</b>	<b>0.0580</b>	<b>0.7776</b>	<b>1.7500e-003</b>	<b>0.1369</b>	<b>9.7000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>9.0000e-004</b>	<b>0.0372</b>		<b>138.2218</b>	<b>138.2218</b>	<b>6.3400e-003</b>			<b>138.3550</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	lb/day										lb/day						
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000	
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339	0.0000	4,003.0859	4,003.0859	1.2265			4,028.8432
<b>Total</b>	<b>4.8382</b>	<b>51.7535</b>	<b>39.3970</b>	<b>0.0391</b>	<b>18.0663</b>	<b>2.7542</b>	<b>20.8205</b>	<b>9.9307</b>	<b>2.5339</b>	<b>12.4646</b>	<b>0.0000</b>	<b>4,003.0859</b>	<b>4,003.0859</b>	<b>1.2265</b>			<b>4,028.8432</b>

### 3.3 Site Preparation - 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0580	0.7776	1.7500e-003	0.1369	9.7000e-004	0.1379	0.0363	9.0000e-004	0.0372		138.2218	138.2218	6.3400e-003		138.3550
<b>Total</b>	<b>0.0643</b>	<b>0.0580</b>	<b>0.7776</b>	<b>1.7500e-003</b>	<b>0.1369</b>	<b>9.7000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>9.0000e-004</b>	<b>0.0372</b>		<b>138.2218</b>	<b>138.2218</b>	<b>6.3400e-003</b>		<b>138.3550</b>

### 3.4 Grading - 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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	6.0991	69.5920	46.8050	0.0617		3.3172	3.3172		3.0518	3.0518		6,313.3690	6,313.3690	1.9344		6,353.9915
<b>Total</b>	<b>6.0991</b>	<b>69.5920</b>	<b>46.8050</b>	<b>0.0617</b>	<b>8.6733</b>	<b>3.3172</b>	<b>11.9905</b>	<b>3.5965</b>	<b>3.0518</b>	<b>6.6483</b>		<b>6,313.3690</b>	<b>6,313.3690</b>	<b>1.9344</b>		<b>6,353.9915</b>

### 3.4 Grading - 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0715	0.0645	0.8640	1.9500e-003	0.1521	1.0800e-003	0.1532	0.0404	1.0000e-003	0.0414		153.5798	153.5798	7.0500e-003			153.7278
<b>Total</b>	<b>0.0715</b>	<b>0.0645</b>	<b>0.8640</b>	<b>1.9500e-003</b>	<b>0.1521</b>	<b>1.0800e-003</b>	<b>0.1532</b>	<b>0.0404</b>	<b>1.0000e-003</b>	<b>0.0414</b>		<b>153.5798</b>	<b>153.5798</b>	<b>7.0500e-003</b>			<b>153.7278</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	lb/day										lb/day						
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000	
Off-Road	6.0991	69.5920	46.8050	0.0617		3.3172	3.3172		3.0518	3.0518	0.0000	6,313.3690	6,313.3690	1.9344			6,353.9915
<b>Total</b>	<b>6.0991</b>	<b>69.5920</b>	<b>46.8050</b>	<b>0.0617</b>	<b>8.6733</b>	<b>3.3172</b>	<b>11.9905</b>	<b>3.5965</b>	<b>3.0518</b>	<b>6.6483</b>	<b>0.0000</b>	<b>6,313.3690</b>	<b>6,313.3690</b>	<b>1.9344</b>			<b>6,353.9915</b>

### 3.4 Grading - 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0715	0.0645	0.8640	1.9500e-003	0.1521	1.0800e-003	0.1532	0.0404	1.0000e-003	0.0414		153.5798	153.5798	7.0500e-003			153.7278
<b>Total</b>	<b>0.0715</b>	<b>0.0645</b>	<b>0.8640</b>	<b>1.9500e-003</b>	<b>0.1521</b>	<b>1.0800e-003</b>	<b>0.1532</b>	<b>0.0404</b>	<b>1.0000e-003</b>	<b>0.0414</b>		<b>153.5798</b>	<b>153.5798</b>	<b>7.0500e-003</b>			<b>153.7278</b>

### 3.5 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	lb/day										lb/day						
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730		2,639.8053	2,639.8053	0.6497			2,653.4490
<b>Total</b>	<b>3.1024</b>	<b>26.4057</b>	<b>18.1291</b>	<b>0.0268</b>		<b>1.7812</b>	<b>1.7812</b>		<b>1.6730</b>	<b>1.6730</b>		<b>2,639.8053</b>	<b>2,639.8053</b>	<b>0.6497</b>			<b>2,653.4490</b>

### 3.5 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	lb/day										lb/day						
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
Vendor	0.2396	1.6360	2.9024	4.8000e-003	0.1351	0.0255	0.1607	0.0385	0.0234	0.0619		472.1207	472.1207	3.5200e-003			472.1946
Worker	0.5610	0.5060	6.7826	0.0153	1.1943	8.4800e-003	1.2028	0.3168	7.8200e-003	0.3246		1,205.6016	1,205.6016	0.0553			1,206.7632
<b>Total</b>	<b>0.8006</b>	<b>2.1420</b>	<b>9.6850</b>	<b>0.0201</b>	<b>1.3294</b>	<b>0.0340</b>	<b>1.3634</b>	<b>0.3553</b>	<b>0.0313</b>	<b>0.3865</b>		<b>1,677.7223</b>	<b>1,677.7223</b>	<b>0.0588</b>			<b>1,678.9578</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	lb/day										lb/day						
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730	0.0000	2,639.8053	2,639.8053	0.6497			2,653.4490
<b>Total</b>	<b>3.1024</b>	<b>26.4057</b>	<b>18.1291</b>	<b>0.0268</b>		<b>1.7812</b>	<b>1.7812</b>		<b>1.6730</b>	<b>1.6730</b>	<b>0.0000</b>	<b>2,639.8053</b>	<b>2,639.8053</b>	<b>0.6497</b>			<b>2,653.4490</b>

### 3.5 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	lb/day										lb/day						
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
Vendor	0.2396	1.6360	2.9024	4.8000e-003	0.1351	0.0255	0.1607	0.0385	0.0234	0.0619		472.1207	472.1207	3.5200e-003			472.1946
Worker	0.5610	0.5060	6.7826	0.0153	1.1943	8.4800e-003	1.2028	0.3168	7.8200e-003	0.3246		1,205.6016	1,205.6016	0.0553			1,206.7632
<b>Total</b>	<b>0.8006</b>	<b>2.1420</b>	<b>9.6850</b>	<b>0.0201</b>	<b>1.3294</b>	<b>0.0340</b>	<b>1.3634</b>	<b>0.3553</b>	<b>0.0313</b>	<b>0.3865</b>		<b>1,677.7223</b>	<b>1,677.7223</b>	<b>0.0588</b>			<b>1,678.9578</b>

### 3.5 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	lb/day										lb/day						
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048		2,609.9390	2,609.9390	0.6387			2,623.3517
<b>Total</b>	<b>2.6687</b>	<b>23.2608</b>	<b>17.5327</b>	<b>0.0268</b>		<b>1.4943</b>	<b>1.4943</b>		<b>1.4048</b>	<b>1.4048</b>		<b>2,609.9390</b>	<b>2,609.9390</b>	<b>0.6387</b>			<b>2,623.3517</b>

### 3.5 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	lb/day										lb/day						
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
Vendor	0.1992	1.4747	2.5328	4.7800e-003	0.1351	0.0235	0.1586	0.0385	0.0216	0.0600		463.4068	463.4068	3.4300e-003			463.4789
Worker	0.5033	0.4558	6.1177	0.0153	1.1943	8.3100e-003	1.2026	0.3168	7.6900e-003	0.3245		1,160.1120	1,160.1120	0.0509			1,161.1809
<b>Total</b>	<b>0.7024</b>	<b>1.9305</b>	<b>8.6504</b>	<b>0.0201</b>	<b>1.3294</b>	<b>0.0318</b>	<b>1.3612</b>	<b>0.3553</b>	<b>0.0292</b>	<b>0.3845</b>		<b>1,623.5188</b>	<b>1,623.5188</b>	<b>0.0543</b>			<b>1,624.6598</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	lb/day										lb/day						
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048	0.0000	2,609.9389	2,609.9389	0.6387			2,623.3517
<b>Total</b>	<b>2.6687</b>	<b>23.2608</b>	<b>17.5327</b>	<b>0.0268</b>		<b>1.4943</b>	<b>1.4943</b>		<b>1.4048</b>	<b>1.4048</b>	<b>0.0000</b>	<b>2,609.9389</b>	<b>2,609.9389</b>	<b>0.6387</b>			<b>2,623.3517</b>

### 3.5 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	lb/day										lb/day						
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
Vendor	0.1992	1.4747	2.5328	4.7800e-003	0.1351	0.0235	0.1586	0.0385	0.0216	0.0600		463.4068	463.4068	3.4300e-003			463.4789
Worker	0.5033	0.4558	6.1177	0.0153	1.1943	8.3100e-003	1.2026	0.3168	7.6900e-003	0.3245		1,160.1120	1,160.1120	0.0509			1,161.1809
<b>Total</b>	<b>0.7024</b>	<b>1.9305</b>	<b>8.6504</b>	<b>0.0201</b>	<b>1.3294</b>	<b>0.0318</b>	<b>1.3612</b>	<b>0.3553</b>	<b>0.0292</b>	<b>0.3845</b>		<b>1,623.5188</b>	<b>1,623.5188</b>	<b>0.0543</b>			<b>1,624.6598</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	lb/day										lb/day						
Off-Road	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635		2,245.2695	2,245.2695	0.6990			2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
<b>Total</b>	<b>1.6114</b>	<b>17.1628</b>	<b>14.4944</b>	<b>0.0223</b>		<b>0.9386</b>	<b>0.9386</b>		<b>0.8635</b>	<b>0.8635</b>		<b>2,245.2695</b>	<b>2,245.2695</b>	<b>0.6990</b>			<b>2,259.9481</b>



### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0481	0.0436	0.5845	1.4600e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		110.8387	110.8387	4.8600e-003			110.9409
<b>Total</b>	<b>0.0481</b>	<b>0.0436</b>	<b>0.5845</b>	<b>1.4600e-003</b>	<b>0.1141</b>	<b>7.9000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>110.8387</b>	<b>110.8387</b>	<b>4.8600e-003</b>			<b>110.9409</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	lb/day										lb/day						
Off-Road	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635	0.0000	2,245.2695	2,245.2695	0.6990			2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
<b>Total</b>	<b>1.6114</b>	<b>17.1628</b>	<b>14.4944</b>	<b>0.0223</b>		<b>0.9386</b>	<b>0.9386</b>		<b>0.8635</b>	<b>0.8635</b>	<b>0.0000</b>	<b>2,245.2695</b>	<b>2,245.2695</b>	<b>0.6990</b>			<b>2,259.9481</b>

### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0481	0.0436	0.5845	1.4600e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		110.8387	110.8387	4.8600e-003		110.9409
<b>Total</b>	<b>0.0481</b>	<b>0.0436</b>	<b>0.5845</b>	<b>1.4600e-003</b>	<b>0.1141</b>	<b>7.9000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>110.8387</b>	<b>110.8387</b>	<b>4.8600e-003</b>		<b>110.9409</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	lb/day										lb/day					
Archit. Coating	136.4081					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.0102
<b>Total</b>	<b>136.7067</b>	<b>2.0058</b>	<b>1.8542</b>	<b>2.9700e-003</b>		<b>0.1506</b>	<b>0.1506</b>		<b>0.1506</b>	<b>0.1506</b>		<b>281.4485</b>	<b>281.4485</b>	<b>0.0267</b>		<b>282.0102</b>

### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0994	0.0900	1.2080	3.0100e-003	0.2358	1.6400e-003	0.2375	0.0626	1.5200e-003	0.0641		229.0667	229.0667	0.0101			229.2778
<b>Total</b>	<b>0.0994</b>	<b>0.0900</b>	<b>1.2080</b>	<b>3.0100e-003</b>	<b>0.2358</b>	<b>1.6400e-003</b>	<b>0.2375</b>	<b>0.0626</b>	<b>1.5200e-003</b>	<b>0.0641</b>		<b>229.0667</b>	<b>229.0667</b>	<b>0.0101</b>			<b>229.2778</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	lb/day										lb/day						
Archit. Coating	136.4081					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267			282.0102
<b>Total</b>	<b>136.7067</b>	<b>2.0058</b>	<b>1.8542</b>	<b>2.9700e-003</b>		<b>0.1506</b>	<b>0.1506</b>		<b>0.1506</b>	<b>0.1506</b>	<b>0.0000</b>	<b>281.4485</b>	<b>281.4485</b>	<b>0.0267</b>			<b>282.0102</b>

### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0994	0.0900	1.2080	3.0100e-003	0.2358	1.6400e-003	0.2375	0.0626	1.5200e-003	0.0641		229.0667	229.0667	0.0101			229.2778
<b>Total</b>	<b>0.0994</b>	<b>0.0900</b>	<b>1.2080</b>	<b>3.0100e-003</b>	<b>0.2358</b>	<b>1.6400e-003</b>	<b>0.2375</b>	<b>0.0626</b>	<b>1.5200e-003</b>	<b>0.0641</b>		<b>229.0667</b>	<b>229.0667</b>	<b>0.0101</b>			<b>229.2778</b>

### 4.0 Operational Detail - Mobile

#### 4.1 Mitigation Measures Mobile

	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	lb/day										lb/day						
Mitigated	4.1932	6.6020	40.0541	0.1268	8.4832	0.1266	8.6098	2.2664	0.1169	2.3832		9,306.3624	9,306.3624	0.2947			9,312.5502
Unmitigated	4.1932	6.6020	40.0541	0.1268	8.4832	0.1266	8.6098	2.2664	0.1169	2.3832		9,306.3624	9,306.3624	0.2947			9,312.5502

### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	1,436.62	1,560.88	1323.26	3,690,519	3,690,519
<b>Total</b>	<b>1,436.62</b>	<b>1,560.88</b>	<b>1,323.26</b>	<b>3,690,519</b>	<b>3,690,519</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
Condo/Townhouse	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504794	0.068615	0.177278	0.146144	0.044250	0.006471	0.021529	0.017167	0.002347	0.002284	0.006390	0.000540	0.002190

### 5.0 Energy Detail

#### 4.4 Fleet Mix

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
NaturalGas Mitigated	0.1106	0.9452	0.4022	6.0300e-003		0.0764	0.0764		0.0764	0.0764		1,206.5782	1,206.5782	0.0231	0.0221	1,213.9212
NaturalGas Unmitigated	0.1106	0.9452	0.4022	6.0300e-003		0.0764	0.0764		0.0764	0.0764		1,206.5782	1,206.5782	0.0231	0.0221	1,213.9212

### 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	lb/day										lb/day					
Condo/Townhouse	10255.9	0.1106	0.9452	0.4022	6.0300e-003		0.0764	0.0764		0.0764	0.0764		1,206.5782	1,206.5782	0.0231	0.0221	1,213.9212
<b>Total</b>		<b>0.1106</b>	<b>0.9452</b>	<b>0.4022</b>	<b>6.0300e-003</b>		<b>0.0764</b>	<b>0.0764</b>		<b>0.0764</b>	<b>0.0764</b>		<b>1,206.5782</b>	<b>1,206.5782</b>	<b>0.0231</b>	<b>0.0221</b>	<b>1,213.9212</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	lb/day										lb/day					
Condo/Townhouse	10.2559	0.1106	0.9452	0.4022	6.0300e-003		0.0764	0.0764		0.0764	0.0764		1,206.5782	1,206.5782	0.0231	0.0221	1,213.9212
<b>Total</b>		<b>0.1106</b>	<b>0.9452</b>	<b>0.4022</b>	<b>6.0300e-003</b>		<b>0.0764</b>	<b>0.0764</b>		<b>0.0764</b>	<b>0.0764</b>		<b>1,206.5782</b>	<b>1,206.5782</b>	<b>0.0231</b>	<b>0.0221</b>	<b>1,213.9212</b>

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.9521	0.2070	17.9682	9.5000e-004		0.0997	0.0997		0.0997	0.0997	0.0000	32.3844	32.3844	0.0310	0.0000	33.0357
Unmitigated	5.9521	0.2070	17.9682	9.5000e-004		0.0997	0.0997		0.0997	0.0997	0.0000	32.3844	32.3844	0.0310	0.0000	33.0357

## 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	lb/day										lb/day					
Architectural Coating	0.7474					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6652					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5395	0.2070	17.9682	9.5000e-004		0.0997	0.0997		0.0997	0.0997		32.3844	32.3844	0.0310		33.0357
<b>Total</b>	<b>5.9521</b>	<b>0.2070</b>	<b>17.9682</b>	<b>9.5000e-004</b>		<b>0.0997</b>	<b>0.0997</b>		<b>0.0997</b>	<b>0.0997</b>	<b>0.0000</b>	<b>32.3844</b>	<b>32.3844</b>	<b>0.0310</b>	<b>0.0000</b>	<b>33.0357</b>

## 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	lb/day										lb/day					
Architectural Coating	0.7474					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6652					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5395	0.2070	17.9682	9.5000e-004		0.0997	0.0997		0.0997	0.0997		32.3844	32.3844	0.0310		33.0357
<b>Total</b>	<b>5.9521</b>	<b>0.2070</b>	<b>17.9682</b>	<b>9.5000e-004</b>		<b>0.0997</b>	<b>0.0997</b>		<b>0.0997</b>	<b>0.0997</b>	<b>0.0000</b>	<b>32.3844</b>	<b>32.3844</b>	<b>0.0310</b>	<b>0.0000</b>	<b>33.0357</b>

## 7.0 Water Detail

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### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

## 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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## 10.0 Vegetation

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## Twin Rivers Project Operational Sacramento County, Summer

### 1.0 Project Characteristics

#### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.91	Acre	0.91	39,639.60	0
Recreational Swimming Pool	8.28	1000sqft	0.19	8,280.00	0
Apartments Mid Rise	131.00	Dwelling Unit	3.45	131,000.00	350
Condo/Townhouse	355.00	Dwelling Unit	22.19	355,000.00	948

#### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2025
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MW hr)</b>	590.31	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

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

Project Characteristics -

Land Use -

Vehicle Trips - Trip Rates adjusted for actual rates provided

Energy Use - Adjust for 2013 Title 24 values

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	23,960.00	23,958.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	71,879.00	71,874.00

tblAreaCoating	Area_Nonresidential_Interior	71879	71874
tblConstructionPhase	NumDays	35.00	20.00
tblConstructionPhase	NumDays	440.00	370.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	45.00	35.00
tblConstructionPhase	NumDays	35.00	20.00
tblConstructionPhase	NumDays	20.00	10.00
tblEnergyUse	T24E	322.48	241.86
tblEnergyUse	T24E	301.15	225.86
tblEnergyUse	T24NG	8,261.25	6,195.94
tblEnergyUse	T24NG	18,960.80	14,220.60
tblFireplaces	NumberNoFireplace	131.00	248.00
tblFireplaces	NumberNoFireplace	355.00	238.00
tblProjectCharacteristics	OperationalYear	2014	2025
tblSolidWaste	SolidWasteGenerationRate	60.26	114.08
tblSolidWaste	SolidWasteGenerationRate	163.30	109.48
tblVehicleTrips	ST_TR	7.16	7.01
tblVehicleTrips	ST_TR	1.59	0.00
tblVehicleTrips	ST_TR	7.16	5.55
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	SU_TR	6.07	7.01
tblVehicleTrips	SU_TR	1.59	0.00
tblVehicleTrips	SU_TR	6.07	5.55
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	WD_TR	6.59	7.01
tblVehicleTrips	WD_TR	1.59	0.00
tblVehicleTrips	WD_TR	6.59	5.55
tblVehicleTrips	WD_TR	32.93	0.00

tblWater	IndoorWaterUseRate	8,535,177.36	16,158,198.35
tblWater	IndoorWaterUseRate	23,129,679.10	15,506,658.10
tblWater	OutdoorWaterUseRate	5,380,872.68	10,186,690.27
tblWater	OutdoorWaterUseRate	14,581,754.21	9,775,936.63

## 2.0 Emissions Summary

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**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	lb/day										lb/day					
Area	14.4775	0.4614	40.0586	2.1200e-003		0.2223	0.2223		0.2223	0.2223	0.0000	72.1984	72.1984	0.0691	0.0000	73.6504
Energy	0.2107	1.8008	0.7663	0.0115		0.1456	0.1456		0.1456	0.1456		2,298.9238	2,298.9238	0.0441	0.0422	2,312.9146
Mobile	7.2714	11.3683	68.8230	0.2344	15.7002	0.2349	15.9351	4.1946	0.2169	4.4115		16,918.6019	16,918.6019	0.5096		16,929.3031
<b>Total</b>	<b>21.9596</b>	<b>13.6305</b>	<b>109.6479</b>	<b>0.2480</b>	<b>15.7002</b>	<b>0.6028</b>	<b>16.3029</b>	<b>4.1946</b>	<b>0.5848</b>	<b>4.7794</b>	<b>0.0000</b>	<b>19,289.7240</b>	<b>19,289.7240</b>	<b>0.6228</b>	<b>0.0422</b>	<b>19,315.8681</b>

**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	lb/day										lb/day					
Area	14.4775	0.4614	40.0586	2.1200e-003		0.2223	0.2223		0.2223	0.2223	0.0000	72.1984	72.1984	0.0691	0.0000	73.6504
Energy	0.2107	1.8008	0.7663	0.0115		0.1456	0.1456		0.1456	0.1456		2,298.9238	2,298.9238	0.0441	0.0422	2,312.9146
Mobile	7.2714	11.3683	68.8230	0.2344	15.7002	0.2349	15.9351	4.1946	0.2169	4.4115		16,918.6019	16,918.6019	0.5096		16,929.3031
<b>Total</b>	<b>21.9596</b>	<b>13.6305</b>	<b>109.6479</b>	<b>0.2480</b>	<b>15.7002</b>	<b>0.6028</b>	<b>16.3029</b>	<b>4.1946</b>	<b>0.5848</b>	<b>4.7794</b>	<b>0.0000</b>	<b>19,289.7240</b>	<b>19,289.7240</b>	<b>0.6228</b>	<b>0.0422</b>	<b>19,315.8681</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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	1/27/2017	5	20	
2	Site Preparation	Site Preparation	1/28/2017	2/10/2017	5	10	
3	Grading	Grading	2/11/2017	3/31/2017	5	35	
4	Building Construction	Building Construction	4/1/2017	8/31/2018	5	370	
5	Paving	Paving	9/1/2018	9/28/2018	5	20	
6	Architectural Coating	Architectural Coating	9/29/2018	10/26/2018	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 984,150; Residential Outdoor: 328,050; Non-Residential Indoor: 71,874; Non-Residential Outdoor: 23,958 (Architectural Coating – sqft)

#### 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	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

**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	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	370.00	60.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	74.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

### 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	lb/day										lb/day					
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797		4,036.4674	4,036.4674	1.1073		4,059.7211
<b>Total</b>	<b>4.0482</b>	<b>42.6971</b>	<b>33.8934</b>	<b>0.0399</b>		<b>2.1252</b>	<b>2.1252</b>		<b>1.9797</b>	<b>1.9797</b>		<b>4,036.4674</b>	<b>4,036.4674</b>	<b>1.1073</b>		<b>4,059.7211</b>



### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0536	0.0483	0.6480	1.4600e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		115.1849	115.1849	5.2800e-003			115.2959
<b>Total</b>	<b>0.0536</b>	<b>0.0483</b>	<b>0.6480</b>	<b>1.4600e-003</b>	<b>0.1141</b>	<b>8.1000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.5000e-004</b>	<b>0.0310</b>		<b>115.1849</b>	<b>115.1849</b>	<b>5.2800e-003</b>			<b>115.2959</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	lb/day										lb/day						
Off-Road	4.0482	42.6971	33.8934	0.0399		2.1252	2.1252		1.9797	1.9797	0.0000	4,036.4674	4,036.4674	1.1073			4,059.7211
<b>Total</b>	<b>4.0482</b>	<b>42.6971</b>	<b>33.8934</b>	<b>0.0399</b>		<b>2.1252</b>	<b>2.1252</b>		<b>1.9797</b>	<b>1.9797</b>	<b>0.0000</b>	<b>4,036.4674</b>	<b>4,036.4674</b>	<b>1.1073</b>			<b>4,059.7211</b>

### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0536	0.0483	0.6480	1.4600e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		115.1849	115.1849	5.2800e-003			115.2959
<b>Total</b>	<b>0.0536</b>	<b>0.0483</b>	<b>0.6480</b>	<b>1.4600e-003</b>	<b>0.1141</b>	<b>8.1000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.5000e-004</b>	<b>0.0310</b>		<b>115.1849</b>	<b>115.1849</b>	<b>5.2800e-003</b>			<b>115.2959</b>

### 3.3 Site Preparation - 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	lb/day										lb/day						
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000				0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339		4,003.0859	4,003.0859	1.2265			4,028.8432
<b>Total</b>	<b>4.8382</b>	<b>51.7535</b>	<b>39.3970</b>	<b>0.0391</b>	<b>18.0663</b>	<b>2.7542</b>	<b>20.8205</b>	<b>9.9307</b>	<b>2.5339</b>	<b>12.4646</b>		<b>4,003.0859</b>	<b>4,003.0859</b>	<b>1.2265</b>			<b>4,028.8432</b>

### 3.3 Site Preparation - 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0580	0.7776	1.7500e-003	0.1369	9.7000e-004	0.1379	0.0363	9.0000e-004	0.0372		138.2218	138.2218	6.3400e-003		138.3550
<b>Total</b>	<b>0.0643</b>	<b>0.0580</b>	<b>0.7776</b>	<b>1.7500e-003</b>	<b>0.1369</b>	<b>9.7000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>9.0000e-004</b>	<b>0.0372</b>		<b>138.2218</b>	<b>138.2218</b>	<b>6.3400e-003</b>		<b>138.3550</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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.8382	51.7535	39.3970	0.0391		2.7542	2.7542		2.5339	2.5339	0.0000	4,003.0859	4,003.0859	1.2265		4,028.8432
<b>Total</b>	<b>4.8382</b>	<b>51.7535</b>	<b>39.3970</b>	<b>0.0391</b>	<b>18.0663</b>	<b>2.7542</b>	<b>20.8205</b>	<b>9.9307</b>	<b>2.5339</b>	<b>12.4646</b>	<b>0.0000</b>	<b>4,003.0859</b>	<b>4,003.0859</b>	<b>1.2265</b>		<b>4,028.8432</b>

### 3.3 Site Preparation - 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0580	0.7776	1.7500e-003	0.1369	9.7000e-004	0.1379	0.0363	9.0000e-004	0.0372		138.2218	138.2218	6.3400e-003		138.3550
<b>Total</b>	<b>0.0643</b>	<b>0.0580</b>	<b>0.7776</b>	<b>1.7500e-003</b>	<b>0.1369</b>	<b>9.7000e-004</b>	<b>0.1379</b>	<b>0.0363</b>	<b>9.0000e-004</b>	<b>0.0372</b>		<b>138.2218</b>	<b>138.2218</b>	<b>6.3400e-003</b>		<b>138.3550</b>

### 3.4 Grading - 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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	6.0991	69.5920	46.8050	0.0617		3.3172	3.3172		3.0518	3.0518		6,313.3690	6,313.3690	1.9344		6,353.9915
<b>Total</b>	<b>6.0991</b>	<b>69.5920</b>	<b>46.8050</b>	<b>0.0617</b>	<b>8.6733</b>	<b>3.3172</b>	<b>11.9905</b>	<b>3.5965</b>	<b>3.0518</b>	<b>6.6483</b>		<b>6,313.3690</b>	<b>6,313.3690</b>	<b>1.9344</b>		<b>6,353.9915</b>

### 3.4 Grading - 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0715	0.0645	0.8640	1.9500e-003	0.1521	1.0800e-003	0.1532	0.0404	1.0000e-003	0.0414		153.5798	153.5798	7.0500e-003		153.7278
<b>Total</b>	<b>0.0715</b>	<b>0.0645</b>	<b>0.8640</b>	<b>1.9500e-003</b>	<b>0.1521</b>	<b>1.0800e-003</b>	<b>0.1532</b>	<b>0.0404</b>	<b>1.0000e-003</b>	<b>0.0414</b>		<b>153.5798</b>	<b>153.5798</b>	<b>7.0500e-003</b>		<b>153.7278</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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	6.0991	69.5920	46.8050	0.0617		3.3172	3.3172		3.0518	3.0518	0.0000	6,313.3690	6,313.3690	1.9344		6,353.9915
<b>Total</b>	<b>6.0991</b>	<b>69.5920</b>	<b>46.8050</b>	<b>0.0617</b>	<b>8.6733</b>	<b>3.3172</b>	<b>11.9905</b>	<b>3.5965</b>	<b>3.0518</b>	<b>6.6483</b>	<b>0.0000</b>	<b>6,313.3690</b>	<b>6,313.3690</b>	<b>1.9344</b>		<b>6,353.9915</b>

### 3.4 Grading - 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0715	0.0645	0.8640	1.9500e-003	0.1521	1.0800e-003	0.1532	0.0404	1.0000e-003	0.0414		153.5798	153.5798	7.0500e-003		153.7278
<b>Total</b>	<b>0.0715</b>	<b>0.0645</b>	<b>0.8640</b>	<b>1.9500e-003</b>	<b>0.1521</b>	<b>1.0800e-003</b>	<b>0.1532</b>	<b>0.0404</b>	<b>1.0000e-003</b>	<b>0.0414</b>		<b>153.5798</b>	<b>153.5798</b>	<b>7.0500e-003</b>		<b>153.7278</b>

### 3.5 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	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730		2,639.8053	2,639.8053	0.6497		2,653.4490
<b>Total</b>	<b>3.1024</b>	<b>26.4057</b>	<b>18.1291</b>	<b>0.0268</b>		<b>1.7812</b>	<b>1.7812</b>		<b>1.6730</b>	<b>1.6730</b>		<b>2,639.8053</b>	<b>2,639.8053</b>	<b>0.6497</b>		<b>2,653.4490</b>

### 3.5 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	lb/day										lb/day						
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
Vendor	0.6251	4.2679	7.5716	0.0125	0.3525	0.0666	0.4191	0.1004	0.0612	0.1615		1,231.6191	1,231.6191	9.1900e-003			1,231.8120
Worker	1.3221	1.1924	15.9844	0.0360	2.8146	0.0200	2.8346	0.7466	0.0184	0.7650		2,841.2267	2,841.2267	0.1304			2,843.9642
<b>Total</b>	<b>1.9472</b>	<b>5.4602</b>	<b>23.5559</b>	<b>0.0485</b>	<b>3.1671</b>	<b>0.0866</b>	<b>3.2537</b>	<b>0.8470</b>	<b>0.0796</b>	<b>0.9266</b>		<b>4,072.8458</b>	<b>4,072.8458</b>	<b>0.1396</b>			<b>4,075.7762</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	lb/day										lb/day						
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730	0.0000	2,639.8053	2,639.8053	0.6497			2,653.4490
<b>Total</b>	<b>3.1024</b>	<b>26.4057</b>	<b>18.1291</b>	<b>0.0268</b>		<b>1.7812</b>	<b>1.7812</b>		<b>1.6730</b>	<b>1.6730</b>	<b>0.0000</b>	<b>2,639.8053</b>	<b>2,639.8053</b>	<b>0.6497</b>			<b>2,653.4490</b>

### 3.5 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	lb/day										lb/day						
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
Vendor	0.6251	4.2679	7.5716	0.0125	0.3525	0.0666	0.4191	0.1004	0.0612	0.1615		1,231.6191	1,231.6191	9.1900e-003			1,231.8120
Worker	1.3221	1.1924	15.9844	0.0360	2.8146	0.0200	2.8346	0.7466	0.0184	0.7650		2,841.2267	2,841.2267	0.1304			2,843.9642
<b>Total</b>	<b>1.9472</b>	<b>5.4602</b>	<b>23.5559</b>	<b>0.0485</b>	<b>3.1671</b>	<b>0.0866</b>	<b>3.2537</b>	<b>0.8470</b>	<b>0.0796</b>	<b>0.9266</b>		<b>4,072.8458</b>	<b>4,072.8458</b>	<b>0.1396</b>			<b>4,075.7762</b>

### 3.5 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	lb/day										lb/day						
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048		2,609.9390	2,609.9390	0.6387			2,623.3517
<b>Total</b>	<b>2.6687</b>	<b>23.2608</b>	<b>17.5327</b>	<b>0.0268</b>		<b>1.4943</b>	<b>1.4943</b>		<b>1.4048</b>	<b>1.4048</b>		<b>2,609.9390</b>	<b>2,609.9390</b>	<b>0.6387</b>			<b>2,623.3517</b>



### 3.5 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	lb/day										lb/day						
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
Vendor	0.5196	3.8471	6.6072	0.0125	0.3525	0.0612	0.4136	0.1003	0.0562	0.1566		1,208.887 2	1,208.887 2	8.9600e- 003			1,209.075 3
Worker	1.1860	1.0743	14.4174	0.0360	2.8146	0.0196	2.8342	0.7466	0.0181	0.7647		2,734.022 0	2,734.022 0	0.1200			2,736.541 0
<b>Total</b>	<b>1.7056</b>	<b>4.9213</b>	<b>21.0246</b>	<b>0.0485</b>	<b>3.1670</b>	<b>0.0808</b>	<b>3.2478</b>	<b>0.8469</b>	<b>0.0744</b>	<b>0.9213</b>		<b>3,942.909 2</b>	<b>3,942.909 2</b>	<b>0.1289</b>			<b>3,945.616 3</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	lb/day										lb/day						
Off-Road	2.6687	23.2608	17.5327	0.0268		1.4943	1.4943		1.4048	1.4048	0.0000	2,609.938 9	2,609.938 9	0.6387			2,623.351 7
<b>Total</b>	<b>2.6687</b>	<b>23.2608</b>	<b>17.5327</b>	<b>0.0268</b>		<b>1.4943</b>	<b>1.4943</b>		<b>1.4048</b>	<b>1.4048</b>	<b>0.0000</b>	<b>2,609.938 9</b>	<b>2,609.938 9</b>	<b>0.6387</b>			<b>2,623.351 7</b>

### 3.5 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	lb/day										lb/day						
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
Vendor	0.5196	3.8471	6.6072	0.0125	0.3525	0.0612	0.4136	0.1003	0.0562	0.1566		1,208.887 2	1,208.887 2	8.9600e- 003			1,209.075 3
Worker	1.1860	1.0743	14.4174	0.0360	2.8146	0.0196	2.8342	0.7466	0.0181	0.7647		2,734.022 0	2,734.022 0	0.1200			2,736.541 0
<b>Total</b>	<b>1.7056</b>	<b>4.9213</b>	<b>21.0246</b>	<b>0.0485</b>	<b>3.1670</b>	<b>0.0808</b>	<b>3.2478</b>	<b>0.8469</b>	<b>0.0744</b>	<b>0.9213</b>		<b>3,942.909 2</b>	<b>3,942.909 2</b>	<b>0.1289</b>			<b>3,945.616 3</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	lb/day										lb/day						
Off-Road	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635		2,245.269 5	2,245.269 5	0.6990			2,259.948 1
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
<b>Total</b>	<b>1.6114</b>	<b>17.1628</b>	<b>14.4944</b>	<b>0.0223</b>		<b>0.9386</b>	<b>0.9386</b>		<b>0.8635</b>	<b>0.8635</b>		<b>2,245.269 5</b>	<b>2,245.269 5</b>	<b>0.6990</b>			<b>2,259.948 1</b>

### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0481	0.0436	0.5845	1.4600e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		110.8387	110.8387	4.8600e-003			110.9409
<b>Total</b>	<b>0.0481</b>	<b>0.0436</b>	<b>0.5845</b>	<b>1.4600e-003</b>	<b>0.1141</b>	<b>7.9000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>110.8387</b>	<b>110.8387</b>	<b>4.8600e-003</b>			<b>110.9409</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	lb/day										lb/day						
Off-Road	1.6114	17.1628	14.4944	0.0223		0.9386	0.9386		0.8635	0.8635	0.0000	2,245.2695	2,245.2695	0.6990			2,259.9481
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
<b>Total</b>	<b>1.6114</b>	<b>17.1628</b>	<b>14.4944</b>	<b>0.0223</b>		<b>0.9386</b>	<b>0.9386</b>		<b>0.8635</b>	<b>0.8635</b>	<b>0.0000</b>	<b>2,245.2695</b>	<b>2,245.2695</b>	<b>0.6990</b>			<b>2,259.9481</b>

### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0481	0.0436	0.5845	1.4600e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		110.8387	110.8387	4.8600e-003			110.9409
<b>Total</b>	<b>0.0481</b>	<b>0.0436</b>	<b>0.5845</b>	<b>1.4600e-003</b>	<b>0.1141</b>	<b>7.9000e-004</b>	<b>0.1149</b>	<b>0.0303</b>	<b>7.3000e-004</b>	<b>0.0310</b>		<b>110.8387</b>	<b>110.8387</b>	<b>4.8600e-003</b>			<b>110.9409</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	lb/day										lb/day						
Archit. Coating	337.4160					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267			282.0102
<b>Total</b>	<b>337.7146</b>	<b>2.0058</b>	<b>1.8542</b>	<b>2.9700e-003</b>		<b>0.1506</b>	<b>0.1506</b>		<b>0.1506</b>	<b>0.1506</b>		<b>281.4485</b>	<b>281.4485</b>	<b>0.0267</b>			<b>282.0102</b>

### 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	lb/day										lb/day						
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.2372	0.2149	2.8835	7.2000e-003	0.5629	3.9200e-003	0.5668	0.1493	3.6300e-003	0.1529		546.8044	546.8044	0.0240			547.3082
<b>Total</b>	<b>0.2372</b>	<b>0.2149</b>	<b>2.8835</b>	<b>7.2000e-003</b>	<b>0.5629</b>	<b>3.9200e-003</b>	<b>0.5668</b>	<b>0.1493</b>	<b>3.6300e-003</b>	<b>0.1529</b>		<b>546.8044</b>	<b>546.8044</b>	<b>0.0240</b>			<b>547.3082</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	lb/day										lb/day						
Archit. Coating	337.4160					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267			282.0102
<b>Total</b>	<b>337.7146</b>	<b>2.0058</b>	<b>1.8542</b>	<b>2.9700e-003</b>		<b>0.1506</b>	<b>0.1506</b>		<b>0.1506</b>	<b>0.1506</b>	<b>0.0000</b>	<b>281.4485</b>	<b>281.4485</b>	<b>0.0267</b>			<b>282.0102</b>

### 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	lb/day										lb/day					
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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2372	0.2149	2.8835	7.2000e-003	0.5629	3.9200e-003	0.5668	0.1493	3.6300e-003	0.1529		546.8044	546.8044	0.0240		547.3082
<b>Total</b>	<b>0.2372</b>	<b>0.2149</b>	<b>2.8835</b>	<b>7.2000e-003</b>	<b>0.5629</b>	<b>3.9200e-003</b>	<b>0.5668</b>	<b>0.1493</b>	<b>3.6300e-003</b>	<b>0.1529</b>		<b>546.8044</b>	<b>546.8044</b>	<b>0.0240</b>		<b>547.3082</b>

### 4.0 Operational Detail - Mobile

#### 4.1 Mitigation Measures Mobile

	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	lb/day										lb/day					
Mitigated	7.2714	11.3683	68.8230	0.2344	15.7002	0.2349	15.9351	4.1946	0.2169	4.4115		16,918.6019	16,918.6019	0.5096		16,929.3031
Unmitigated	7.2714	11.3683	68.8230	0.2344	15.7002	0.2349	15.9351	4.1946	0.2169	4.4115		16,918.6019	16,918.6019	0.5096		16,929.3031

### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	918.31	918.31	918.31	2,356,484	2,356,484
City Park	0.00	0.00	0.00		
Condo/Townhouse	1,970.25	1,970.25	1,970.25	5,055,876	5,055,876
Recreational Swimming Pool	0.00	0.00	0.00		
<b>Total</b>	<b>2,888.56</b>	<b>2,888.56</b>	<b>2,888.56</b>	<b>7,412,360</b>	<b>7,412,360</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
Apartments Mid Rise	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Condo/Townhouse	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Recreational Swimming Pool	10.00	5.00	6.50	33.00	48.00	19.00	52	39	9

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.507716	0.068869	0.175522	0.144726	0.043865	0.006529	0.021763	0.017270	0.002362	0.002281	0.006385	0.000530	0.002181

### 5.0 Energy Detail

#### 5.0.1 Fleet Mix

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	lb/day										lb/day					
NaturalGas Mitigated	0.2107	1.8008	0.7663	0.0115		0.1456	0.1456		0.1456	0.1456		2,298.9238	2,298.9238	0.0441	0.0422	2,312.9146
NaturalGas Unmitigated	0.2107	1.8008	0.7663	0.0115		0.1456	0.1456		0.1456	0.1456		2,298.9238	2,298.9238	0.0441	0.0422	2,312.9146

### 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	lb/day										lb/day					
Apartments Mid Rise	2839.71	0.0306	0.2617	0.1114	1.6700e-003		0.0212	0.0212		0.0212	0.0212		334.0832	334.0832	6.4000e-003	6.1200e-003	336.1163
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	16701.1	0.1801	1.5391	0.6550	9.8200e-003		0.1244	0.1244		0.1244	0.1244		1,964.8406	1,964.8406	0.0377	0.0360	1,976.7983
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.2107</b>	<b>1.8008</b>	<b>0.7663</b>	<b>0.0115</b>		<b>0.1456</b>	<b>0.1456</b>		<b>0.1456</b>	<b>0.1456</b>		<b>2,298.9238</b>	<b>2,298.9238</b>	<b>0.0441</b>	<b>0.0421</b>	<b>2,312.9146</b>



### 5.2 Energy by Land Use - NaturalGas

#### 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	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	16.7011	0.1801	1.5391	0.6550	9.8200e-003		0.1244	0.1244		0.1244	0.1244		1,964.8406	1,964.8406	0.0377	0.0360	1,976.7983
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Mid Rise	2.83971	0.0306	0.2617	0.1114	1.6700e-003		0.0212	0.0212		0.0212	0.0212		334.0832	334.0832	6.4000e-003	6.1200e-003	336.1163
<b>Total</b>		<b>0.2107</b>	<b>1.8008</b>	<b>0.7663</b>	<b>0.0115</b>		<b>0.1456</b>	<b>0.1456</b>		<b>0.1456</b>	<b>0.1456</b>		<b>2,298.9238</b>	<b>2,298.9238</b>	<b>0.0441</b>	<b>0.0421</b>	<b>2,312.9146</b>

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	14.4775	0.4614	40.0586	2.1200e-003		0.2223	0.2223		0.2223	0.2223	0.0000	72.1984	72.1984	0.0691	0.0000	73.6504
Unmitigated	14.4775	0.4614	40.0586	2.1200e-003		0.2223	0.2223		0.2223	0.2223	0.0000	72.1984	72.1984	0.0691	0.0000	73.6504

### 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	lb/day										lb/day					
Architectural Coating	1.8489					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.4259					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	1.2028	0.4614	40.0586	2.1200e-003		0.2223	0.2223		0.2223	0.2223		72.1984	72.1984	0.0691		73.6504
<b>Total</b>	<b>14.4775</b>	<b>0.4614</b>	<b>40.0586</b>	<b>2.1200e-003</b>		<b>0.2223</b>	<b>0.2223</b>		<b>0.2223</b>	<b>0.2223</b>	<b>0.0000</b>	<b>72.1984</b>	<b>72.1984</b>	<b>0.0691</b>	<b>0.0000</b>	<b>73.6504</b>

## 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	lb/day										lb/day					
Architectural Coating	1.8489					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.4259					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	1.2028	0.4614	40.0586	2.1200e-003		0.2223	0.2223		0.2223	0.2223		72.1984	72.1984	0.0691		73.6504
<b>Total</b>	<b>14.4775</b>	<b>0.4614</b>	<b>40.0586</b>	<b>2.1200e-003</b>		<b>0.2223</b>	<b>0.2223</b>		<b>0.2223</b>	<b>0.2223</b>	<b>0.0000</b>	<b>72.1984</b>	<b>72.1984</b>	<b>0.0691</b>	<b>0.0000</b>	<b>73.6504</b>

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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## 10.0 Vegetation

## Twin Rivers RT Station Construction Sacramento County, Summer

### 1.0 Project Characteristics

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#### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.50	Acre	0.50	21,780.00	0

#### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	3.5	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	6			<b>Operational Year</b>	2025
<b>Utility Company</b>	Sacramento Municipal Utility District				
<b>CO2 Intensity (lb/MW hr)</b>	590.31	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

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

Project Characteristics -

Land Use -

Construction Phase - LT Station construction

Off-road Equipment - Adjust for equipment used  
Bobcat and loader both accounted for in Tractors/Loaders/Backhoes

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	386.00
tblProjectCharacteristics	OperationalYear	2014	2025

### 2.0 Emissions Summary

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## 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	lb/day										lb/day					
Area	0.5491	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Energy	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
Mobile	1.8500e-003	2.4400e-003	0.0148	5.0000e-005	3.1100e-003	5.0000e-005	3.1600e-003	8.3000e-004	4.0000e-005	8.7000e-004		3.3891	3.3891	1.0000e-004		3.3913
<b>Total</b>	<b>0.5509</b>	<b>2.4400e-003</b>	<b>0.0148</b>	<b>5.0000e-005</b>	<b>3.1100e-003</b>	<b>5.0000e-005</b>	<b>3.1600e-003</b>	<b>8.3000e-004</b>	<b>4.0000e-005</b>	<b>8.7000e-004</b>		<b>3.3892</b>	<b>3.3892</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>3.3914</b>

### 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	lb/day										lb/day					
Area	0.5491	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Energy	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
Mobile	1.8500e-003	2.4400e-003	0.0148	5.0000e-005	3.1100e-003	5.0000e-005	3.1600e-003	8.3000e-004	4.0000e-005	8.7000e-004		3.3891	3.3891	1.0000e-004		3.3913
<b>Total</b>	<b>0.5509</b>	<b>2.4400e-003</b>	<b>0.0148</b>	<b>5.0000e-005</b>	<b>3.1100e-003</b>	<b>5.0000e-005</b>	<b>3.1600e-003</b>	<b>8.3000e-004</b>	<b>4.0000e-005</b>	<b>8.7000e-004</b>		<b>3.3892</b>	<b>3.3892</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>3.3914</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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	1/1/2017	6/25/2018	5	386	

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 (Architectural Coating – sqft)

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Pavers	1	8.00	125	0.42
Building Construction	Pumps	1	8.00	84	0.74
Building Construction	Rollers	2	8.00	80	0.38
Building Construction	Rubber Tired Dozers	2	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	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
Building Construction	9	9.00	4.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

### 3.2 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	lb/day										lb/day					
Off-Road	4.9188	50.6853	36.6963	0.0432		2.7884	2.7884		2.5905	2.5905		4,366.5429	4,366.5429	1.2007		4,391.7581
<b>Total</b>	<b>4.9188</b>	<b>50.6853</b>	<b>36.6963</b>	<b>0.0432</b>		<b>2.7884</b>	<b>2.7884</b>		<b>2.5905</b>	<b>2.5905</b>		<b>4,366.5429</b>	<b>4,366.5429</b>	<b>1.2007</b>		<b>4,391.7581</b>



### 3.2 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	lb/day										lb/day						
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
Vendor	0.0417	0.2845	0.5048	8.3000e-004	0.0235	4.4400e-003	0.0279	6.6900e-003	4.0800e-003	0.0108		82.1079	82.1079	6.1000e-004			82.1208
Worker	0.0322	0.0290	0.3888	8.8000e-004	0.0685	4.9000e-004	0.0690	0.0182	4.5000e-004	0.0186		69.1109	69.1109	3.1700e-003			69.1775
<b>Total</b>	<b>0.0738</b>	<b>0.3135</b>	<b>0.8936</b>	<b>1.7100e-003</b>	<b>0.0920</b>	<b>4.9300e-003</b>	<b>0.0969</b>	<b>0.0249</b>	<b>4.5300e-003</b>	<b>0.0294</b>		<b>151.2189</b>	<b>151.2189</b>	<b>3.7800e-003</b>			<b>151.2983</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	lb/day										lb/day						
Off-Road	4.9188	50.6853	36.6963	0.0432		2.7884	2.7884		2.5905	2.5905	0.0000	4,366.5429	4,366.5429	1.2007			4,391.7581
<b>Total</b>	<b>4.9188</b>	<b>50.6853</b>	<b>36.6963</b>	<b>0.0432</b>		<b>2.7884</b>	<b>2.7884</b>		<b>2.5905</b>	<b>2.5905</b>	<b>0.0000</b>	<b>4,366.5429</b>	<b>4,366.5429</b>	<b>1.2007</b>			<b>4,391.7581</b>

### 3.2 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	lb/day										lb/day						
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
Vendor	0.0417	0.2845	0.5048	8.3000e-004	0.0235	4.4400e-003	0.0279	6.6900e-003	4.0800e-003	0.0108		82.1079	82.1079	6.1000e-004			82.1208
Worker	0.0322	0.0290	0.3888	8.8000e-004	0.0685	4.9000e-004	0.0690	0.0182	4.5000e-004	0.0186		69.1109	69.1109	3.1700e-003			69.1775
<b>Total</b>	<b>0.0738</b>	<b>0.3135</b>	<b>0.8936</b>	<b>1.7100e-003</b>	<b>0.0920</b>	<b>4.9300e-003</b>	<b>0.0969</b>	<b>0.0249</b>	<b>4.5300e-003</b>	<b>0.0294</b>		<b>151.2189</b>	<b>151.2189</b>	<b>3.7800e-003</b>			<b>151.2983</b>

### 3.2 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	lb/day										lb/day						
Off-Road	4.3244	44.6206	34.3225	0.0432		2.3861	2.3861		2.2174	2.2174		4,307.7963	4,307.7963	1.1943			4,332.8757
<b>Total</b>	<b>4.3244</b>	<b>44.6206</b>	<b>34.3225</b>	<b>0.0432</b>		<b>2.3861</b>	<b>2.3861</b>		<b>2.2174</b>	<b>2.2174</b>		<b>4,307.7963</b>	<b>4,307.7963</b>	<b>1.1943</b>			<b>4,332.8757</b>

### 3.2 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	lb/day										lb/day						
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
Vendor	0.0346	0.2565	0.4405	8.3000e-004	0.0235	4.0800e-003	0.0276	6.6900e-003	3.7500e-003	0.0104		80.5925	80.5925	6.0000e-004			80.6050
Worker	0.0289	0.0261	0.3507	8.8000e-004	0.0685	4.8000e-004	0.0689	0.0182	4.4000e-004	0.0186		66.5032	66.5032	2.9200e-003			66.5645
<b>Total</b>	<b>0.0635</b>	<b>0.2826</b>	<b>0.7912</b>	<b>1.7100e-003</b>	<b>0.0920</b>	<b>4.5600e-003</b>	<b>0.0965</b>	<b>0.0249</b>	<b>4.1900e-003</b>	<b>0.0290</b>		<b>147.0957</b>	<b>147.0957</b>	<b>3.5200e-003</b>			<b>147.1695</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	lb/day										lb/day						
Off-Road	4.3244	44.6206	34.3225	0.0432		2.3861	2.3861		2.2174	2.2174	0.0000	4,307.7963	4,307.7963	1.1943			4,332.8757
<b>Total</b>	<b>4.3244</b>	<b>44.6206</b>	<b>34.3225</b>	<b>0.0432</b>		<b>2.3861</b>	<b>2.3861</b>		<b>2.2174</b>	<b>2.2174</b>	<b>0.0000</b>	<b>4,307.7963</b>	<b>4,307.7963</b>	<b>1.1943</b>			<b>4,332.8757</b>

### 3.2 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	lb/day										lb/day					
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
Vendor	0.0346	0.2565	0.4405	8.3000e-004	0.0235	4.0800e-003	0.0276	6.6900e-003	3.7500e-003	0.0104		80.5925	80.5925	6.0000e-004		80.6050
Worker	0.0289	0.0261	0.3507	8.8000e-004	0.0685	4.8000e-004	0.0689	0.0182	4.4000e-004	0.0186		66.5032	66.5032	2.9200e-003		66.5645
<b>Total</b>	<b>0.0635</b>	<b>0.2826</b>	<b>0.7912</b>	<b>1.7100e-003</b>	<b>0.0920</b>	<b>4.5600e-003</b>	<b>0.0965</b>	<b>0.0249</b>	<b>4.1900e-003</b>	<b>0.0290</b>		<b>147.0957</b>	<b>147.0957</b>	<b>3.5200e-003</b>		<b>147.1695</b>

### 4.0 Operational Detail - Mobile

#### 4.1 Mitigation Measures Mobile

	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	lb/day										lb/day					
Mitigated	1.8500e-003	2.4400e-003	0.0148	5.0000e-005	3.1100e-003	5.0000e-005	3.1600e-003	8.3000e-004	4.0000e-005	8.7000e-004		3.3891	3.3891	1.0000e-004		3.3913
Unmitigated	1.8500e-003	2.4400e-003	0.0148	5.0000e-005	3.1100e-003	5.0000e-005	3.1600e-003	8.3000e-004	4.0000e-005	8.7000e-004		3.3891	3.3891	1.0000e-004		3.3913

### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.80	0.80	0.80	1,467	1,467
Total	0.80	0.80	0.80	1,467	1,467

### 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
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.507716	0.068869	0.175522	0.144726	0.043865	0.006529	0.021763	0.017270	0.002362	0.002281	0.006385	0.000530	0.002181

### 5.0 Energy Detail

#### 4.4 Fleet Mix

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
lb/day											lb/day					
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

### 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	lb/day										lb/day						
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<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>		<b>0.0000</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>	<b>0.0000</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	lb/day										lb/day						
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<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>		<b>0.0000</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>	<b>0.0000</b>

### 6.0 Area Detail

#### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5491	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Unmitigated	0.5491	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004

## 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	lb/day										lb/day					
Architectural Coating	0.0830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.4661					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
<b>Total</b>	<b>0.5491</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>1.1000e-004</b>	<b>1.1000e-004</b>	<b>0.0000</b>		<b>1.2000e-004</b>

## 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	lb/day										lb/day					
Consumer Products	0.4661					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Architectural Coating	0.0830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.5491</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>1.1000e-004</b>	<b>1.1000e-004</b>	<b>0.0000</b>		<b>1.2000e-004</b>

## 7.0 Water Detail

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### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

## 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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## 10.0 Vegetation

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## Coastal Zone Management Act (CEST and EA)

General requirements	Legislation	Regulation
Federal assistance to applicant agencies for activities affecting any coastal use or resource is granted only when such activities are consistent with federally approved State Coastal Zone Management Act Plans.	Coastal Zone Management Act (16 USC 1451-1464), particularly section 307(c) and (d) (16 USC 1456(c) and (d))	15 CFR Part 930
References		
<a href="https://www.onecpd.info/environmental-review/coastal-zone-management">https://www.onecpd.info/environmental-review/coastal-zone-management</a>		

Projects located in the following states must complete this form.

Alabama	Florida	Louisiana	Mississippi	Ohio	Texas
Alaska	Georgia	Maine	New Hampshire	Oregon	Virgin Islands
American Samona	Guam	Maryland	New Jersey	Pennsylvania	Virginia
California	Hawaii	Massachusetts	New York	Puerto Rico	Washington
Connecticut	Illinois	Michigan	North Carolina	Rhode Island	Wisconsin
Delaware	Indiana	Minnesota	Northern Mariana Islands	South Carolina	

**1. Is the project located in, or does it affect, a Coastal Zone as defined in your state Coastal Management Plan?**

Yes → *Continue to Question 2.*

No → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within a Coastal Zone.*

**2. Does this project include activities that are subject to state review?**

Yes → *Continue to Question 3.*

No → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination.*

**3. Has this project been determined to be consistent with the State Coastal Management Program?**

Yes, with mitigation. → *Continue to Question 4.*

Yes, without mitigation. → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination.*

No, project must be canceled.

Project cannot proceed at this location.

4. Explain in detail the proposed measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.

→ Continue to the Worksheet Summary below. Provide documentation of the consultation (including the State Coastal Management Program letter of consistency) and any other documentation used to make your determination.

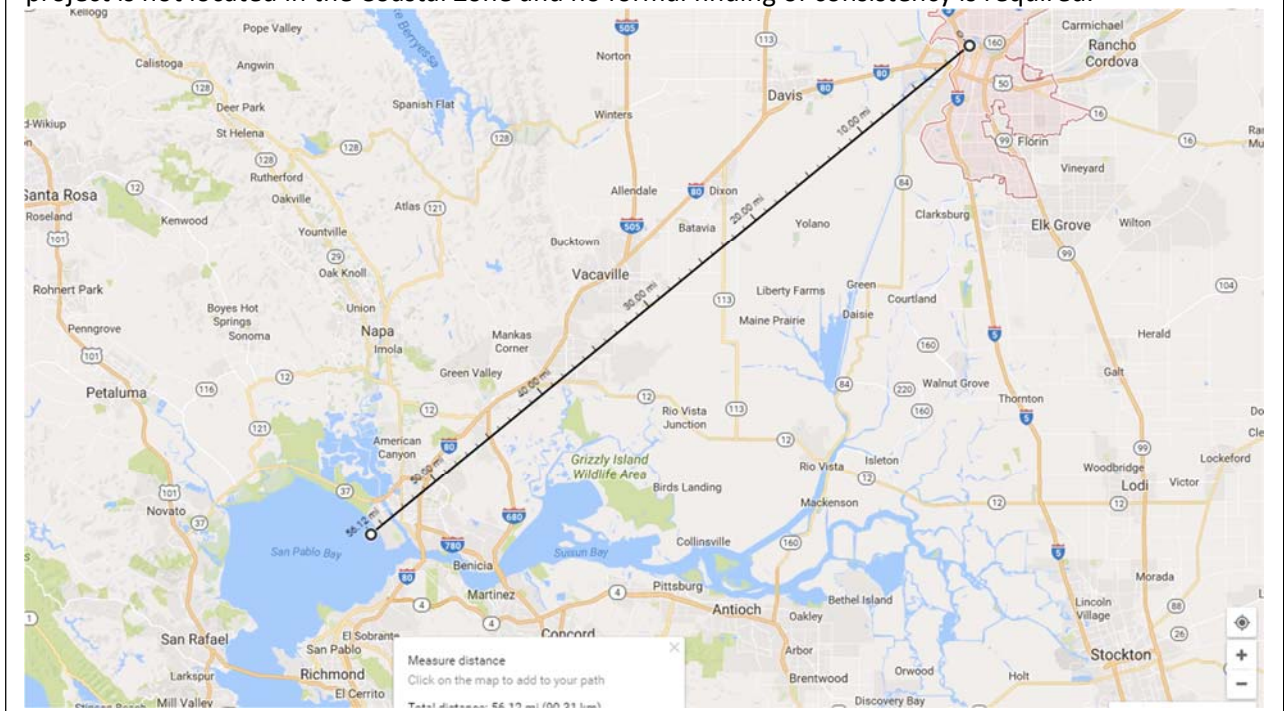
**Worksheet Summary**

**Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

The proposed project, located at in Sacramento, as shown in the figure below provided by Google Earth, is located inland of the 100 foot BCDC coastal zone jurisdiction by over 50 miles. Thus, the project is not located in the Coastal Zone and no formal finding of consistency is required.



**Are formal compliance steps or mitigation required?**

- Yes
- No

## Endangered Species Act (CEST and EA)

General requirements	ESA Legislation	Regulations
Section 7 of the Endangered Species Act (ESA) mandates that federal agencies ensure that actions that they authorize, fund, or carry out shall not jeopardize the continued existence of federally listed plants and animals or result in the adverse modification or destruction of designated critical habitat. Where their actions may affect resources protected by the ESA, agencies must consult with the Fish and Wildlife Service and/or the National Marine Fisheries Service (“FWS” and “NMFS” or “the Services”).	The Endangered Species Act of 1973 (16 U.S.C. 1531 <i>et seq.</i> ); particularly section 7 (16 USC 1536).	50 CFR Part 402
<b>References</b>		
<a href="https://www.hudexchange.info/environmental-review/endangered-species">https://www.hudexchange.info/environmental-review/endangered-species</a>		

### 1. Does the project involve any activities that have the potential to affect species or habitats?

No, the project will have No Effect due to the nature of the activities involved in the project.

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.*

No, the project will have No Effect based on a letter of understanding, memorandum of agreement, programmatic agreement, or checklist provided by local HUD office.

Explain your determination:

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.*

Yes, the activities involved in the project have the potential to affect species and/or habitats. → *Continue to Question 2.*

### Are federally listed species or designated critical habitats present in the action area?

Obtain a list of protected species from the Services. This information is available on the [FWS Website](#) or you may contact your [local FWS](#) and/or [NMFS](#) offices directly.

No, the project will have No Effect due to the absence of federally listed species and designated critical habitat.

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination. Documentation may include letters from the Services, species lists from the Services' websites, surveys or other documents and analysis showing that there are no species in the action area.*

Yes, there are federally listed species or designated critical habitats present in the action area. → *Continue to Question 3.*

**2. What effects, if any, will your project have on federally listed species or designated critical habitat?**

No Effect: Based on the specifics of both the project and any federally listed species in the action area, you have determined that the project will have absolutely no effect on listed species or critical habitat.

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination. Documentation should include a species list and explanation of your conclusion, and may require maps, photographs, and surveys as appropriate.*

May Affect, Not Likely to Adversely Affect: Any effects that the project may have on federally listed species or critical habitats would be beneficial, discountable, or insignificant.

→ *Continue to Question 4, Informal Consultation.*

Likely to Adversely Affect: The project may have negative effects on one or more listed species or critical habitat.

→ *Continue to Question 5, Formal Consultation.*

**3. Informal Consultation is required**

Section 7 of ESA (16 USC. 1536) mandates consultation to resolve potential impacts to endangered and threatened species and critical habitats. If a HUD-assisted project may affect any federally listed endangered or threatened species or critical habitat, then compliance is required with Section 7. See 50 CFR Part 402 Subpart B Consultation Procedures.

**Did the Service(s) concur with the finding that the project is Not Likely to Adversely Affect?**

Yes, the Service(s) concurred with the finding.

→ *Based on the response, the review is in compliance with this section. Continue to Question 6 and provide the following:*

- (1) A biological evaluation or equivalent document*
- (2) Concurrence(s) from FWS and/or NMFS*
- (3) Any other documentation of informal consultation*

*Exception: If finding was made based on procedures provided by a letter of understanding, memorandum of agreement, programmatic agreement, or checklist provided by local HUD office, provide whatever documentation is mandated by that agreement.*

No, the Service(s) did not concur with the finding. → Continue to Question 5.

**4. Formal consultation is required**

Section 7 of ESA (16 USC 1536) mandates consultation to resolve potential impacts to federally listed endangered and threatened species and critical habitats. If a HUD assisted project may affect any endangered or threatened species or critical habitat, then compliance is required with Section 7. See 50 CFR Part 402 Subpart B Consultation Procedures.

→ Once consultation is complete, the review is in compliance with this section. Continue to Question 6 and provide the following:

- (1) A biological assessment, evaluation, or equivalent document
- (2) Biological opinion(s) issued by FWS and/or NMFS
- (3) Any other documentation of formal consultation

**5. For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the proposed measures that will be implemented to mitigate for the impact or effect, including the timeline for implementation.**

Mitigation as follows will be implemented:

Mitigation will be required as per the attached Biological Opinion.

No mitigation is necessary.

**Explain why mitigation will not be made here:**

**Worksheet Summary**

**Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

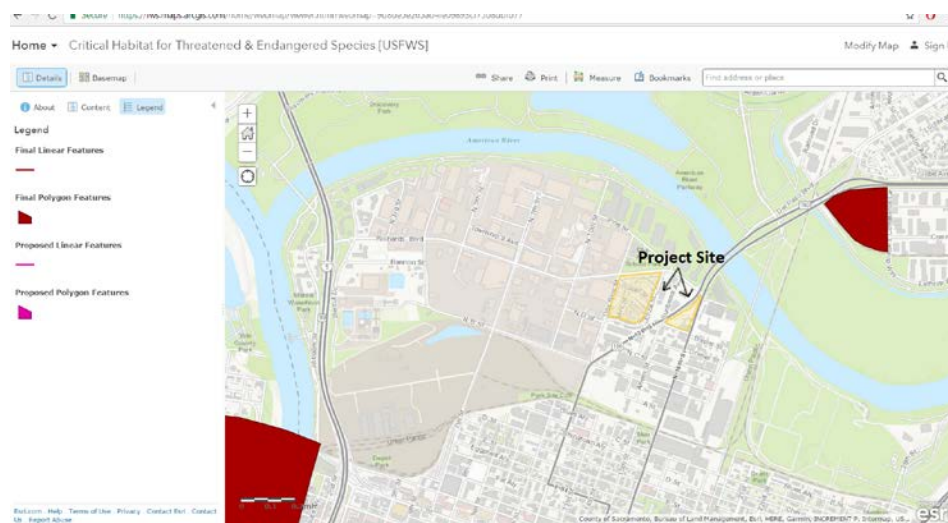
- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers

- Any additional requirements specific to your region

--[See Table on next page]

Acting in its role as the Responsible Entity for the project as specified in 24 CFR 58.5, the City contacted the U.S. Fish and Wildlife Service (USFWS) to determine whether federally listed threatened or endangered species under its jurisdiction would be likely to occur in the project area. The Service's response was received on April 29, 2016, and identified a total of eight listed species that are known to occur in the general project vicinity. Biological resources surveys conducted at the project site determined that only one Federally listed species has the potential to occur on the project site and could be affected by implementing the project: the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). The beetle is Federally listed as threatened. Accordingly, in conjunction with SHRA, the City prepared a Biological Assessment (BA) for the project area that considered the likelihood of occurrence for the beetle, and the potential effects that could occur from implementation of the proposed project. The BA is attached herewith, along with associated correspondence with USFWS. The BA was forwarded to USFWS on September 6, 2016 for its review, together with a request that USFWS concur with the BA's finding that with implementation of applicable conservation measures, the project would be unlikely to adversely affect the beetle. The USFWS emailed the City on October 12, 2016 requesting additional information on the City's proposed conservation measures for the beetle, and on December 13, 2016 the USFWS received an email from the City clarifying the proposed measures. The USFWS issued a Biological Opinion (BO) on December 28, 2016, in which it found that with implementation of specified conservation measures, the proposed project and its cumulative effects would not be likely to jeopardize the continued existence of the beetle. Accordingly, the City has satisfied its consultation requirements with USFWS, and further consultation is not necessary. Please refer to:

1. Attached USFWS Section 7 Consultation Record



**Are formal compliance steps or mitigation required?**

Yes

No



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office

FEDERAL BUILDING, 2800 COTTAGE WAY, ROOM W-2605

SACRAMENTO, CA 95825

PHONE: (916)414-6600 FAX: (916)414-6713

Consultation Code: 08ESMF00-2016-SLI-1398

April 29, 2016

Event Code: 08ESMF00-2016-E-03019

Project Name: Twin Rivers Transit-Oriented Development and Light Rail Station Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

[http://www.nwr.noaa.gov/protected\\_species/species\\_list/species\\_lists.html](http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html)

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)



of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior  
Fish and Wildlife Service

Project name: Twin Rivers Transit-Oriented Development and Light Rail Station Project

## Official Species List

### Provided by:

Sacramento Fish and Wildlife Office  
FEDERAL BUILDING  
2800 COTTAGE WAY, ROOM W-2605  
SACRAMENTO, CA 95825  
(916) 414-6600

**Consultation Code:** 08ESMF00-2016-SLI-1398

**Event Code:** 08ESMF00-2016-E-03019

**Project Type:** \*\* OTHER \*\*

**Project Name:** Twin Rivers Transit-Oriented Development and Light Rail Station Project

**Project Description:** The site is comprised of two areas totaling approximately 24.2 acres that are separated from one another by North 12th Street. The larger and westernmost area is comprised of a single parcel, approximately 21 acres in size. It is generally bounded by Dos Rios Street to the west, Richards Boulevard to the northeast, Louise Street to the east, and North 12th Street to the south. The second and easternmost area is separated from the first by intervening parcels and North 12th Street. It is comprised of six parcels totaling approximately 3.2 acres.

The project is comprised of the following components: 1.) redevelop the Twin Rivers Community Housing Complex west of North 12th Street, 2.) construct the Twin Rivers Community Housing Expansion Area east of N 12th Street, and 3.) develop the new Dos Rios Light Rail Station on the eastern side of N 12th Street, adjacent to the expansion area.

The redevelopment of the existing housing complex and construction of the expansion area housing east of North 12th Street would take approximately seven years, beginning in 2017 with anticipated project completion in 2023. Acquisition, infrastructure availability, market conditions, demolition, and the timing of the new Dos Rios light rail station construction would have an impact on the phasing of physical development of the housing facilities. On the Twin Rivers Community Housing Expansion Area parcels, it is likely that the new light rail station would be constructed prior to the construction of the adjacent housing.

The project would be separated into phases to meet market conditions and also to potentially



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Project name: Twin Rivers Transit-Oriented Development and Light Rail Station Project

facilitate efficient relocation of residents from existing units into new replacement housing as the existing units are demolished.

Physical construction of the housing facilities would occur in typical fashion, with demolition occurring first, followed by site preparation and grading, construction of roadways and utility improvements, and then construction of the housing units. Construction of the housing units would begin with the pouring of foundations, followed by framing and installation of rough electrical, plumbing, and heating, ventilation, and cooling (HVAC) components. Interior and exterior walls would be finished, followed by final fitting out of interior components and exterior landscaping.

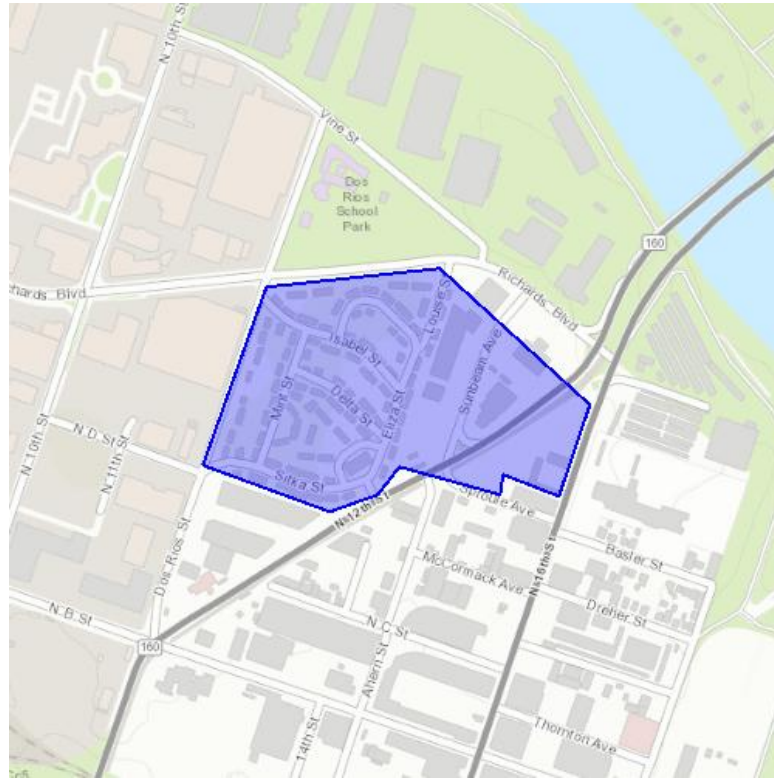
**Please Note:** The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



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Fish and Wildlife Service

Project name: Twin Rivers Transit-Oriented Development and Light Rail Station Project

**Project Location Map:**



**Project Coordinates:** MULTIPOLYGON (((-121.48404225070406 38.595159328556164, -121.48113012281101 38.59539889825305, -121.478624188494 38.59361397217753, -121.4791300527213 38.592416085914444, -121.4800649636527 38.59271553849741, -121.48013394998998 38.59244602288627, -121.48181987944552 38.59281734041137, -121.4821724288413 38.59245197690835, -121.48296947383642 38.592218435357516, -121.48510751660069 38.59283536949265, -121.48404225070406 38.595159328556164)))

**Project Counties:** Sacramento, CA



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Fish and Wildlife Service

Project name: Twin Rivers Transit-Oriented Development and Light Rail Station Project

## Endangered Species Act Species List

There are a total of 8 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	Status	Has Critical Habitat	Condition(s)
California red-legged frog ( <i>Rana draytonii</i> ) Population: Entire	Threatened	Final designated	
California tiger Salamander ( <i>Ambystoma californiense</i> ) Population: U.S.A. (Central CA DPS)	Threatened	Final designated	
<b>Crustaceans</b>			
Vernal Pool fairy shrimp ( <i>Branchinecta lynchi</i> ) Population: Entire	Threatened	Final designated	
Vernal Pool tadpole shrimp ( <i>Lepidurus packardii</i> ) Population: Entire	Endangered	Final designated	
<b>Fishes</b>			
Delta smelt ( <i>Hypomesus transpacificus</i> ) Population: Entire	Threatened	Final designated	
steelhead ( <i>Oncorhynchus (=salmo)</i> )	Threatened	Final designated	



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Project name: Twin Rivers Transit-Oriented Development and Light Rail Station Project

<i>mykiss</i> Population: Northern California DPS			
<b>Insects</b>			
Valley Elderberry Longhorn beetle ( <i>Desmocerus californicus dimorphus</i> ) Population: Entire	Threatened	Final designated	
<b>Reptiles</b>			
Giant Garter snake ( <i>Thamnophis gigas</i> ) Population: Entire	Threatened		



United States Department of Interior  
Fish and Wildlife Service

Project name: Twin Rivers Transit-Oriented Development and Light Rail Station Project

## **Critical habitats that lie within your project area**

There are no critical habitats within your project area.

Kellie Berry  
U.S. Fish and Wildlife Service  
2800 Cottage Way, Rm W-2605  
Sacramento, CA 95825

Dear Ms. Berry,

This is a request for formal consultation under Section 7 of the Endangered Species Act. The City of Sacramento is proposing to undertake an activity utilizing funds under the U.S. Department of Housing and Urban Development's (HUD) Choice Neighborhoods Initiative (CNI) program, and the City finds that this project may affect and is likely to adversely affect listed species or adversely modify designated critical habitat.

### **Authority**

The City assumes consultation responsibility pursuant to HUD's regulations implementing NEPA, codified by HUD at 24 CFR Part 58, which govern the environmental review procedures for HUD-sponsored activities. The regulatory requirements at 24 CFR 58.4 require units of local governments (responsible entities – "RE's") to assume the responsibility for environmental review, decision-making, and actions that would otherwise apply to HUD under the provisions of NEPA and other provisions of law that further the purposes of NEPA. This includes Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.).

This procedure is endorsed in USFWS's memorandum entitled "Endangered Species Act Consultation Compliance with 'Responsible Entities' under U.S. Department of Housing and Urban Development's Assumption Authority (24 CFR Part 58)," signed April 17, 2002 and attached herewith. Pursuant to that memorandum, it is USFWS policy that responsible entities may assume responsibility for HUD's Section 7 compliance and requests for consultation from responsible entities should be regarded as official requests from a Federal action agency. Note that the memorandum directs FWS staff to provide HUD with a copy of the biological opinion if a jeopardy or adverse modification finding is made and to notify HUD if any problems arise during the consultation process.

### **Project Description**

The proposed project is located in the City of Sacramento, California in the vicinity of North 12<sup>th</sup> Street and Richards Boulevard. Currently, the project area is comprised of urban development and vacant land.

The proposed project would develop a mixed-income, mixed-use community comprising 218 replacement public housing units, 268 new market-rate rental and Low-Income Housing Tax Credit (LIHTC) units, a realigned internal street network, green open space, and other community amenities on two noncontiguous but proximate properties totaling approximately 24.2 acres that currently include

300 Richards Blvd., 3rd Floor  
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[CityofSacramento.org/dsd](http://CityofSacramento.org/dsd)



public housing and undeveloped land. The project would also include construction and operation of the proposed RT Dos Rios Light Rail Station on the existing RT Light Rail Blue Line on and adjacent to North 12th Street.

The enclosed Biological Assessment (BA) includes descriptions of the discretionary action to be considered and the specific area that may be affected.

### **Identification of Endangered Species**

The enclosed BA analyzes the potential effects that the proposed project may have on the following federally listed threatened (T), endangered (E), and candidate species (C):

- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (T)
- California red-legged frog (*Rana draytonii*) (T)
- California tiger salamander (*Ambystoma californiense*), (T)
- Vernal pool fairy shrimp (*Branchinecta lynchi*) (T)
- Vernal pool tadpole shrimp (*Lepidurus packardii*), (E)
- Delta Smelt (*Hypomesus transpacificus*) (T)
- Steelhead (*Oncorhynchus (=salmo) mykiss*) (T)
- Giant garter snake (*Thamnophis gigas*) (T)

No critical habitat is present in the project area.

Though included in the USFWS list of special-status with potential to occur in the Action Area, the aquatic species are not expected to occur within the vicinity of the Action Area because suitable habitat is not present. Occurrence of valley elderberry longhorn beetle habitat is consistent with information collected during field surveys, and California Natural Diversity Database (CNDDDB) species occurrence records.

The enclosed BA includes listed species that may be affected by the proposed actions, the manner in which the proposed action may affect any listed species, an analysis of cumulative effects, and all other relevant available information. Conservation and performance measures to minimize potential impacts to listed species are also included.

The City, on behalf of HUD, has determined, based on the best scientific and commercial data available, that the proposed project: **may affect, but is not likely to adversely affect** valley elderberry longhorn beetle; and will have **no effect** on California red-legged frog, California tiger salamander, vernal pool fairy shrimp, vernal pool tadpole shrimp, Delta Smelt, Steelhead, or giant garter snake.

**Conclusion**

Based on the above analysis, RE believes that this activity may affect, but is not likely to adversely affect listed species or adversely modify designated critical habitat. Therefore, as an authorized representative of the RE administering the above-cited HUD program, I hereby request formal consultation on the potential effects of this activity on all federally listed threatened and endangered species and designated critical habitat as required under section 7(a)(2).

Your expedited assistance on this matter is very much appreciated. If you have questions about this request, please contact Dana Mahaffey, Associate Planner, City of Sacramento as soon as possible at 300 Richards Boulevard, Third Floor, Sacramento, CA 95811, 916-808-2762, DMahaffey@cityofsacramento.org. Please contact Kathleen McNulty, Environmental Protection Specialist, Department of Housing and Urban Development, Region IX, One Sansome Street, Suite 1200, San Francisco, CA 94104, 415-489-6644, Kathleen.A.McNulty@hud.gov in the event that HUD's involvement is required.

Sincerely,



Dana Mahaffey  
Associate Planner  
City of Sacramento

Attachment(s)

1. Twin Rivers Transit-Oriented Development and Light Rail Station Project – Biological Assessment for Consultation with U.S. Fish and Wildlife Service
2. Memorandum regarding Endangered Species Act Consultation Compliance with “Responsible Entities” under U.S. Department of Housing and Urban Development’s Assumption Authority (24 CFR Part 58)

# TWIN RIVERS TRANSIT-ORIENTED DEVELOPMENT AND LIGHT RAIL STATION PROJECT

Biological Assessment for Consultation with U.S. Fish and  
Wildlife Service

Prepared for  
City of Sacramento

September 2016





# TWIN RIVERS TRANSIT-ORIENTED DEVELOPMENT AND LIGHT RAIL STATION PROJECT

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City of Sacramento

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On behalf of the U.S. Department of  
Housing and Urban Development

2600 Capitol Avenue  
Suite 200  
Sacramento, CA 95816  
916.564.4500  
[www.esassoc.com](http://www.esassoc.com)



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# SECTION 1

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## Introduction

### 1.1 Introduction

The Proposed Action would develop a mixed-income, mixed-use community comprising 218 replacement housing units, 268 new market-rate rental and Low-income Housing Tax Credit units, a realigned internal street network, green open space, and other community amenities on two noncontiguous but proximate properties totaling approximately 24.2 acres that currently include public housing and undeveloped land. The Proposed Action would also include construction and operation of the proposed Sacramento Regional Transit (RT) Dos Rios Light Rail Station on North 12<sup>th</sup> Street of the existing RT Light Rail Blue Line. The Action Area includes the 24.2-acre properties and the Dos Rios Light Rail Station on North 12<sup>th</sup> Street.

### Purpose of the Biological Assessment

The purpose of this biological assessment (BA) is to review the Proposed Action in sufficient detail to assess potential effects on Federally listed threatened or endangered species under the jurisdiction of U.S. Fish and Wildlife Service (USFWS). The BA is prepared in accordance with requirements set forth under Section 7 of the Federal Endangered Species Act (FESA) (16 U.S. Code [USC] 1536[c]). Under provisions of Section 7(a)(2) of FESA, a Federal agency that permits, licenses, funds, or otherwise authorizes activities must consult with USFWS, as appropriate, to ensure that its action will not jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The proposed Federal action by U.S. Department of Housing and Urban Development (HUD) is to fund the Proposed Project. In connection with this Federal action, HUD will initiate FESA Section 7 consultation with the USFWS.

The City of Sacramento assumes consultation responsibility pursuant to HUD's regulations implementing NEPA, codified by HUD at 24 CFR Part 58, which govern the environmental review procedures for HUD-sponsored activities. The regulatory requirements at 24 CFR 58.4 require units of local governments (responsible entities – "RE's") to assume the responsibility for environmental review, decision-making, and actions that would otherwise apply to HUD under the provisions of NEPA and other provisions of law that further the purposes of NEPA. This includes Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). For purposes of the Proposed Action, the City is the Responsible Entity, and therefore has assumed consultation responsibility.

## 1.2 Consultation to Date

A list of federal endangered and threatened species that have the potential to occur in the Action Area or may be affected by the Proposed Action was obtained from the Sacramento Fish and Wildlife Office website in 2016 (see **Appendix A**). This list identifies species that may occur within the boundary of the Action Area and/or may be affected by the Proposed Action.

## 1.3 Species Considered

A list of species Federally listed as threatened or endangered and candidate species present or with potential to occur in the Action Area was developed. Information was gathered from a records search of the USFWS sensitive species database (**Table 1**).

A number of Federally listed or candidate wildlife species are known to have occurred historically, in the Action Area. Most of the species inhabiting the region are not expected to occur in the Action Area because it lacks suitable habitat, it is outside the range of the species, or the species has been extirpated from the area. These species include multiple vernal pool invertebrates, California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), and giant garter snake (*Thamnophis gigas*). Listed fish species are not present because there is no suitable aquatic habitat present.

The results of this analysis indicated that one Federally listed species has the potential to occur in the Action Area and be affected by implementing the action: the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), which is Federally listed as threatened.

## 1.4 Critical Habitat

Critical habitat is defined in Section 3(5)A of the ESA as the specific portions of the geographic area occupied by the species in which physical or biological features essential to the conservation of the species are found and that may require special management considerations or protection. Specific areas outside of the geographic area occupied by the species may also be included in critical habitat designations upon a determination that such areas are essential for the conservation of the species. Critical habitat has been designated for valley elderberry longhorn beetle; however, the Action Area is not located within the designated area.

## 1.5 Report Organization

Section 2 (*Description of the Proposed Action*) provides a description of the Proposed Action components within the Action Area. Conservation measures are also presented in Section 2 to avoid, minimize, or otherwise reduce the effects to the Federally listed species. Section 3 (*Environmental Baseline*) describes the environmental baseline, including natural communities and habitat conditions present in the Action Area. Section 4 (*Species Accounts*) provides species accounts for all species addressed in the BA. Section 5 (*Effects of the Proposed Action*) describes the direct, indirect, and cumulative effects on species that may result from the Proposed Action. Section

6 (*Conclusions and Determination*) provides the ESA-based conclusion statements for the effects of Proposed Action on the Federally listed special-status species, and Section 7 (*References*) lists the references cited in this BA.

**TABLE 1.  
SPECIES WITH POTENTIAL TO OCCUR IN THE ACTION AREA**

Common Name Scientific Name	Federal Status	Habitat Description/Blooming Period	Potential for Effect
<b>Amphibians</b>			
California red-legged frog ( <i>Rana draytonii</i> )	T	Breeds in slow moving streams with deep pools, ponds, and marshes with emergent vegetation.	No effect. No suitable habitat within or within the vicinity of the Action Area.
California tiger salamander ( <i>Ambystoma californiense</i> )	T	Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Needs underground refuges and vernal pools or other seasonal water sources.	No effect. No suitable habitat within or within the vicinity of the Action Area.
<b>Crustaceans</b>			
Vernal Pool fairy shrimp ( <i>Branchinecta lynchi</i> )	T	Life cycle restricted to vernal pools	No effect. No suitable habitat within or adjacent to the Action Area.
Vernal Pool tadpole shrimp ( <i>Lepidurus packardii</i> )	E	Life cycle restricted to vernal pools	No effect. No suitable habitat within or adjacent to the Action Area.
<b>Fishes</b>			
Delta Smelt ( <i>Hypomesus transpacificus</i> )	T	Found in the Sacramento-San Joaquin delta, Suisun Bay, Carquinez Straight, and San Pablo Bay	No effect. No suitable habitat within or adjacent to the Action Area.
Steelhead ( <i>Oncorhynchus (=salmo) mykiss</i> )	T	Spawns in the Sacramento River and tributaries where gravelly substrate and suitable water conditions occur.	No effect. No suitable habitat within or adjacent to the Action Area.
<b>Insects</b>			
Valley elderberry longhorn beetle ( <i>Desmocerus californicus dimorphus</i> )	T	Breeds and forages exclusively on blue elderberry ( <i>Sambucus mexicana</i> ) shrubs, below 3,000 feet in elevation.	<b>May effect.</b> Elderberry shrubs with stems measuring at least one inch in diameter occur within the development footprint in the Action Area.
<b>Reptiles</b>			
Giant garter snake ( <i>Thamnophis gigas</i> )	T	Generally inhabits marshes, sloughs, ponds, slow-moving streams, ditches, and rice fields which have water from early spring through mid-fall, emergent vegetation (such as cattails and bulrushes), open areas for sunning, and high ground for hibernation and escape cover.	No effect. No suitable habitat within or adjacent to the Action Area.

## NOTES:

## Federal Status Codes:

- E = Listed as "endangered" under the federal Endangered Species Act
- T = Listed as "threatened" under the federal Endangered Species Act

SOURCE: USFWS, 2016

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## SECTION 2

---

# Description of the Proposed Action

### 2.1 Action Area

For the purposes of this BA, the “Action Area” refers to the area where direct and indirect effects would occur. The Action Area is located within the City of Sacramento in the central part of the Sacramento County, California **Figure 1**. The Action Area is located within the Sacramento East U.S. Geological Survey (USGS) 7.5-minute Topographic Quadrangle (USGS, 2015) (**Figure 2**). **Figure 3** shows an aerial image of the Action Area. The Action Area is comprised of two areas totaling approximately 24.2 acres that are separated from one another by North 12<sup>th</sup> Street. The larger westernmost area is approximately 21 acres in size. It is generally bound by Dos Rios Street to the west, Richards Boulevard to the northeast, Louise Street to the east, and North 12<sup>th</sup> Street to the south. The second and easternmost area is separated from the first by intervening parcels and North 12<sup>th</sup> Street and totals approximately 3.2 acres.

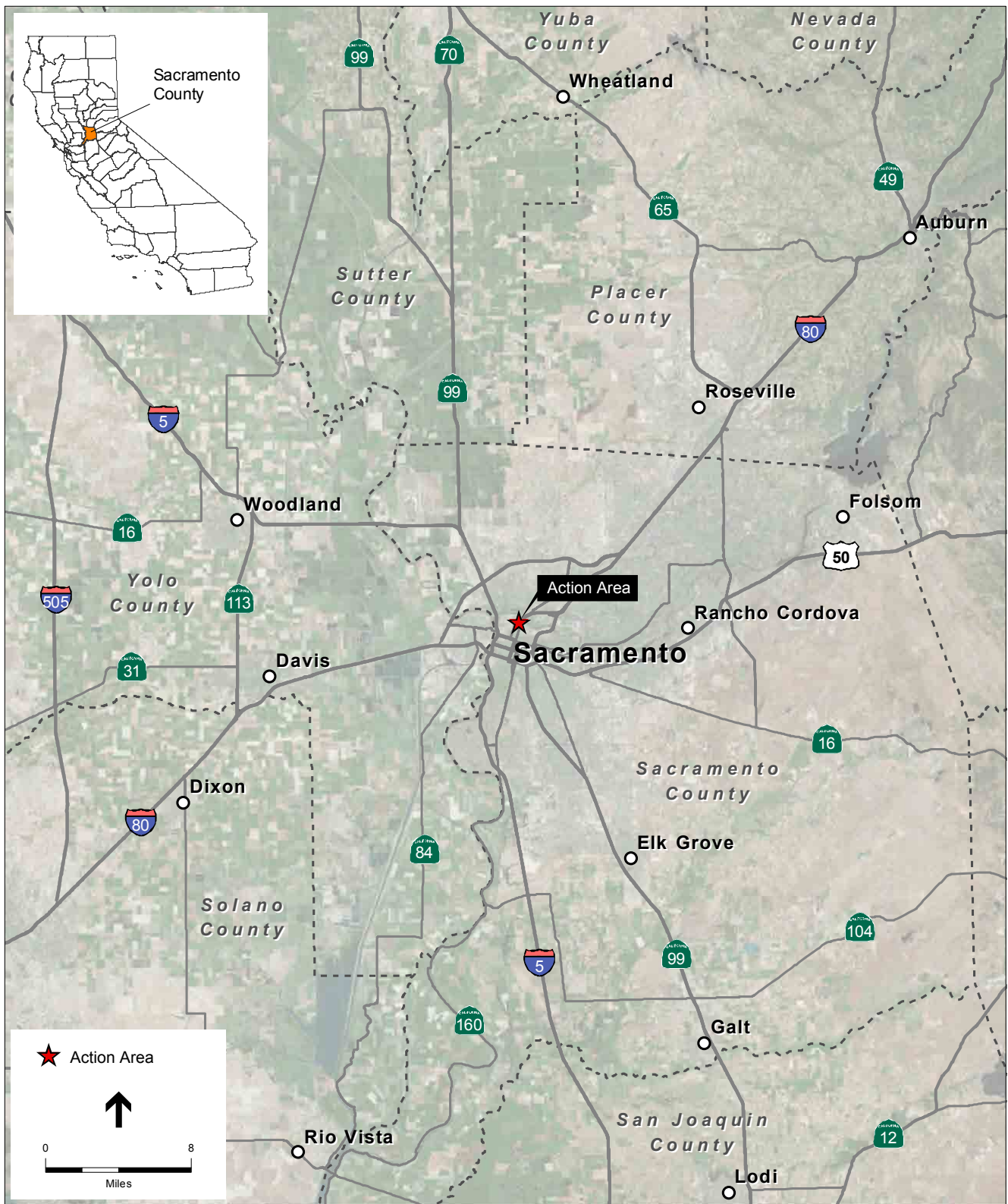
As described above, the Action Area is divided into two separate areas; the Twin Rivers Community Housing Complex area (21 acres), and vacant area located east of North 12<sup>th</sup> Street (3.2 acres). For purposes of this document, the two areas are collectively referred to as the Action Area. Individually, they are referred to as the “Twin Rivers Community Housing Complex” and the “Twin Rivers Community Housing Expansion Area.” Overall, the site is relatively flat and approximately 20 feet above mean sea level.

### 2.2 Proposed Project Elements

#### Proposed Action

The Proposed Action would develop a mixed-income, mixed-use community comprising 218 replacement housing units, 268 new market-rate rental and Low-income Housing Tax Credit units, a realigned internal street network, green open space, and other community amenities on two noncontiguous but adjacent properties totaling approximately 24.2 acres that currently include public housing and undeveloped land. The Proposed Action would also include construction and operation of the proposed Sacramento Regional Transit (RT) Dos Rios Light Rail Station on North 12<sup>th</sup> Street of the existing RT Light Rail Blue Line.

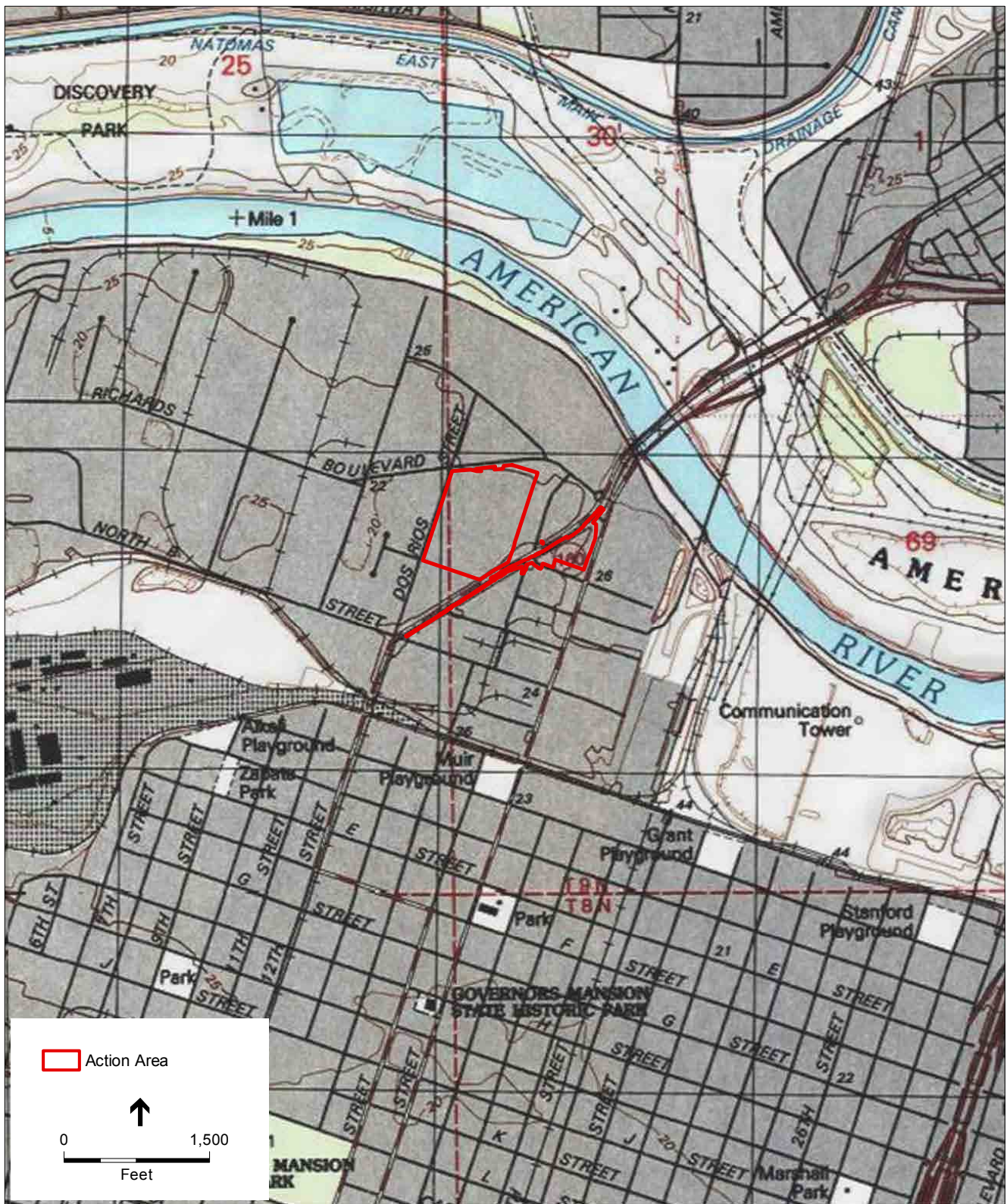
Several project elements are prominent: 1) the redeveloped Twin Rivers Community Housing Complex west of North 12<sup>th</sup> Street; 2) the Twin Rivers Community Housing Expansion Area east of North 12<sup>th</sup> Street in **Figure 4**; and 3) the new Dos Rios Light Rail Station on the eastern side of North 12<sup>th</sup> Street, adjacent to the expansion area.



SOURCE: i-cubed, 1999; ESRI, 2012; ESA, 2016

SHRA Twin Rivers . 140202

**Figure 1**  
Regional Location



SOURCE: USGS 7.5' Topo Quad (Sacramento East, 1997); SHRA, 2015; ESA, 2016

SHRA Twin Rivers ..140202

**Figure 2**  
Action Area



SOURCE: ESRI 2014; SHRA, 2015

SHRA Twin Rivers . 140202

**Figure 3**

Aerial Image of Action Area and Proposed Action Components





SOURCE: Torti Gallas and Partners • McCormack Baron Salazar, 2016

SHRA Twin Rivers . 140202

**Figure 4**  
Conceptual Site Plan

## **Redevelopment and Expanded Twin Rivers Community Housing Complex**

The Proposed Action would utilize both the 21-acre area that is currently occupied by the Twin Rivers Community Housing Complex and the currently vacant 3.2-acre area across North 12<sup>th</sup> Street to construct a range of residential units. The units would include multi-story townhouses, garden apartments, live/work units, and multi-family apartment buildings. In all, the Proposed Action would develop approximately 486 new residential units, replacing the existing 218 units within the Twin Rivers Complex, for a net increase of 268 new units.

Of these 486 units, approximately 376 of the units would be located in the existing Twin Rivers Community Housing Complex, fully replacing the existing 218 units and adding 158 units in that area. An additional 110 units would be located in the expansion area east of North 12<sup>th</sup> Street in a multi-family apartment building containing one-bedroom and two-bedroom units. The total unit count in both areas combined would thus be 486. Figure 4 shows the redeveloped and expanded Twin Rivers Community Housing Complex housing locations.

### **Street Alignments**

Within the existing Twin Rivers Complex area, the Proposed Action would realign existing streets to facilitate mobility, accessibility, access, development, and continuity with the projected buildout of the River District Specific Plan. The altered street alignment within the project would complement the planned partial realignment of North 12th Street. The Proposed Action would eliminate neighborhood feeder streets within the existing Twin Rivers complex to make way for new street alignments and the altered shape of residential blocks.

Figure 4 shows the proposed street layout. “Street W” on the site plan would serve as the main roadway within the complex, and would contain a landscaped median, one traffic lane in each direction, one bicycle lane in each direction, and parking lanes and sidewalks along both sides of the roadway, for a total right-of-way (ROW) of 81 feet. Local streets within the project site would contain a travel lane in each direction, a single parking lane, and sidewalks and landscaped parkways along both sides of the roadway, for a total ROW of 53 feet.

Approximately 522 parking spaces would be included as part of the project within the existing Twin Rivers complex area. These would be provided through a combination of dedicated parking stalls and on-street parking.

### **Landscaping and Open Space/Recreation Areas**

The Proposed Action would construct several open space and recreation areas on the site, including a 0.91-acre park area in the center of the main housing complex, as well as a pool and amenity space in the northern portion of the complex. All roadways within the site would be lined with trees and supplemented by shrubs and other vegetation to provide a complete landscaped effect. Parking areas would also be interspersed with trees.

Exterior lighting on the site would consist of street lighting as well as security and building lighting at appropriate locations. All lighting would comply with City of Sacramento exterior lighting standards.

## **Utilities**

### ***Domestic and Irrigation Water Supply***

Water supply for the project site would be provided by existing water supply infrastructure. The City currently has three water transmission mains (pipes larger than 12 inches) that serve the RDSP area. The project site is anticipated to access water supply from ancillary water mains that draw water from a 36-inch main in North B Street and 42-inch main in 18th Street. Proposed domestic water and irrigation water services would be metered services protected with City-approved backflow devices in accordance with City of Sacramento cross control policies. Fire water services would also be protected with approved backflow devices, but would not be metered in accordance with City of Sacramento cross control policies. The fire water system would be a looped system, with multiple points of connection to the City's public water main system to increase on-site fire supply and pressure.

### ***Stormwater and Sewer Systems***

The existing Twin Rivers Community Housing Complex is currently served by a separated storm and sewer system. The Sacramento Regional County Sanitation District (SRCSD) provides wastewater collection and treatment for the project site. Wastewater is conveyed to the Sacramento Regional Wastewater Treatment Plant (SRWTP). There are existing public sanitary sewer main lines ranging in size from 6-inch to 12-inch diameter adjacent the project site. The proposed site improvements would attempt to utilize existing sanitary sewer services where feasible, and abandon all existing sanitary sewer services that are determined to be inadequate for the Proposed Action's needs. New sanitary sewer services would be provided in accordance with the City of Sacramento standards, and served by the aforementioned existing public sanitary sewer mainlines adjacent the project site.

The proposed Twin Rivers Community Housing Expansion Area east of North 12<sup>th</sup> Street is located within the City Combined Storm-Sewer System (CSS). The CSS is an underground pipe network system that conveys both storm drain flows and sanitary sewer flows through a single pipe. Existing CSS mainlines are located within Sproule Avenue and North 16<sup>th</sup> Street, ranging in size from 8-inch to 12-inch diameter pipes. Within the CSS, the City standards require on-site sanitary sewer and on-site storm drain systems to be separated, with separate service connections to the City CSS mainlines. Although exact service locations of the proposed storm and sewer services have not been determined, it is assumed the Proposed Action storm drain and sanitary sewer services would be provided from the existing CSS mainlines located within Sproule Avenue and North 16th Street.

The City requires all infill developments comply with the City's "Do No Harm" policy. In order to comply with this standard, underground storage facilities through the use of oversized pipes, storm vaults, or similar methods, would be incorporated into the project design. A storm drain

study would be submitted to the City Department of Utilities demonstrating compliance with the City's "Do No Harm" at time of improvement plan review. Because all flows within the CSS are diverted to the County sewer treatment facilities, the portion of the site located within the CSS system would not be required to provide post-construction stormwater quality treatment. However, the portion of the project site located outside of the CSS would provide post construction stormwater quality treatment in accordance with current City requirements. Post construction treatment methods may include stormwater planters, vegetated swales, subsurface infiltration methods, and possibly underground mechanical systems.

## **Dos Rios Light Rail Station**

The proposed Dos Rios Light Rail Station would add a stop on RT's Blue Line, which runs from Watt Avenue and I-80 in North Sacramento to its southerly terminus at Cosumnes River College located on the southern edge of Sacramento. The Dos Rios Light Rail Station would be located on the east site of North 12<sup>th</sup> Street, north of Sproule Avenue, adjacent to the Twin Rivers Community Housing Expansion Area.

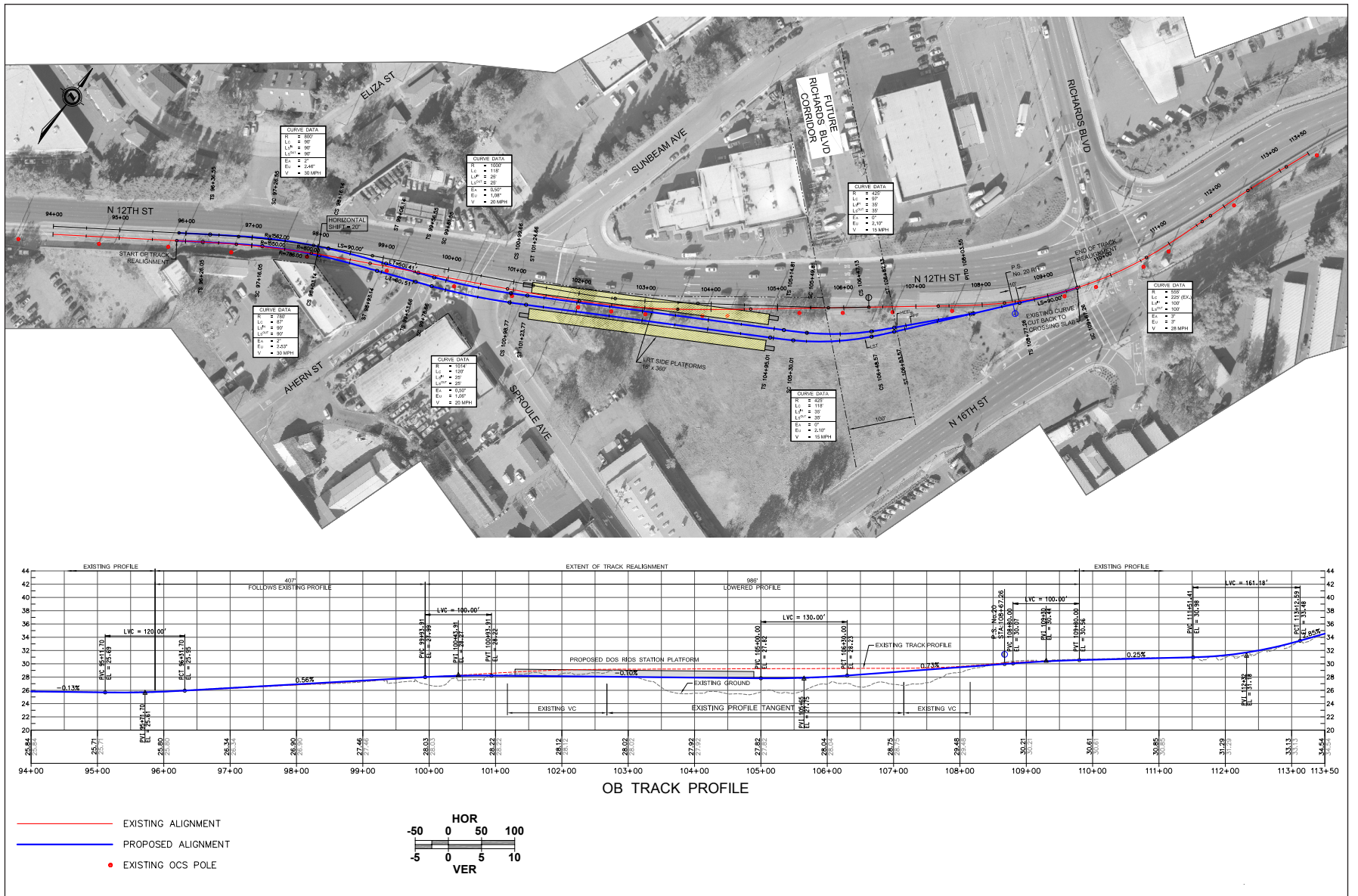
### ***Station and Tracks***

**Figure 5** shows the proposed layout of the light rail; station and associated trackwork. The addition of the station would require realignment of the existing light rail tracks along North 12<sup>th</sup> Street and site preparation to include demolition, grading, filling and compacting of the station site. The station would consist of raised platforms that allow for safe entry and exit to and from light rail cars, for both north and southbound rail lines. The existing track configuration would be shifted southeast, to create space for the platform between the tracks and North 12<sup>th</sup> Street. Space between the north and southbound tracks would be widened on the approaches to the station to accommodate Overhead Catenary System (OCS) poles that support the overhead electrical conductors.

### ***Off-Site Switch Replacement and Signals***

South of the project site, two rail switches are located at both ends of the existing rail turnout that connects the western (inbound, or southbound) and eastern (outbound, or northbound) tracks on North 12<sup>th</sup> Street, between C and D Streets. The turnout allows trains to use the eastern track for travel in both directions between Richards Boulevard and the Alkali Flat Station (located on 12<sup>th</sup> Street, between D and E Streets), but currently requires light rail personnel to manually operate the switch. The Proposed Action would add a powered switch machine, which would be required since the proposed track realignment construction phasing would require trains to operate on a single track through the Dos Rios Station area during portions of the construction. Addition of a powered switch machine would minimize the operating cost of diverting trains to the opposite track.

The turnouts would be controlled from computerized loops and not from a central location. A new signal case would be required to house control equipment and interfaces. Railway approach circuits would be added for normal direction of rail traffic. New train signals would be added at appropriate locations.



SOURCE: Parsons, 2015

SHRA Twin Rivers . 140202  
**Figure 5**  
 Dos Rios LRT Station Plan

Where signalized roadway intersections exist in close proximity to a railroad crossing, the railroad signal control equipment and the traffic signal control equipment should be interconnected. The normal operation of the traffic signals controlling the intersection should be preempted to operate in a special control mode when trains are approaching, to provide for safe vehicular and pedestrian movements (Institute of Transportation Engineers, 2006). Existing signal blocks to the north and south of the proposed station would require modifications to their timing and logic functions to accommodate the new station. These blocks are controlled by an existing relay case, located to the north of the American River Bridge and another, located at the northeast corner of 12<sup>th</sup> Street and D Street. The project would also modify traffic signal interfaces (pre-emption) between the American River and 12<sup>th</sup> and E Streets to accommodate dwell time for the new station.

### ***Transfer Power Substation***

Traction power substations (TPSS) are spaced at calculated distances along electrified light rail trackways to allow for power redundancy. Existing TPSS facilities are located to the south and north of the proposed station site, but are not optimally situated to provide the required power distribution needed to operate the line following the addition of the new Dos Rios station. As such, a new TPSS would be required in the vicinity of the new station.

TPSS facilities must be located no more than 400 feet from the tracks and the associated OCS poles. Three options are under consideration for placement of the new TPSS:

- Option 1, on City-owned land in the triangular-shaped parcel at the intersection of North 12<sup>th</sup> Street, North 16<sup>th</sup> Street, and Richards Boulevard, immediately north of the Twin Rivers Community Housing Expansion Area. This option would require acquisition of the site from the City.
- Option 2, in the Twin Rivers Community Housing Expansion Area in the area shown as Block “K” in Figure 4. This parcel is currently privately-held, but would be acquired as part of the development of the housing expansion area.
- Option 3, on the existing Twin Rivers Community Housing Complex, adjacent to North 12<sup>th</sup> Street near the existing entrance to the housing complex.

Regardless of location, the new TPSS would consist of a prefabricated building measuring 14-feet in width, 44-feet in length, and 12-feet in height located within a fenced area approximately 40-feet by 60-feet in size. Maintenance vehicle access would be provided by a 12-foot-wide vehicle gate and a 3-foot-wide personnel gate. Besides the prefabricated building, the fenced area would also include a 12-foot by 25-foot paved vehicle apron between the adjacent public roadway and the gate. Landscaped screening would be provided around the facility.

## Construction Timing

### **Redeveloped and Expanded Twin Rivers Community Housing Complex**

The redevelopment of the existing housing complex and construction of the expansion area housing east of North 12th Street would take approximately seven years, beginning in 2017 with anticipated project completion in 2023. Acquisition, infrastructure availability, market conditions, demolition, and the timing of the new Dos Rios light rail station construction would have an impact on the phasing of physical development of the housing facilities. On the Twin Rivers Community Housing Expansion Area parcels, it is likely that the new light rail station would be constructed prior to the construction of the adjacent housing. This would be done to avoid nighttime noise and other construction-related impacts to residents that could arise if housing were to be constructed and occupied prior to the station's construction. Construction within the existing Twin Rivers Community Housing Complex would not be subject to these constraints, and could be constructed at any time.

The project would be separated into phases to meet market conditions and also to potentially facilitate efficient relocation of residents from existing units into new replacement housing as the existing units are demolished. The phasing would involve a timing interplay as new housing is constructed, residents are moved into the new units, and the older units they have just been vacated are demolished, with the process repeating itself until the project is complete. Some residents would probably need to be moved to off-site housing during certain phases of construction.

A detailed Relocation Plan would be developed to maximize the options available to residents. These options could include temporary and permanent relocation with housing choice vouchers, relocation to other public housing units, and/or the phased demolition and development described previously that would allow residents to move from their current unit to a new unit. All relocations would be required to occur in accordance with the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and Amendments (Public Law 91-646) and the California Relocation Act (California Government Code, Section 16, Section 7260 *et. seq.*) and related laws and regulations.

Physical construction of the housing facilities would occur in typical fashion, with demolition occurring first, followed by site preparation and grading, construction of roadways and utility improvements, and then construction of the housing units. Construction of the housing units would begin with the pouring of foundations, followed by framing and installation of rough electrical, plumbing, and heating, ventilation, and cooling (HVAC) components. Interior and exterior walls would be finished, followed by final fitting out of interior components and exterior landscaping.

### ***Dos Rios Light Rail Station***

Construction of the station and associated light rail modifications would take approximately 18 months. Some night work would likely be required to avoid disruption to existing light rail service and also to avoid traffic conflicts along North 12<sup>th</sup> Street. It is likely that the new light rail

station would be constructed prior to the construction of the adjacent housing in the expansion area. This would be done to avoid nighttime noise and other construction-related impacts to residents that could arise if housing were to be constructed and occupied prior to the station's construction.

Construction of the station would require the temporary closure of Sproule Avenue and Ahern Street at North 12<sup>th</sup> Street to accommodate construction of the widened track alignment. Construction would generally occur in four phases: 1) utility relocation and streetwork; 2) track realignment and signal modifications; 3) station construction; and 4) TPSS placement.

## Conservation Measures

In order to avoid and minimize effects of the Proposed Action and to provide compensation for those impacts that would occur; a number of avoidance and minimization, and conservation measures are being included into the Proposed Action. All of the conservation measures are incorporated by the applicant as part of the description of the Proposed Action, meaning they are proposed as elements of the Proposed Action and are to be considered in conducting the environmental analysis and determining effects and findings.

## Avoidance and Minimization Measures

The purpose of avoidance and minimization measures is to incorporate design refinements and reflect and incorporate best practices into the Proposed Action that avoid and/or minimize potential effects. These best practices tend to be relatively standardized and compulsory; they represent sound and proven methods to reduce the potential effects of an action. The rationale behind including environmental commitments is that the project applicant commits to undertake and implement these measures as part of the Project in advance of impact findings and determinations in good faith to improve the quality and integrity of the Project, streamline the environmental analysis, and demonstrate responsiveness and sensitivity to environmental quality. Residual impacts remaining after implementation of avoidance and minimization measures are addressed through compensatory conservation measures. Avoidance and minimization measures are described below.

### ***Valley Elderberry Longhorn Beetle Protection***

Projects affecting valley elderberry longhorn beetle habitat (i.e., elderberry shrubs) are required to mitigate impacts based on the number of stems 1.0 inch or greater in diameter at ground level that would be affected by project activities, the presence or absence of valley elderberry longhorn beetle exit holes in affected stems, and the type of supporting habitat (riparian or nonriparian) (USFWS 1999). All elderberry shrubs with one or more stems greater than 1 inch in diameter at ground level that may be affected would be replaced according to the USFWS Conservation Guidelines for the Valley Elderberry Beetle (1999) (USFWS guidelines) as stated below, or through the purchase of mitigation credits at a USFWS-approved mitigation bank.

- If elderberry shrubs are transplanted to an offsite mitigation location or conservation bank, relocation will be during the dormant season (November through the first 2 weeks in



February), unless a plant is exempted by a qualified biologist because of poor access or condition.

- Elderberry shrubs with stems measuring 1.0 inch or greater in diameter at ground level that may be adversely affected (i.e., transplanted or destroyed) will be replaced with elderberry seedlings or cuttings at a ratio ranging from 1:1 to 8:1 (new plantings to affected stems).
- A mix of native plants will be planted at ratios ranging from 1:1 to 2:1 (native tree/plant species to each elderberry seedling or cutting).
- The conservation area will be protected in perpetuity as habitat for the valley elderberry longhorn beetle through the use of weed control, pesticide buffers, endowments, litter control, fencing, and signage.
- At least 1,800 square feet will be provided for each transplanted elderberry shrub. As many as 10 conservation plantings (i.e., elderberry cuttings or seedlings and/or associated native plants) may be planted within the 1,800-square-foot area with each transplanted elderberry, and an additional 1,800 square feet will be provided for every additional 10 conservation plants.
- The conservation area will be monitored for a period of either 10 consecutive years or for 7 years over a 15-year period. The applicant may elect either 10 years of monitoring, with surveys and reports every year, or 15 years of monitoring, with surveys and reports on years 1, 2, 3, 5, 7, 10, and 15.

At the time of the release of this BA it has not been determined if the City would plant and monitor valley elderberry longhorn beetle habitat, or purchase credits at a mitigation bank to compensate for elderberry shrub loss. In accordance with the guidelines, each credit occupies 1,800 square feet (0.041 acre) of planting space, therefore if four elderberry shrubs are removed from the Action Area, USFWS would require the City to secure up to 2.8 credits at a conservation bank or to plant 1.148 acres of valley elderberry longhorn beetle habitat at an offsite location, in accordance with USFWS guidelines.

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## SECTION 3

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# Environmental Baseline

### 3.1 Methods

The information contained in this section is based upon field reconnaissance, literature searches, and database queries. The following sources were reviewed prior to field reconnaissance visits:

- Color aerial photographs;
- California Natural Diversity Database (CNDDDB) list of special-status species occurrences within the Sacramento East and eight surrounding USGS 7.5-minute topographic quadrangles (Carmichael, Citrus Heights, Clarksburg, Elk Grove, Florin, Rio Linda, Sacramento West, and Taylor Monument) (CDFW, 2016);
- List of Federal Endangered and Threatened Species that may occur in the proposed project location, and/or may be affected by the proposed project (USFWS, 2016); and
- California Native Plant Society (CNPS) list of rare and endangered plants known to occur within the Sacramento East and eight surrounding USGS 7.5-minute topographic quadrangles (CNPS, 2016).

In addition to these references, ESA biologists reviewed species literature. All of the above references were used to determine the potential for species listed in Table 1 above.

Field surveys included recording existing biological resources in and around the Action Area, assessing the Action Area for suitability to support federally listed and candidate species. Surveys were conducted by ESA biologists in December, 2015 and July 2016. Habitats were mapped and field notes were recorded.

### 3.2 Regional Setting

The Action Area is located in the southern Sacramento Valley. The Sacramento Valley consists largely of floodplains, alluvial fans, and fan terraces, formed from alluvial material washed down from the Sierra Nevada and the Northern Coastal Range. The Mediterranean-type climate is hot and dry during the summer and cool and wet during winter. Average annual precipitation in the region is 18 inches. The mean maximum temperature is 73 degrees Fahrenheit (°F) and the mean minimum temperature is approximately 49 °F (Western Regional Climate Center, 2016).

### 3.3 Action Area Setting

The Action Area is located within the City of Sacramento in the vicinity of the intersection of North 12<sup>th</sup> Street and Richards Boulevard. Currently, the Action Area is comprised of urban development and vacant land.

### 3.4 Description of Habitats

Vegetation communities and habitat types onsite include annual grassland and developed areas. The location of different habitats within the Action Area is shown in **Figure 6**.

#### Annual Grassland

Annual grassland habitat includes upland vegetation communities dominated by introduced and native annual and perennial grasses and forbs. Species present within the Action Area include wild oat (*Avena fatua*), hare barley (*Hordeum murinum* var. *leporinum*), yellow star thistle (*Centaurea solstitialis*), and field mustard (*Brassica rapa*). This habitat includes volunteer tree-of-heaven (*Ailanthus altissima*) and elderberry shrubs (*Sambucus nigra* subsp. *caerulea*).

#### Urban/Disturbed

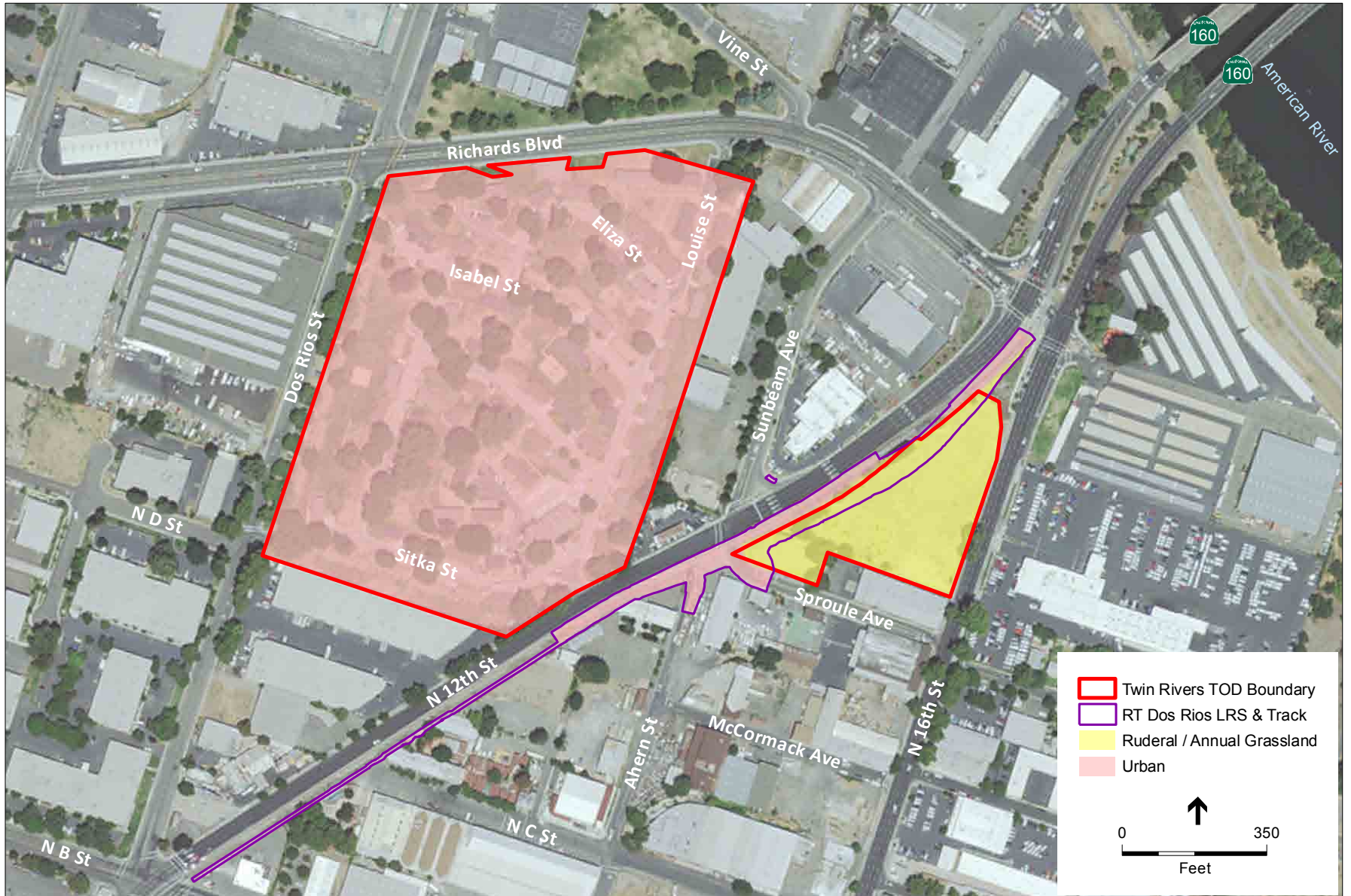
Urban/Disturbed habitat includes all areas that have been developed, including areas where leveling, paving, and landscaping has occurred. Vegetation in Urban/Disturbed areas includes ornamental vegetation and weed species.

### 3.5 Valley Elderberry Longhorn Beetle

An elderberry shrub survey conducted within the Action Area identified 11 shrubs with stems greater than 1 inch in diameter along the western side of the Twin Rivers Community Housing Expansion Area. The locations of each of the shrubs were recorded using a GPS and also recorded on aerial photographs. The size class of the stems and whether or not exit holes were present were recorded. None of the shrubs are located in riparian habitat. Three shrubs (ID-1, ID-3, ID-5) had one or more stems with a diameter between 1 and 3 inches, one shrub (ID-4) had two stems with a diameter between 3 and 5 inches, and seven shrubs only had stems smaller than 1 inch diameter (**Table 2** and **Figure 7**). No exit holes were found in any of the stems greater than 1 inch diameter.

Based on examination, it is apparent that many of the elderberry shrubs onsite have been cut back multiple times. Some of the shrubs, specifically ID-1, ID-9, and ID-10, have large stumps with smaller stems shooting out of the stump. It appears that landowners have routinely cut all vegetation on their properties, including elderberry shrubs, to increase visibility in the area due to safety concerns, primarily from homeless individuals camping and loitering in the area.

Information pertaining to valley elderberry longhorn beetle biology and distribution outside of the Action Area is provided in Section 4, “*Species Account*.”



SOURCE: ESRI 2014; SHRA, 2015

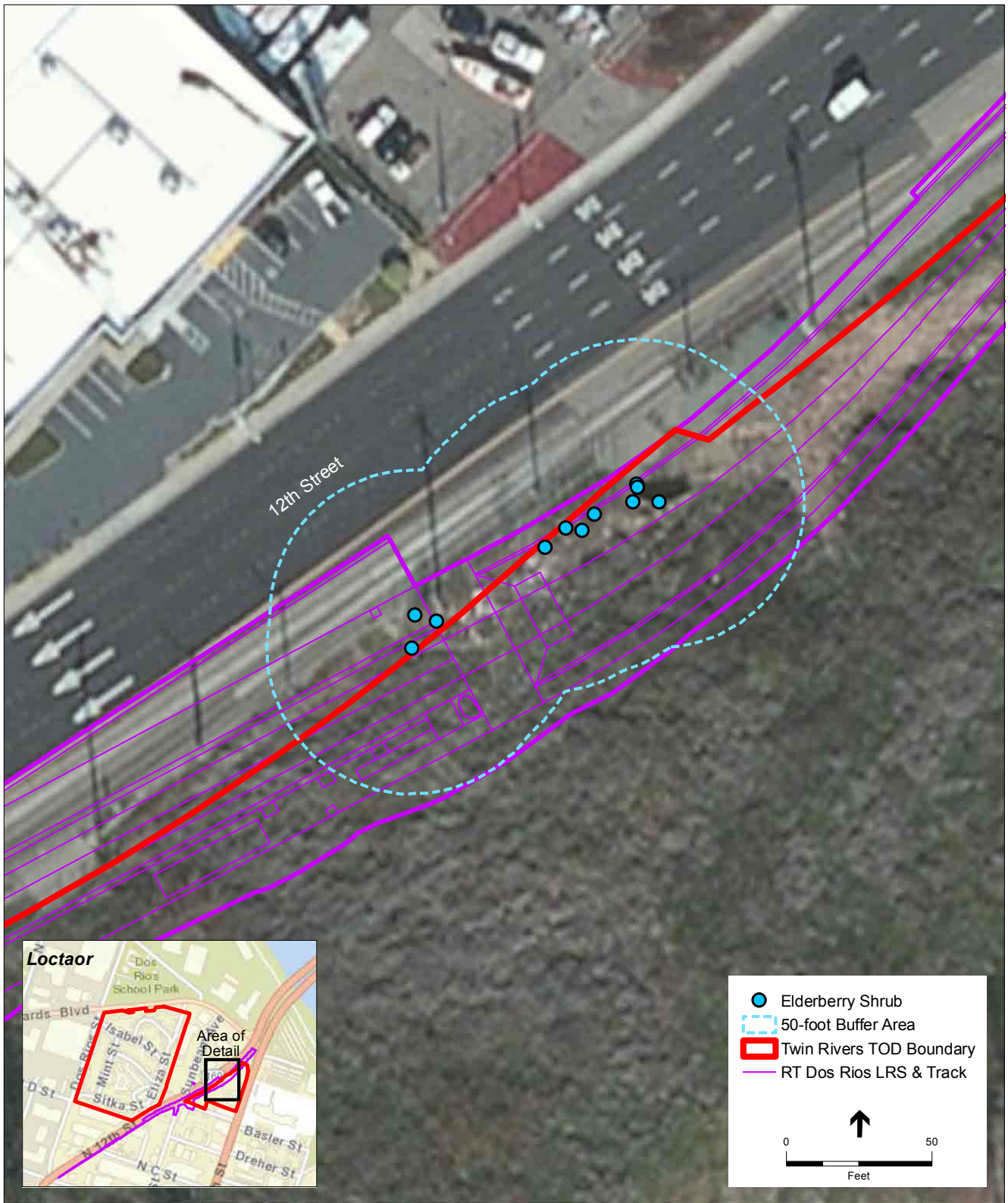
SHRA Twin Rivers . 140202

**Figure 6**  
Habitats

**TABLE 2.  
ELDERBERRY SHRUBS WITHIN THE ACTION AREA**

<b>ID #</b>	<b>Stems ≥1" and ≤3"</b>	<b>Stems &gt;3" and &lt;5"</b>	<b>Stems ≥5"</b>	<b>Exit Holes (Y/N)</b>	<b>Affected by the Proposed Action</b>
1	1	-	-	N	Y
2	-	-	-	N/A	Y
3	2	-	-	N	Y
4	-	2	-	N	Y
5	1	-	-	N	Y
6	-	-	-	N/A	Y
7	-	-	-	N/A	Y
8	-	-	-	N/A	Y
9	-	-	-	N/A	Y
10	-	-	-	N/A	Y
11	-	-	-	N/A	Y

SOURCE: ESA, 2016



SOURCE: Microsoft, 2011; ESRI, 2012; ESA, 2016

SHRA Twin Rivers . 140202  
**Figure 7**  
 Elderberry Shrub Locations

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## SECTION 4

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# Species Account

### 4.1 Valley Elderberry Longhorn Beetle

#### Legal Status

The valley elderberry longhorn beetle was listed as threatened on August 8, 1980 (45 FR 52803). Critical habitat also was designated at that time. The closest critical habitat for the species is located along the American River, approximately 0.5 miles northeast of the Action Area (45 FR 52803, August 8, 1980) along the north side of the American River floodplain. The USFWS released the *Valley Elderberry Longhorn Beetle Recovery Plan* in 1984 (USFWS, 1984), and conservation guidelines were issued by USFWS in 1999. On August 19, 2011, USFWS announced a 90-day finding on a petition to delist the species (76 FR 51929). Subsequently on September 19, 2014, USFWS withdrew the proposed rule to delist valley elderberry longhorn beetle concluding that threats to the species and its habitat have not been reduced to the point where the species no longer meets the definition of threatened under FESA (79 FR 55879).

#### Historical and Current Status and Distribution

Valley elderberry longhorn beetle is endemic to the Central Valley of California and adjacent Sierra Nevada foothill regions, up to approximately 2,000–3,000 feet in elevation (Barr 1991). The species inhabits riparian and upland habitats, where its host plant, the elderberry, grows.

At the time of listing in 1980, the valley elderberry longhorn beetle was known to occupy fewer than 10 locations. These locations included sites along the American River and Putah Creek and along the Merced River. Currently, valley elderberry longhorn beetle is known at 36 locations distributed between Tehama County in the northern Sacramento Valley, and Merced County in the San Joaquin Valley (79 FR 55874, September 17, 2014). Population information collected in 2014 found the valley elderberry beetle to be uncommon to rare, with patchy distribution within the presumed historical range. The species was found in 36 geographical regions, including areas along the American, Bear, Sacramento, Feather, Cosumnes, Mokelumne, Calaveras, Merced and Tuolumne Rivers and their tributaries, and Thomes, Cache, and Putah Creeks. The species is found in locally clustered areas along the aforementioned waterways. Population survey data are based on known occurrences of exit holes and adult beetle observations (79 FR 55874, September 17, 2014).

The 36 known locations are considered to be discrete from one another based on the presumed maximum dispersal distance of approximately one mile. Although the beetles can be locally

common, they typically occur at very low densities (Collinge et al. 2001). The species is not evenly distributed across its known range, and beetles are often found in population clusters (Barr 1991; Collinge et al. 2001). Frequently, only particular clumps of shrubs in an area harbor valley elderberry longhorn beetle, and other, similar clumps of shrubs do not. The presence of unoccupied elderberry shrubs does not necessarily indicate that a particular cluster of shrubs constitutes poor-quality habitat or is otherwise uninhabitable (Talley et al. 2007). Local aggregations of valley elderberry longhorn beetle are influenced by habitat patch characteristics, such as the size of the patch, presence of large shrubs and diversity of stem sizes, and habitat connectivity (Talley 2007; Talley et al. 2007). River systems without valley elderberry longhorn beetle are unlikely to be colonized by valley elderberry longhorn beetle even if suitable habitat is present (Collinge et al. 2001). Conversely, river systems where valley elderberry longhorn beetle is present can experience localized extinctions in areas that formerly supported the species, and formerly unoccupied elderberry shrubs can be colonized by beetles from proximate populations (Collinge et al. 2001).

Valley elderberry longhorn beetle is a habitat specialist with limited dispersal ability and a short adult life span, and it possesses rarity traits such as low local numbers within a population structure that has become fragmented within its historical range, and continues to be fragmented further by ongoing impacts to its habitat. As such, the USFWS considers valley elderberry longhorn beetle to likely become an endangered species in the foreseeable future (79 FR 55874, September 17, 2014).

## Life History

The entire valley elderberry longhorn beetle life cycle depends on the beetle's host plant, the elderberry shrub. After mating, the female lays her eggs in the crevices of the elderberry bark. Upon hatching (after approximately 10 days), the larvae bore into the pith of the shrub and feed inside the stems. An assortment of elderberry branch sizes are used for larval development and pupation (0.5 to 7.8 inches in diameter) (Lang et al. 1989; Barr 1991; Collinge et al. 2001); however, exit holes are most frequently found in stems approximately 2–4 inches in diameter (Barr 1991; Collinge et al. 2001). Larvae remain in the elderberry stems for 1–2 years, until they mature.

Adult beetles emerge during spring through the holes they created as larvae. They are active from March through June (USFWS 1984; Barr 1991). They are herbivores, feeding on elderberry foliage, flowers, and nectar until they mate and complete their life cycle.

Elderberry is a common component of riparian forest and riparian scrub habitats in the Central Valley. Unlike many other riparian species, elderberry is not flood tolerant and is more commonly found in areas that do not experience regular floodplain inundation (Fremier and Talley 2009; Vaghti et al. 2009). Elderberry prefers moist, well-drained soils in sunny sites, usually in early successional plant communities; however, it frequently persists in openings in mature riparian woodlands and as an understory species in riparian woodlands (Stevens and Nesom 2006). Elderberry shrubs frequently are observed in association with diverse riparian species, with community species composition varying with locality. Commonly associated plants

include Fremont cottonwood, western sycamore, black walnut, arroyo willow (*Salix lasiolepis*), Goodding's willow, sandbar willow, valley oak, boxelder, Oregon ash (*Fraxinus latifolia*), wild grape, and poison oak (*Toxicodendron diversilobum*) (USFWS 1984; Vaghti et al. 2009). However, elderberry is not restricted to riparian areas, and it is the characteristic species of elderberry savannas, where it may occur with various species of oaks (e.g., valley oak, interior live oak [*Q. wislizenii*] or blue oak), poison oak, and other upland shrubs of the Sierra Nevada foothills (Holland 1986).

## Threats and Reasons for Decline of Valley Elderberry Longhorn Beetle

The loss of habitat has been, and continues to be significant impact to valley elderberry longhorn beetle. Agriculture conversion, levee construction, stream channelization, and road construction, and urban development within its historical range contribute to the destruction, fragmentation, and modification of the species habitat. Other threats include human use, including pruning of elderberry shrubs, to contribute to habitat destruction. Road and trail use and their maintenance and the effects of dust related to these activities are threats to quality of available habitat (79 FR 55874, September 17, 2014).

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# SECTION 5

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## Effects of the Action

This chapter describes the potential direct, indirect, interrelated, interdependent, and cumulative effects that the Proposed Action may have to those species identified in Section 1. The following discussion of potential Project effects on proposed activities within the Action

### 5.1 Direct and Indirect Effects

Direct effects are those effects generated directly from the Proposed Action. Examples of direct effects to listed species include incidental take during construction, elimination of suitable habitat due to project construction, and degradation of habitats due to construction-related activities (50 CFR 402.02). Indirect effects are those effects that are caused by the Proposed Action and are later in time. Examples of these types of effects to biological resources include the discharge of effluent or other material that adversely affect water quality downstream of the project site, an increase in human activity during project operations, and potential growth-inducement effects (50 CFR 402.02).

### Construction-related Effects

Potential direct effects on valley elderberry longhorn beetle may occur upon implementation of the Proposed Action. These direct effects may result from removing and transplanting four elderberry shrubs containing stems greater than one-inch in diameter. All shrubs onsite would be removed during construction. As such, there would be no indirect effects to valley elderberry longhorn beetle. **Table 3** summarizes potential effects to the five shrubs with stems measuring greater than one-inch in diameter that are within the Action Area.

**TABLE 3.  
ELDERBERRY SHRUB EFFECTS**

ID #	Stems ≥1" and ≤3"	Stems >3" and <5"	Stems ≥5"	Exit Holes (Y/N)	Riparian Habitat (Y/N)
1	1	-	-	N	N
3	2	-	-	N	N
4	-	2	-	N	N
5	1	-	-	N	N

SOURCE: ESA, 2016

Potential project effects to these shrubs would be compensated for through the implementation of the conservation measures described in Section 2. The City would be required to mitigate for these effects in accordance with USFWS guidelines (1999). A summary of potential valley elderberry longhorn beetle mitigation requirements is provided in **Table 4**. Implementing compensatory conservation measures for valley elderberry longhorn beetle would fully compensate for the effects on this species from implementing the Proposed Action.

**TABLE 4.**  
**VALLEY ELDERBERRY LONGHORN BEETLE MITIGATION REQUIREMENTS**

Stem Size (inches)	Number of Affected Stems	Required Ratio of Elderberry Seedlings <sup>1</sup>	Required Ratio of Native Plants <sup>2</sup>	Required Number of Elderberry Seedlings	Required Number of Associated Native Plants
<b>VELB Exit Holes Absent</b>					
1-3	4	4:1	2:1	16	8
3-5	2	6:1	2:1	12	4
>5	0	8:1	2:1	0	0
<b>VELB Exit Holes Present</b>					
None					
<b>Totals</b>				<b>28</b>	<b>12</b>
<b>Estimated total number of VELB credits required<sup>3</sup></b>				<b>2.8</b>	

NOTES: VELB=valley elderberry longhorn beetle

<sup>1</sup> Ratios correspond to the number of elderberry seedlings to be planted per elderberry stem affected.

<sup>2</sup> Ratios correspond to the number of native plantings required per elderberry seedling planted.

<sup>3</sup> VELB credits assume ten plantings per habitat unit.

SOURCE: USFWS, 1999

## Long-term Effects

Implementing the Proposed Action would have long-term effects on valley elderberry longhorn beetle. Because all elderberry shrubs in the Action Area would be removed, there would be no remaining habitat available for valley elderberry longhorn beetle at this location. However, transplanting elderberry shrubs and securing mitigation credits or establishing suitable valley elderberry longhorn beetle habitat at an offsite location in accordance with the USFWS guidelines (USFWS, 1999) would reduce this long-term effect.

## Beneficial Effects

In accordance with the compensatory conservation measures described in Section 2, valley elderberry longhorn beetle habitat would be planted at an offsite location, or credits would be secured from a mitigation bank to compensate for removing and trimming elderberry shrubs in the Action Area. The ratio of required plantings to the number of elderberry stems affected is weighted heavily toward required plantings; thus, much more habitat would be created or secured from a mitigation bank than would be affected by activities related to implementing the Proposed

Action. This action would provide more suitable habitat within the range of valley elderberry longhorn beetle than currently exists in the Action Area.

## 5.2 Effects of Interrelated and Interdependent Actions

Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no significant independent utility apart from the action that is under consideration (50 CFR 402.02). Interrelated and interdependent actions are activities that would not occur “but for” the proposed action (50 CFR 402.02).

The Proposed Action being considered is part of the Housing Authority of the County of Sacramento’s (HACOS’s) Asset Repositioning Strategy and Guiding Principles development strategy focusing on current and future budget shortfalls as a result of reductions in federal funding for public housing operations and maintenance. The strategy called for, among other things, the upgrading of existing physical public housing stock and the decreased reliance on federal funding sources by leveraging private funding (debt and equity) and other sources such as grants and local funds. The existing Twin Rivers Community Housing Complex (then known as Dos Rios) was identified as a priority “Action Development” under this strategy.

None of the other projects identified in HACOS’s Asset Repositioning Strategy and Guiding Principles development strategy would be considered interrelated and/or interdependent actions because they do have significant independent utility apart from the Proposed Action that is under consideration (50 CFR 402.02). Additionally, they could occur with or without the Proposed Action. As a result, no interrelated or interdependent actions that could affect Federally listed species covered in this BA have been identified in relation to the Proposed Action.

## 5.3 Cumulative Effects

Cumulative effects include those of future State, tribal, local, or private actions that are reasonably certain to occur in the action area under consideration (50 CFR 402.02). The ESA requires USFWS and NMFS to evaluate the cumulative effects of the Proposed Action on listed species and designated critical habitat, and to consider cumulative effects in formulating biological opinions (USFWS and NMFS 1998). The ESA defines cumulative effects as “those effects of future State or private actions, not involving Federal activities, that are reasonably certain to occur within the action area” of the proposed action subject to consultation (USFWS and NMFS 1998). Future Federal actions that are unrelated to the Proposed Action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA. Federal actions, including activities that would require a permit under Clean Water Act Section 404, are, therefore, not included. For the purposes of this BA, the area of cumulative effects analysis is defined as the southern Sacramento Valley.

A number of other commercial and private activities, including urban and rural development, could potentially affect listed species in the southern Sacramento Valley. Ongoing non-Federal activities that affect valley elderberry longhorn beetle would likely continue in the short and long term, at intensities similar to those of recent years.

Potential cumulative effects on valley elderberry longhorn beetle could include dumping of domestic and industrial garbage; increased discharge of pesticides, herbicides, and other contaminants; and conversion of riparian areas for urban and agricultural development. As described in the previous discussions, the effects associated with implementing the Proposed Action would be reduced with the incorporation of the compensatory mitigation measures described in Section 2. Implementing compensatory mitigation measures would further reduce the potential effect of the Proposed Action on valley elderberry longhorn beetle. Implementing these measures would fully compensate for the potential effects of implementing the Proposed Action on the species; therefore, implementing the Proposed Action would not contribute to cumulative effects on the species.



## SECTION 6

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### Summary of Effects Determinations

It is our determination that construction and operation of the Proposed Action would not affect the following species.

- California red-legged frog (*Rana draytonii*) (T)
- California tiger salamander (*Ambystoma californiense*), (T)
- Vernal pool fairy shrimp (*Branchinecta lynchi*) (T)
- Vernal pool tadpole shrimp (*Lepidurus packardi*), (E)
- Delta smelt (*Hypomesus transpacificus*) (T)
- Steelhead (*Oncorhynchus (=salmo) mykiss*) (T)
- Giant garter snake (*Thamnophis gigas*) (T)

It is our determination that the construction of the Proposed Action may affect, and is likely to adversely affect the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). However, with implementation of the proposed conservation measures, the level of take would be small and would be fully compensated with replanting of elderberry shrubs or the purchase of valley elderberry longhorn beetle credits from an approved mitigation bank. As a result, implementation of the Proposed Action would not jeopardize the continued existence of the species.

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## SECTION 7

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# Appendix A

## **Federal Endangered and Threatened Species with Potential to Occur**

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# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office

FEDERAL BUILDING, 2800 COTTAGE WAY, ROOM W-2605

SACRAMENTO, CA 95825

PHONE: (916)414-6600 FAX: (916)414-6713

Consultation Code: 08ESMF00-2016-SLI-1398

April 29, 2016

Event Code: 08ESMF00-2016-E-03019

Project Name: Twin Rivers Transit-Oriented Development and Light Rail Station Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

[http://www.nwr.noaa.gov/protected\\_species/species\\_list/species\\_lists.html](http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html)

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)

of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment





United States Department of Interior  
Fish and Wildlife Service

Project name: Twin Rivers Transit-Oriented Development and Light Rail Station Project

## Official Species List

### Provided by:

Sacramento Fish and Wildlife Office  
FEDERAL BUILDING  
2800 COTTAGE WAY, ROOM W-2605  
SACRAMENTO, CA 95825  
(916) 414-6600

**Consultation Code:** 08ESMF00-2016-SLI-1398

**Event Code:** 08ESMF00-2016-E-03019

**Project Type:** \*\* OTHER \*\*

**Project Name:** Twin Rivers Transit-Oriented Development and Light Rail Station Project

**Project Description:** The site is comprised of two areas totaling approximately 24.2 acres that are separated from one another by North 12th Street. The larger and westernmost area is comprised of a single parcel, approximately 21 acres in size. It is generally bounded by Dos Rios Street to the west, Richards Boulevard to the northeast, Louise Street to the east, and North 12th Street to the south. The second and easternmost area is separated from the first by intervening parcels and North 12th Street. It is comprised of six parcels totaling approximately 3.2 acres.

The project is comprised of the following components: 1.) redevelop the Twin Rivers Community Housing Complex west of North 12th Street, 2.) construct the Twin Rivers Community Housing Expansion Area east of N 12th Street, and 3.) develop the new Dos Rios Light Rail Station on the eastern side of N 12th Street, adjacent to the expansion area.

The redevelopment of the existing housing complex and construction of the expansion area housing east of North 12th Street would take approximately seven years, beginning in 2017 with anticipated project completion in 2023. Acquisition, infrastructure availability, market conditions, demolition, and the timing of the new Dos Rios light rail station construction would have an impact on the phasing of physical development of the housing facilities. On the Twin Rivers Community Housing Expansion Area parcels, it is likely that the new light rail station would be constructed prior to the construction of the adjacent housing.

The project would be separated into phases to meet market conditions and also to potentially



United States Department of Interior  
Fish and Wildlife Service

Project name: Twin Rivers Transit-Oriented Development and Light Rail Station Project

facilitate efficient relocation of residents from existing units into new replacement housing as the existing units are demolished.

Physical construction of the housing facilities would occur in typical fashion, with demolition occurring first, followed by site preparation and grading, construction of roadways and utility improvements, and then construction of the housing units. Construction of the housing units would begin with the pouring of foundations, followed by framing and installation of rough electrical, plumbing, and heating, ventilation, and cooling (HVAC) components. Interior and exterior walls would be finished, followed by final fitting out of interior components and exterior landscaping.

**Please Note:** The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.





United States Department of Interior  
Fish and Wildlife Service

Project name: Twin Rivers Transit-Oriented Development and Light Rail Station Project

## Endangered Species Act Species List

There are a total of 8 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	Status	Has Critical Habitat	Condition(s)
California red-legged frog ( <i>Rana draytonii</i> ) Population: Entire	Threatened	Final designated	
California tiger Salamander ( <i>Ambystoma californiense</i> ) Population: U.S.A. (Central CA DPS)	Threatened	Final designated	
<b>Crustaceans</b>			
Vernal Pool fairy shrimp ( <i>Branchinecta lynchi</i> ) Population: Entire	Threatened	Final designated	
Vernal Pool tadpole shrimp ( <i>Lepidurus packardii</i> ) Population: Entire	Endangered	Final designated	
<b>Fishes</b>			
Delta smelt ( <i>Hypomesus transpacificus</i> ) Population: Entire	Threatened	Final designated	
steelhead ( <i>Oncorhynchus (=salmo)</i> )	Threatened	Final designated	



United States Department of Interior  
Fish and Wildlife Service

Project name: Twin Rivers Transit-Oriented Development and Light Rail Station Project

<i>mykiss</i> Population: Northern California DPS			
<b>Insects</b>			
Valley Elderberry Longhorn beetle ( <i>Desmocerus californicus dimorphus</i> ) Population: Entire	Threatened	Final designated	
<b>Reptiles</b>			
Giant Garter snake ( <i>Thamnophis gigas</i> ) Population: Entire	Threatened		



United States Department of Interior  
Fish and Wildlife Service

Project name: Twin Rivers Transit-Oriented Development and Light Rail Station Project

## **Critical habitats that lie within your project area**

There are no critical habitats within your project area.



# United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington, D.C. 20240

In Reply Refer To:  
FWS/AES/OCHR/006577

Memorandum

APR 17 2002

To: Regional Directors, Region 1, 2, 3, 4, 5, 6, and 7  
Manager, California - Nevada Operations Office

From: **Deputy** Director **/s/ Marshall P. Jones**

Subject: Endangered Species Act Consultation Compliance with "Responsible Entities" under U. S. Department of Housing and Urban Development's Assumption Authority (24 CFR Part 58)

The purpose of this memorandum is to clarify Service policy regarding consultation under section 7 of the Endangered Species Act for certain projects authorized by the Department of Housing and Urban Development. Under 12 HUD Programs, States, Indian Tribes, units of general local government and certain insular areas (Guam, the Northern Mariana Islands, the Virgin Islands, American Samoa, and Palau) are required to assume, or in some cases may choose to assume, the environmental compliance responsibilities that would otherwise be the responsibility of HUD. Nine of the programs for which these "responsible entities" may assume responsibilities are described in regulations found at 24 CFR Part 58. The three additional programs that by more recently-enacted statutory provisions are subject to the environmental provisions in Part 58 are: (1) assistance under the Native American Housing Assistance and Self-Determination Act of 1996, (2) loan guarantees for Indian housing under Section 184 of the Housing and Community Development Act of 1992, and (3) Housing Opportunities for Persons with AIDS grants under the AIDS Housing Opportunity Act. The regulations specifically mention that section 7 of the Endangered Species Act is one of the laws for which responsible entities may assume responsibility for compliance.

According to HUD regulations and statutes, when eligible general government applicants apply for and accept HUD money under 24 CFR Part 58 programs, they agree to become the "responsible entity." These local governments are directly responsible for ensuring compliance with those Federal environmental laws described in the regulation, and as such, they constitute the "Federal agency" responsible for consulting with the Service under section 7 of the Endangered Species Act. However, Indian Tribes under NAHASDA and Section 184 have the option of agreeing to be the "responsible entity" or having HUD retain environmental responsibility. The unit of general local government is requested to be the "responsible entity" in instances when the applicant is not a governmental entity.

Service offices should regard all requests for section 7 consultation from "responsible entities" as official requests submitted by a Federal action agency as defined under the interagency consultation regulations at 50 CFR part 402. Both HUD and the local government entity will submit certification letters to the Field Office with the request for section 7 consultation (see attachment) to reaffirm the status of the local government entity as the "responsible entity" under part 58. In addition, any questions about who the responsible entities are for a particular geographic area should be directed to the appropriate Community Planning and Development Director. A list of HUD regional/state contacts and a list of CPD Directors are attached.

According to HUD's regulations (24 CFR 58.5) and statutes, the "responsible entity's" assumption of responsibility for compliance with the Endangered Species Act, "particularly Section 7," includes both substantive as well as procedural compliance with section 7. Part 58 and the assumption provisions in HUD's statutes make the responsible entity the responsible Federal official at the project level for each project for which a Request for Release of Funds and certification is submitted and approved. For any activity that may require compliance with the Endangered Species Act or any of the other listed Federal environmental compliance provisions, "responsible entities" must give public notice *and* submit a request for release of funds to HUD along with a certification that they have fully carried out the environmental responsibilities they have assumed, and that they agree to Federal court jurisdiction for enforcement of these responsibilities. The Service should be notified by the "responsible entity" that a request for release of funds has been submitted to HUD for any action that was reviewed for section 7 compliance.

If a Federal agency makes a finding that the project is unsatisfactory from the standpoint of environmental quality, HUD may determine not to release any funds for the project or exercise other corrective measures. In the event that a "responsible entity" fails to follow the procedural and substantive requirements of section 7, the Service should notify HUD that the responsible entity has not satisfied the requirements of the Endangered Species Act. In particular, if the Service makes a jeopardy or adverse modification determination, a copy of the biological opinion should be provided to the appropriate CPD Director with a request for HUD not to release the funds without first coordinating with the Services (see attachment no. 4). In addition, if the responsible entity is not cooperative in implementing the Reasonable and Prudent Measures or the project is modified from that described in the biological opinion, it may be necessary to work with the appropriate CPD Director as HUD has continuing monitoring responsibilities.

Please direct any questions concerning this matter to Renne Lohofener, Chief, Division of Consultation, Habitat Conservation Planning, Recovery, and State Grants at (703) 358-2171.

Attachments



cc: 3012-MIB-FWS/Directorate Reading File  
3242-MIB-FWS/AES RF  
420-ARLSQ-FWS/TE  
420-ARLSQ-FWS/TE BCH Ctrl #006577  
420-ARLSQ-FWS/TE RF

FWS/TE:MMorgan:emj:2/19/02:703-358-2106:S:\BCH\HUD\HUD final v3.doc  
Revised:MMorgan:emj:04/09/02

[CPD Director]  
Field Housing and Urban Development Office

Re: Notification of Jeopardy/Adverse Modification determination by the Service on [project]

Dear [CPD Director]:

The U.S. Fish and Wildlife Service/National Marine Fisheries Service has determined that implementation of the proposed [project] by [responsible entity] will likely jeopardize the continued existence of [one or more species] and/or result in destruction or adverse modification of critical habitat. We have provided [responsible entity] the following reasonable and prudent alternatives:[list]. Because the biological opinion has found [jeopardy/destruction or adverse modification of critical habitat] the responsible entity is required to notify the Service of its final decision on the implementation of the reasonable and prudent alternatives.

We request that HUD not release the funds for the proposed project until the responsible entity has notified the Service of its intentions and HUD has coordinated the release with the Service.

If you have any questions or comments please contact [Name] at [number].

Sincerely,

Field Supervisor

**From:** Douglas, Lily [<mailto:> ]

**Sent:** Wednesday, October 12, 2016 11:47 AM

**To:** Dana Mahaffey <[DMahaffey@cityofsacramento.org](mailto:DMahaffey@cityofsacramento.org)>

**Cc:** [Kathleen.A.McNulty@hud.gov](mailto:Kathleen.A.McNulty@hud.gov)

**Subject:** Additional Information for the Consultation on the Twin Rivers TOD and Light Rail Station Project

Dear Ms. Mahaffey,

In reviewing the biological assessment for the Twin Rivers Transit-Oriented Development and Light Rail Station Project, I have a question regarding your proposed conservation measures. The BA says that 2.8 valley elderberry longhorn beetle habitat credits will be purchased; however, the BA also states that 4 elderberry plants will be transplanted. As each habitat credit is able to accept a single transplant, the proposed credit purchase is not adequate to support the proposed transplants. Have you been in contact with a conservation banking firm regarding this proposal? Please clarify your proposed conservation measures in order to minimize the proposed project's effects to the beetle.

Thank you,

Lily Douglas

Fish and Wildlife Biologist, Sacramento Valley Division

Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service

2800 Cottage Way, Suite W-2605

Sacramento, CA 95825

(916) 414-6628

[lily\\_douglas@fws.gov](mailto:lily_douglas@fws.gov)

**From:** Sarah Cannon  
**To:** "[Douglas, Lily](#)"  
**Cc:** [Luke Evans](#); [DMahaffey@cityofsacramento.org](mailto:DMahaffey@cityofsacramento.org); [Kellie Berry](#); [Kathleen.A.McNulty@hud.gov](mailto:Kathleen.A.McNulty@hud.gov)  
**Subject:** RE: Additional Information for the Consultation on the Twin Rivers TOD and Light Rail Station Project  
**Date:** Tuesday, December 13, 2016 10:28:00 AM

---

Hi Lily –

For the Twin Rivers project mitigation, we propose the purchase of 4.8 mitigation credits for the mitigation of 4 stems measuring >1" to <=3" and 2 stems measuring >3" to 5". Our proposed mitigation does not include transplanting the shrubs located onsite, but does include the purchase of 4.8 mitigation credits which encompasses 24 elderberry seedling plantings, 24 associated native plants at a mitigation bank.

Thank you,  
Sarah

Sarah Cannon  
ESA | Environmental Science Associates  
2600 Capitol Avenue, Suite 200  
Sacramento, CA 95816  
916.564.4500 main | 916.564.4501 fax  
916.231.1202 direct | 916.335.1052 cell  
[scannon@esassoc.com](mailto:scannon@esassoc.com) | [www.esassoc.com](http://www.esassoc.com)

Follow us on [Facebook](#) | [Twitter](#) | [LinkedIn](#)

**From:** Douglas, Lily [mailto:[lily\\_douglas@fws.gov](mailto:lily_douglas@fws.gov)]  
**Sent:** Thursday, October 20, 2016 2:11 PM  
**To:** Sarah Cannon  
**Cc:** Luke Evans; [DMahaffey@cityofsacramento.org](mailto:DMahaffey@cityofsacramento.org); [Kellie Berry](#); [Kathleen.A.McNulty@hud.gov](mailto:Kathleen.A.McNulty@hud.gov)  
**Subject:** Re: Additional Information for the Consultation on the Twin Rivers TOD and Light Rail Station Project

Hi Sarah,

The 1999 guidelines require additional plantings if transplanting will not occur. We normally see the number of credits increased 3 times to offset the lack of transplanting. Therefore, please reconsider your proposed conservation measures and provide us with measures that appropriately minimize the proposed project's effects to the beetle.

In addition, I have to express some confusion on the significant differences between your email and the information provided in the biological assessment. I hope that we will be provided with complete and accurate information regarding the proposed conservation measures and environmental baseline going forward.

Thank you,  
Lily

--

Lily Douglas  
Fish and Wildlife Biologist, Sacramento Valley Division  
Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service  
2800 Cottage Way, Suite W-2605  
Sacramento, CA 95825

(916) 414-6628  
[lily\\_douglas@fws.gov](mailto:lily_douglas@fws.gov)

On Tue, Oct 18, 2016 at 3:48 PM, Sarah Cannon <[SCannon@esassoc.com](mailto:SCannon@esassoc.com)> wrote:

Dear Lily Douglas,

I am working with Dana Mahaffey at the City of Sacramento on the Twin Rivers TOD and Light Rail Station project.

Proposed conservation for this project is to purchase VELB mitigation credits from a conservation banking firm in lieu of transplanting shrubs. The elderberry shrubs onsite are in poor condition likely due to annual vegetation maintenance (i.e., trimming). The City proposes to purchase mitigation credits to offset project impacts pursuant to minimization ratios set forth under the 1999 VELB programmatic BO.

Within the Action Area there are 11 shrubs with a total of four stems measuring between 1-3" and two stems measuring 3-5". The shrubs are not located in the riparian zone, nor are there exit holes present on the stems. Per the 1999 conservation guidelines, the City proposes mitigate for the loss of stems measuring over 1" by purchasing credits to plant eight elderberry shrubs, and eight associated native species with a minimum of 0.07 acres of planting area.

We have been in contact with Westervelt Ecological Services and Wildlands conservation banking firms who have both confirmed they have available mitigation credits that cover the area in the City of Sacramento.

		Exit	Stem Qty	1999 Elderberry Mitigation	Needed	1999 Associate Mitigation	Needed
Location	Stems	Holes	Seen	Ratio	Elderberry	Ratio	Associates
Non-Riparian	> 1" to <= 3"	No	4	1	4	1	4
Non-Riparian	> 3" to < 5"	No	2	2	4	1	4
<b>TOTALS</b>					8		8
<b>Acres</b>				0.07			

Please let us know if you have additional questions. Thank you,  
 Sarah

Sarah Cannon  
 ESA | Environmental Science Associates  
 2600 Capitol Avenue, Suite 200  
 Sacramento, CA 95816  
 916.564.4500 main | 916.564.4501 fax  
 916.231.1202 direct | 916.335.1052 cell  
[scannon@esassoc.com](mailto:scannon@esassoc.com) | [www.esassoc.com](http://www.esassoc.com)

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# United States Department of the Interior



In Reply Refer to:  
08ESMF00-  
2016-F-2198-1

FISH AND WILDLIFE SERVICE  
Sacramento Fish and Wildlife Office  
2800 Cottage Way, Suite W-2605  
Sacramento, California 95825-1846

DEC 28 2016

Ms. Dana Mahaffey  
Associate Planner  
City of Sacramento  
300 Richards Boulevard, 3<sup>rd</sup> Floor  
Sacramento, California 95811

Subject: Formal Consultation on the Proposed Twin Rivers Transit Oriented Development Project, Sacramento County, California

Dear Ms. Mahaffey:

This letter is in response to the City of Sacramento's (City) undated request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Twin Rivers Transit Oriented Development Project (proposed project), in Sacramento County, California. Your request was received by the Service on September 6, 2016; however, complete information was not received until December 13, 2016. At issue are the proposed project's effects on the federally-listed as threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (beetle). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act) and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR §402).

The federal action we are consulting on is the construction of a new mixed-use community and light rail station by the City in coordination with the U.S. Department of Housing and Urban Development (HUD). The proposed project is receiving federal funding through HUD's Choice Neighborhoods Initiative. Pursuant to HUD's Assumption Authority (24 CFR §58), the City has agreed to become the "responsible entity" and has assumed HUD's responsibilities as the lead agency under the Act. The Service recognized this authority in the April 17, 2002, memorandum (2002 memo; Service File Number FWS/AES/OCHR/006577).

Pursuant to 50 CFR §402.12(j), you submitted a biological assessment for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect, and is likely to adversely affect the beetle. The proposed project is not within designated or proposed critical habitat for any federally-listed species.

In considering your request, we based our evaluation on the following: (1) your undated letter requesting initiation of formal consultation and the enclosed September 2016 *Twin Rivers Transit-Oriented Development and Light Rail Station Project Biological Assessment for Consultation with the U.S. Fish and Wildlife Service* (biological assessment), prepared by ESA (consultant); (2) email correspondence between the Service, the City, and HUD; and (3) other information available to the Service.

## Consultation History

- September 6, 2016: The Service received the undated letter from the City requesting initiation of formal consultation with the September 2016 biological assessment enclosed.
- September 29, 2016: The Service emailed the City and HUD requesting the certification letter from HUD described in the 2002 memo.
- October 5, 2016: The Service received the September 30, 2016, certification letter from HUD.
- October 12, 2016: The Service sent an email requesting additional information on the proposed project's conservation measures for the beetle.
- December 13, 2016: The Service received an email from the consultant clarifying the conservation measures for the beetle. This date also confirms the receipt of all of the complete information in order for consultation to begin.

The remainder of this document provides our biological opinion on the effects of the proposed project on the beetle.

## BIOLOGICAL OPINION

### Description of the Action

The proposed project is located on two properties along North 12<sup>th</sup> Street in the City of Sacramento. The larger 21-acre property (west property) is generally bound by North 12<sup>th</sup> Street to the south, Dos Rios Street to the west, Richards Boulevard to the northeast, and Louise Street to the east. The second 3.2-acre property (east property) is located across North 12<sup>th</sup> Street. The west property includes the existing Twin Rivers Community Housing Complex. The east property is currently undeveloped. The proposed project will develop 486 new residential units, replacing the existing housing on the west property and constructing a multi-family apartment building on the east property. In addition, the existing light rail tracks adjacent to the east property will be realigned to the southeast and a new raised platform station will be constructed.

The proposed project area contains 11 elderberry plants (*Sambucus* sp.), the sole host plant for the beetle. The elderberry plants appear to have been routinely cut back by the current landowner. None of the elderberry plants contain beetle exit holes. Four of the elderberry plants have stems greater than or equal to 1 inch in diameter at ground level. All of the elderberry plants will be removed due to proposed project construction.

### *Conservation Measure*

The City is proposing to minimize effects of the proposed project by purchasing beetle conservation credits, as described in the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (Service 1999). The credits will be purchased from a Service-approved conservation bank with a service area covering the proposed project. The City proposes to compensate for the four plants removed as described in Table 1 below, including an increase in credits due to the fact that the elderberry plants will not be transplanted. This measure is considered part of the proposed action evaluated by the Service in this biological opinion.

**Table 1: Compensation Ratios for Affected Elderberry Plants**

Riparian	Elderberry Stem Size	Exit Holes	Number of Stems	Seedling Ratio	Number of Replacement Elderberries	Associated Native Ratio	Number of Associated Seedlings
No	>1" and <3"	No	4	1:1	4	1:1	4
No	>3" and <5"	No	2	2:1	4	1:1	4
<b>Total Stems Affected</b>			<b>6</b>				
<b>Total Replacement Plantings (x3)*</b>					<b>24</b>		<b>24</b>
<b>Conservation Credits Proposed for Plantings (total replacement plantings/10)</b>						<b>4.8</b>	
* Proposed increase in plantings due to the elderberry plants not being transplanted. Note: This information is summarized from email correspondence between the Service and the consultant.							

**Action Area**

The action area is defined in 50 CFR §402.02 as, “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.” For the proposed project, the action area encompasses the entire project site and all areas up to 165 feet from the construction footprint in which noise from construction activities is expected to exceed ambient levels (derived from Service 2006).

**Analytical Framework for the Jeopardy Determination**

Section 7(a)(2) of the Endangered Species Act requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. “Jeopardize the continued existence of” means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed federal action, and any cumulative effects, on the rangewide survival and recovery of the listed species. It relies on four components: (1) the *Status of the Species*, which describes the rangewide condition of the species, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed federal action and the effects of any interrelated or interdependent activities on the species; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-federal activities in the action area on the species.

**Status of the Species**

For the most recent comprehensive assessment of the range-wide status of the beetle, please refer to the *Withdrawal of the Proposed Rule To Remove the Valley Elderberry Longhorn Beetle From the Federal List of Endangered and Threatened Wildlife* (Service 2014). Threats discussed in the withdrawal continue to act on the beetle, with loss of riparian habitat being the most significant effect. While there continue to be losses of beetle habitat throughout its range, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for the beetle.



## **Environmental Baseline**

Due to the fact that the life cycle of the beetle takes one or two years to complete, during which it spends most of its life in the larval stage living within the stems of elderberry plants, it is not possible to know if the plants in the action area are inhabited by the beetle. The closest known occurrence of the beetle in the California Natural Diversity Database (CNDDDB) is approximately 250 meters from the action area along the American River, where beetle exit holes were located on the stems of elderberry plants on a mitigation site (CNDDDB 2016). The Sacramento Zone of critical habitat for the beetle is approximately 0.5 mile away across the American River, where adult beetles have been observed. The proximity to known occurrences increases the likelihood that the stems greater than or equal to 1 inch in diameter at ground level are inhabited by the beetle. The four elderberry plants with stems greater than or equal to 1 inch in diameter at ground level in the proposed project's action area represent a very small proportion of habitat available throughout the full range of the beetle and are not located within intact riparian habitat.

## **Effects of the Action**

All of the elderberry plants, including the four plants with stems equal to or greater than 1 inch at ground level, will be removed. Due to the poor condition of the plants, they will not be transplanted. Any beetle larvae occupying the stems will be killed when the plants are destroyed.

As noted previously in the *Description of the Action* section, the City has also proposed conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effect on the beetle of the project's anticipated incidental take, resulting from the permanent loss of habitat described above. The compensatory habitat proposed will be in the form of beetle conservation credits at a Service-approved conservation bank.

This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The compensatory lands will provide suitable habitat for breeding, feeding, or sheltering commensurate with or better than habitat lost as a result of the project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for the beetle.

## **Cumulative Effects**

Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. During this consultation, the Service did not identify any future non-federal actions that are reasonably certain to occur in the action area of the proposed project.

## **Conclusion**

After reviewing the current status of the beetle, the environmental baseline for the action area, the effects of the proposed project, and the cumulative effects, it is the Service's biological opinion that the Twin Rivers Transit Oriented Development Project, as proposed, is not likely to jeopardize the continued existence of the beetle. The Service reached this conclusion because the project-related effects to the beetle, when added to the environmental baseline and analyzed in consideration of the

lack of cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species. The elderberry plants to be removed represent a very small proportion of habitat available throughout the full range of the beetle and are not located within intact riparian habitat. In addition, the compensatory habitat proposed will ensure that habitat for the species will be protected and managed in perpetuity.

### INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service regulations at 50 CFR §17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the City so that they become binding conditions of any grant or permit issued, as appropriate, for the exemption in section 7(o)(2) to apply. The City has a continuing duty to regulate the activity covered by this incidental take statement. If the City (1) fails to assume and implement the terms and conditions or (2) fails to require any grantees or permittees to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permits or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the City must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR §402.14(i)(3)]

#### **Amount or Extent of Take**

The Service anticipates that incidental take of the beetle will be difficult to detect due to the fact that it is not possible to know how many larvae inhabit the four elderberry plants providing habitat for the beetle. Removal and transplantation of the elderberry plants could result in the harm and mortality of all larvae inhabiting the stems. Therefore, the Service is authorizing incidental take to the proposed action as the harm of all larvae within the four elderberry plants with stems greater than or equal to 1 inch in diameter at ground level.

Upon implementation of the following *Reasonable and Prudent Measures*, incidental take of the beetle associated with the Twin Rivers Transit Oriented Development Project will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

### **Effect of the Take**

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the beetle.

### **Reasonable and Prudent Measures**

All necessary and appropriate measures to avoid or minimize effects to the beetle resulting from implementation of this project have been incorporated into the project's proposed conservation measure. Therefore, the Service believes the following Reasonable and Prudent Measure is necessary and appropriate to minimize incidental take of the beetle:

1. The conservation measure for the beetle, as described in the biological assessment and restated here in the *Description of the Action* section of this biological opinion, will be fully implemented and adhered to. Further, this Reasonable and Prudent Measure will be supplemented by the Terms and Conditions below.

### **Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the Act, the City must ensure compliance with the following terms and conditions, which implement the Reasonable and Prudent Measure described above. These terms and conditions are nondiscretionary.

1. The City will include full implementation and adherence to the conservation measure as a condition of any permit or contract issued for the proposed project.
2. The City will provide a copy of the completed bill of sale and payment receipt to the Service upon the purchase of beetle conservation credits.
3. In order to monitor whether the amount or extent of incidental take anticipated from implementation of the proposed project is approached or exceeded, the City will adhere to the following reporting requirement. Should this anticipated amount or extent of incidental take be exceeded, the City must immediately reinstate formal consultation, as per 50 CFR §402.16.
  - a. For those components of the action that will result in habitat degradation or modification whereby incidental take in the form of harm is anticipated, the City will provide a precise accounting of the elderberry plants impacted to the Service after the completion of construction. This report will also include any information about changes in project implementation that result in habitat disturbance not described in the *Description of the Action* and not analyzed in this biological opinion.

### **REINITIATION - CLOSING STATEMENT**

This concludes formal consultation on the Twin Rivers Transit Oriented Development Project in Sacramento County, California. As provided in 50 CFR §402.16, reinitiation of formal consultation is required and will be requested by the federal agency or by the Service where discretionary federal agency involvement or control over the action has been retained or is authorized by law and:

- (a) If the amount or extent of taking specified in the incidental take statement is exceeded;
- (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
- (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or
- (d) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have questions regarding this biological opinion, please contact Lily Douglas, Fish and Wildlife Biologist ([lily\\_douglas@fws.gov](mailto:lily_douglas@fws.gov)), or Kellie Berry, Chief, Sacramento Valley Division ([kellie\\_berry@fws.gov](mailto:kellie_berry@fws.gov)) at the letterhead address, (916) 414-6631, or by e-mail.

Sincerely,



 Jennifer M. Norris  
Field Supervisor

cc:

Ms. Kathleen McNulty, U.S. Department of Housing and Urban Development, San Francisco, CA

**LITERATURE CITED**

California Natural Diversity Database (CNDDDB). 2016. Biogeographic Data Branch, Department of Fish and Wildlife. Sacramento, California. Accessed 14 October 2016.

U.S. Fish and Wildlife Service (Service). 1999. Conservation Guidelines for the Valley Elderberry Longhorn Beetle. Sacramento Fish and Wildlife Office, Sacramento, California. 15 pp.

\_\_\_\_\_. 2006. Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California. Arcata Fish and Wildlife Office, Arcata, California. July 26, 2006. 61 pp.

\_\_\_\_\_. 2014. Withdrawal of the Proposed Rule to Remove the Valley Elderberry Longhorn Beetle from the Federal List of Endangered and Threatened Wildlife. Federal Register 79:55874-55917. September 17, 2014.

*Dana Mahaffey*

## Environmental Justice (CEST and EA)

General requirements	Legislation	Regulation
Determine if the project creates adverse environmental impacts upon a low-income or minority community. If it does, engage the community in meaningful participation about mitigating the impacts or move the project.	Executive Order 12898	
<b>References</b>		
<a href="https://www.hudexchange.info/environmental-review/environmental-justice">https://www.hudexchange.info/environmental-review/environmental-justice</a>		

**HUD strongly encourages starting the Environmental Justice analysis only after all other laws and authorities, including Environmental Assessment factors if necessary, have been completed.**

**1. Were any adverse environmental impacts identified in any other compliance review portion of this project's total environmental review?**

Yes → *Continue to Question 2.*

No → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.*

**2. Were these adverse environmental impacts disproportionately high for low-income and/or minority communities?**

Yes

**Explain:**

→ *Continue to Question 3. Provide any supporting documentation.*

No

**Explain:**

→ *Continue to the Worksheet Summary and provide any supporting documentation.*

3. All adverse impacts should be mitigated. Explain in detail the proposed measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.

Mitigation as follows will be implemented:

→ Continue to Question 4.

No mitigation is necessary.

**Explain why mitigation will not be made here:**

→ Continue to Question 4.

4. Describe how the affected low-income or minority community was engaged or meaningfully involved in the decision on what mitigation actions, if any, will be taken.

→ Continue to the Worksheet Summary and provide any supporting documentation.

## Worksheet Summary

### Compliance Determination

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

Based on the race and ethnicity data, the Census blocks would all be considered minority Environmental Justice communities. Each of these blocks contains minority persons making up more than 50 percent of the population of these areas. The percentage of minority persons in all but one of the blocks (Block 1046) is also more than 10 percentage points higher than the minority population of the larger City of Sacramento.

Income data at the census block level is not available within Census Tract 53.01. As the blocks that make up the project study area comprise the bulk of the population of Tract 53.01, this tract-level information will be used for this evaluation. Census data for the tract from 2010 determined that 68.7 percent of the population lived below the poverty level, compared with 22.3 percent who lived below the poverty level in the City of Sacramento. Further, as shown below in Table 3.5-2, mean household income within Census Tract 53.01 was only 29 percent of mean household income in the County of Sacramento, and only 35 percent that of mean household income for the City of Sacramento. In addition, rates of unemployment rates in Tract 53.01 are more than three times that recorded in the City and the County.

	<b>Mean Household Income<sup>1</sup></b>	<b>Percent Unemployed<sup>2</sup></b>
<b>County of Sacramento</b>	\$56,439	10.2
<b>City of Sacramento</b>	\$46,731	11.4
<b>Census Tract 53.01</b>	\$16,364	38.5

1. Source: U.S. Census Bureau, American Fact Finder. Financial Characteristics: 2010. Table S2503. Accessed June 28, 2016.

2. Source: U.S. Census Bureau, American Fact Finder. Employment Status: 2010. Table S2301. Accessed June 28, 2016.

Based on this information, all of Tract 53.01 would be considered a low income<sup>1</sup> community. The U.S. Department of Health and Human Services poverty guidelines for the year 2010 defined the poverty threshold as annual income of less than \$10,830 for an adult individual under the age of 65 and annual income of less than \$22,050 for a family of four persons.<sup>1</sup> The percentage of persons living below the poverty threshold in the areas is substantially more than 25 percent, and the percentage is also more than 10 percentage points higher than for the City of Sacramento. As determined by the above analysis, all of the project study area would be considered an Environmental Justice community, as determined by race/ethnicity and income.

The EA determined that with mitigation measures for Air Quality & Climate Change (MM 3.2-1), Biological Resources (MM 3.3-1, MM3.3-2, Cultural and Paleontological Resources (RDSPMM 5.3-2), Hazards and Hazardous Materials (MM3.7-1, and RDSPMM 4.4-1(b), Noise and Vibration (MM 3.10-1, MM 3.10-2, MM 3.10-3, MM 3.10-4), Transportation and Traffic (MM 3.12-1, and MM 3.12-2) the project would result in a no adverse effect on all issues addressed.

#### References:

U.S. Census Bureau, American Fact Finder. Poverty Status in the Past 12 Months: 2010-2014 ACS 5-Year Estimates. Table S1701. Accessed June 29, 2016.

### Are formal compliance steps or mitigation required?

Yes  No





## Explosive and Flammable Hazards (CEST and EA)

General requirements	Legislation	Regulation
HUD-assisted projects must meet Acceptable Separation Distance (ASD) requirements to protect them from explosive and flammable hazards.	N/A	24 CFR Part 51 Subpart C
<b>Reference</b>		
<a href="https://www.hudexchange.info/environmental-review/explosive-and-flammable-facilities">https://www.hudexchange.info/environmental-review/explosive-and-flammable-facilities</a>		

**1. Does the proposed HUD-assisted project include a hazardous facility (a facility that mainly stores, handles or processes flammable or combustible chemicals such as bulk fuel storage facilities and refineries)?**

No

→ Continue to Question 2.

Yes

**Explain:**

→ Continue to Question 5.

**2. Does this project include any of the following activities: development, construction, rehabilitation that will increase residential densities, or conversion?**

No

→ Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.

Yes

→ Continue to Question 3.

**3. Within 1 mile of the project site, are there any current or planned stationary aboveground storage containers:**

- Of more than 100 gallon capacity, containing common liquid industrial fuels OR
- Of any capacity, containing hazardous liquids or gases that are not common liquid industrial fuels?

No

→ Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide all documents used to make your determination.

Yes

→ Continue to Question 4.

**4. Is the Separation Distance from the project acceptable based on standards in the Regulation?**

Please visit HUD's website for information on calculating Acceptable Separation Distance.

Yes

→ Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide map(s) showing the location of the project site relative to any tanks and your separation distance calculations. If the map identifies more than one tank, please identify the tank you have chosen as the "assessed tank."

No

→ Provide map(s) showing the location of the project site relative to any tanks and your separation distance calculations. If the map identifies more than one tank, please identify the tank you have chosen as the "assessed tank." Continue to Question 6.

**5. Is the hazardous facility located at an acceptable separation distance from residences and any other facility or area where people may congregate or be present?**

Please visit HUD's website for information on calculating Acceptable Separation Distance.

Yes

→ Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide map(s) showing the location of the project site relative to residences and any other facility or area where people congregate or are present and your separation distance calculations.

No

→ Provide map(s) showing the location of the project site relative to residences and any other facility or area where people congregate or are present and your separation distance calculations. Continue to Question 6.

**6. For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to make the Separation Distance acceptable, including the timeline for implementation. If negative effects cannot be mitigated, cancel the project at this location.**

Note that only licensed professional engineers should design and implement blast barriers. If a barrier will be used or the project will be modified to compensate for an unacceptable separation distance, provide approval from a licensed professional engineer.

## **Worksheet Summary**

### **Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

The project does not involve explosive or flammable materials or operations. There is no visual evidence or indication of unobstructed or unshielded above ground storage tanks (fuel oil, gasoline, propane, etc.) at or immediately adjacent to the project site. The nearest above-ground storage tanks (ASTs) are identified at: Sims Metals at 130 North 12th Street and Downtown Ford Sales at 525 North 16th Street.

Only Sims Metals has ASTs with contents (gasoline) that would be substantially explosive. The HUD Acceptable Separation Distance Electronic Assessment Tool calculator (HUD, 2016) estimated the acceptable separation distance at 276.57 feet. The Sims Metals AST is located about 930 feet from the project site.

#### References:

California Department of Toxic Substances Control (DTSC), 2016. North 12<sup>th</sup> Street Social Services Site (60001172), EnviroStor Database. Available at: [http://www.envirostor.dtsc.ca.gov/public/profile\\_report.asp?global\\_id=60001172](http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=60001172). Accessed January 21, 2016.

Environmental Science Associates, 2016. Twin Rivers Transit-Oriented Development and Light Rail Station Project Explosive Hazards Analysis. July 20, 2016.

Housing and Urban Development, Department of (HUD), 2016. Acceptable Separation Distance Electronic Assessment Tool. Available at: <https://www.hudexchange.info/programs/environmental-review/asd-calculator>.

Nichols Consulting Engineers, Chtd, (Nichols Consulting), 2012. Phase I Environmental Site Assessment Twin Rivers Development. June 28, 2012.

Nichols Consulting Engineers, Chtd, (Nichols Consulting), 2013. Phase I Environmental Site Assessment Dos Rios Transit Oriented Development Project. December 3, 2013.

State Regional Water Quality Control Board (SWRCB), 2016a. Former BC Stocking Station (T0606700184), Geotracker Database. Available at: [http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T0606700184](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606700184). Accessed January 21, 2016.

State Regional Water Quality Control Board (SWRCB), 2016b. Sims Metal (T10000000891), Geotracker Database. Available at: [http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T10000000891](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000000891). Accessed January 21, 2016.

State Regional Water Quality Control Board (SWRCB), 2016c. Union Pacific Railroad – North A St. Site (SL205753036), Geotracker Database. Available at: [http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=SL205753036](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL205753036). Accessed January 21, 2016.

### **Are formal compliance steps or mitigation required?**

Yes

No



# Technical Memorandum

date July 20, 2016

to Brad Satterwhite  
Community Development Analyst II, SHRA  
801 12th Street  
Sacramento, CA 95814

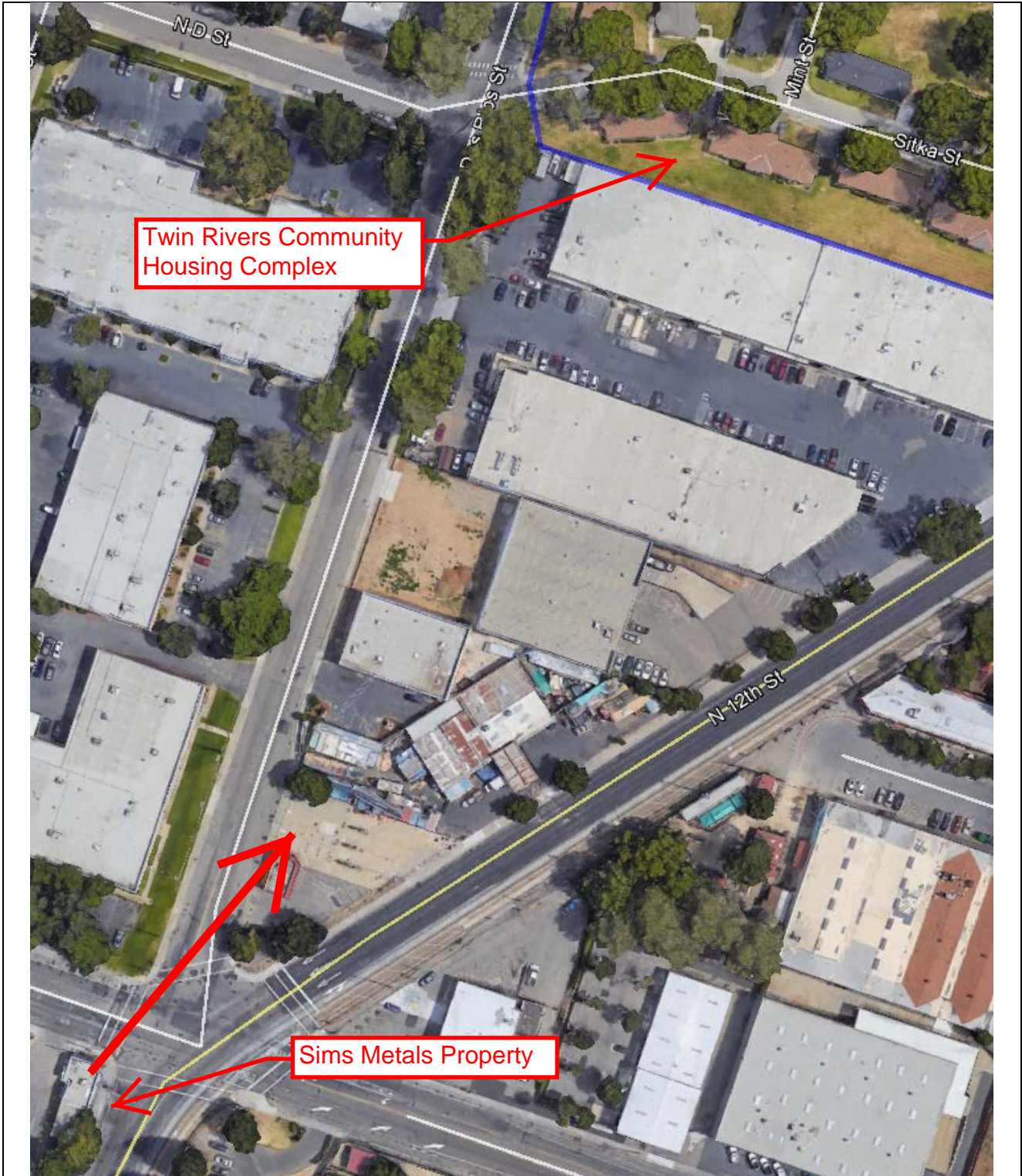
from Michael Burns, Luke Evans

subject Twin Rivers Transit-Oriented Development and Light Rail Station Project Explosive Hazards Analysis

ESA prepared this explosive hazards study technical memorandum in accordance with our proposal dated September 19, 2014, addressing the project distance from potential explosive hazards in order to demonstrate compliance with HUD regulations at 24 CFR Part 51, Subpart C. Hazards as defined by HUD regulations include stationary containers of an explosive or fire prone nature. HUD-assisted projects must meet required HUD Acceptable Separation Distance (ASD) standards or implement appropriate mitigation.

ESA reviewed existing Phase 1 environmental site assessments and requested and received information from the Sacramento County Environmental Management Department (SCEMD) regarding above-ground storage tanks. The available information is summarized on the attached Table 1. Of the eight sites listed within the project vicinity that had hazardous materials listings with the SCEMD, only two sites have active ASTs: Sims Metals and Downtown Ford Sales. Only Sims Metals has ASTs with contents (gasoline) that would be substantially explosive. ESA used the HUD Acceptable Separation Distance (ASD) Electronic Assessment Tool to estimate the ASD. This web-based tool is available at <https://www.hudexchange.info/programs/environmental-review/asd-calculator>. The results follow Table 1 and estimate the ASD at 276.57 feet.

An aerial photograph of the local area is provided as Figure 1. The southeastern boundary of the Twin Rivers Transit-Oriented Development and Light Rail Station Project is outlined in blue in the upper right-hand side of Figure 1. A 276.57-foot-long red line is shown extending from the northeast corner of the Sims property pointing towards the Twin Rivers Transit-Oriented Development and Light Rail Station Project boundary. As shown, the ASD is well short of the approximately 930 feet between the two sites. Therefore, the project site is at an acceptable distance using HUD standards.



Twin Rivers Transit-Oriented Development Project D120894

**Figure 1**

Acceptable Separation Distance

SOURCE:  
<https://www.hudexchange.info/programs/environmental-review/asd-calculator>

**Table 1. Summary of Available AST Information  
Twin Rivers Transit-Oriented Development and Light Rail Station Project**

Site name	Address	County Records AST Status	AST content & volume (gallons)	Reference - Twin Rivers	Reference - Triangle Site	County of Sacramento - Environmental Management Department - May 2, 2016 list	Comments
FD Hart Co; aka Carson Development; Western Truck Parts & Equip, LLC; possibly N. Valley Body & Paint	1441 Richards Blvd	No current ASTs	Former 1,850 gal AST removed 2003	x	x	1441 Richards (7)	Now Ken Imler Diesel Performance
Sims Metals	130 N. 12th St	Active	Hydraulic oil (200); gasoline (1,000 & 500); gear oil (125); motor oil (1,000); power train oil (125); used lubricating oils (500); waste oil (250); coolant (250); diesel fuel (6,300); diesel #2 (200 & 100); LPG (250 & 500)	x	x	130 N 12 (2)_Redacted; 130 N 12 (3)	
Downtown Ford Sales	525 N. 16th St	Active	Automatic transmission fluid (275); motor oil (275); waste oil (1,000)	x	x	525 N (2)_Redacted; 525 N (3)	
Commerce Printing Services	322 North 12th Street	No ASTs				322 N (2)	
Signature Press	430 17th Street	None				430 17th (2)_Redacted; 430 17th (3)	
Brownie's Blueprint Co Inc	1103 North B Street	None				1103 N (2)_Redacted.pdf	
Ferrari Color Inc	601 Bercut Drive	None				601 Bercut_Redacted.pdf	
Tom's Printing, Inc	1819 East Street	Not listed				No records provided	

**Notes:**

All in 95811 zip code

Available records did not include secondary containment information

[Environmental Review Main \(/programs/environmental-review/\)](/programs/environmental-review/)

# Acceptable Separation Distance (ASD) Electronic Assessment Tool

The Environmental Planning Division (EPD) has developed an electronic-based assessment tool that calculates the Acceptable Separation Distance (ASD) from stationary hazards. The ASD is the distance from above ground stationary containerized hazards of an explosive or fire prone nature, to where a HUD assisted project can be located. The ASD is consistent with the Department's standards of blast overpressure (0.5 psi-buildings) and thermal radiation (450 BTU/ft<sup>2</sup> - hr - people and 10,000 BTU/ft<sup>2</sup> - hr - buildings). Calculation of the ASD is the first step to assess site suitability for proposed HUD-assisted projects near stationary hazards. Additional guidance on ASDs is available in the Department's guidebook "Siting of HUD- Assisted Projects Near Hazardous Facilities" and the regulation 24 CFR Part 51, Subpart C, Siting of HUD-Assisted Projects Near Hazardous Operations Handling Conventional Fuels or Chemicals of an Explosive or Flammable Nature.

**Note:** Tool tips, containing field specific information, have been added in this tool and may be accessed by hovering over the ASD result fields with the mouse.

## Acceptable Separation Distance Assessment Tool

Is the container above ground?	Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>
Is the container under pressure?	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>
Does the container hold a cryogenic liquified gas?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Is the container diked?	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>
What is the volume (gal) of the container?	<input type="text" value="1000"/>
What is the Diked Area Length (ft)?	<input type="text"/>
What is the Diked Area Width (ft)?	<input type="text"/>
<input type="button" value="Calculate Acceptable Separation Distance"/>	
Diked Area (sqft)	<input type="text"/>
ASD for Blast Over Pressure (ASDBOP)	<input type="text"/>
ASD for Thermal Radiation for People (ASDPPU)	<input type="text" value="276.57"/>
ASD for Thermal Radiation for Buildings (ASDBPU)	<input type="text" value="50.28"/>
ASD for Thermal Radiation for People (ASDPNPD)	<input type="text"/>
ASD for Thermal Radiation for Buildings (ASDBNPD)	<input type="text"/>

**For mitigation options, please click on the following link:** Mitigation Options (<https://onecpd.info/resource>)



[/3846/acceptable-separation-distance-asd-hazard-mitigation-options/](#))

## Providing Feedback & Corrections

After using the ASD Assessment Tool following the directions in this User Guide, users are encouraged to provide feedback on how the ASD Assessment Tool may be improved. Users are also encouraged to send comments or corrections for the improvement of the tool.

Please send comments or other input using Ask A Question (<https://www.onecpd.info/ask-a-question/my-question/>). Enter "Environmental Review" in the "My question is related to" field.

## Related Information

- ASD User Guide (<https://onecpd.info/resource/3839/acceptable-separation-distance-asd-assessment-tool-user-guide/>)
- ASD Flow Chart (<https://onecpd.info/resource/3840/acceptable-separation-distance-asd-flowchart/>)

## Flood Insurance (CEST and EA)

General requirements	Legislation	Regulation
Certain types of federal financial assistance may not be used in floodplains unless the community participates in National Flood Insurance Program and flood insurance is both obtained and maintained.	Flood Disaster Protection Act of 1973 as amended (42 USC 4001-4128)	24 CFR 50.4(b)(1) and 24 CFR 58.6(a) and (b); 24 CFR 55.1(b).
<b>Reference</b>		
<a href="https://www.hudexchange.info/environmental-review/flood-insurance">https://www.hudexchange.info/environmental-review/flood-insurance</a>		

**1. Does this project involve financial assistance for construction, rehabilitation, or acquisition of a mobile home, building, or insurable personal property?**

- No. This project does not require flood insurance or is excepted from flood insurance. →  
*Continue to the Worksheet Summary.*
- Yes → *Continue to Question 2.*

**2. Provide a FEMA/FIRM map showing the site.**

The Federal Emergency Management Agency (FEMA) designates floodplains. The [FEMA Map Service Center](#) provides this information in the form of FEMA Flood Insurance Rate Maps (FIRMs). For projects in areas not mapped by FEMA, use the best available information to determine floodplain information. Include documentation, including a discussion of why this is the best available information for the site. Provide FEMA/FIRM floodplain zone designation, panel number, and date within your documentation.

**Is the structure, part of the structure, or insurable property located in a FEMA-designated Special Flood Hazard Area?**

- No → *Continue to the Worksheet Summary.*
- Yes → *Continue to Question 3.*

**3. Is the community participating in the National Flood Insurance Program or has less than one year passed since FEMA notification of Special Flood Hazards?**

- Yes, the community is participating in the National Flood Insurance Program.
- For loans, loan insurance or loan guarantees, flood insurance coverage must be continued for the term of the loan. For grants and other non-loan forms of financial assistance, flood insurance coverage must be continued for the life of the building irrespective of the transfer of ownership. The amount of coverage must equal the total project cost or the maximum coverage limit of the National Flood Insurance Program, whichever is less
- Provide a copy of the flood insurance policy declaration or a paid receipt for the current annual flood insurance premium and a copy of the application for flood insurance.
- *Continue to the Worksheet Summary.*

- Yes, less than one year has passed since FEMA notification of Special Flood Hazards.  
If less than one year has passed since notification of Special Flood Hazards, no flood Insurance is required.

→ *Continue to the Worksheet Summary.*

- No. The community is not participating, or its participation has been suspended.  
Federal assistance may not be used at this location. Cancel the project at this location.

### **Worksheet Summary**

#### **Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

The updated FEMA maps have been updated and released as of June 16, 2015. These updated floodmaps shows the project site as located within a Zone X, with .2 PCT, which is the 500-year floodplain. According to FEMA this is not a Special Flood Hazard Area which is defined as “the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year.” Additionally, the project site is protected by levees and dams. Development of the project does not constitute a critical action and so the 8-Step or 5-Step Process is not required. The project would not involve either direct or indirect support of development in a floodplain. Please refer to the figures below (see following pages)

#### References:

1. FEMA, Effective: June 16, 2015. FEMA Flood Map Service Center: Search by Address; Maps 06067C0180J and 06067C0176J. Available: <https://msc.fema.gov/portal/search?AddressQuery=sacramento#searchresultsanchor>. Accessed December 22, 2016
2. FEMA, Last Modified Dec 13, 2016.. FEMA's National Flood Hazard Layer (Official). Available at: <http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=cbe088e7c8704464aa0fc34eb99e7f30&extent=-121.7563522612301,38.49303201035,-121.23244173876991,38.67016432615534>. Accessed December 27, 2016
3. City of Sacramento, 2015. 100-year Floodplain Map. Available at: <http://www.cityofsacramento.org/Utilities/Education/Flood-Ready/Maps>. Accessed December 22, 2016.

#### **Are formal compliance steps or mitigation required?**

- Yes  
 No

Details Add Basemap

Save Share Print Measure Bookmarks Find address or place

About Content Legend

**Legend**

Cross-Sections  
—

Base Flood Elevations  
~

Coastal Barrier Resources System Area  
☐

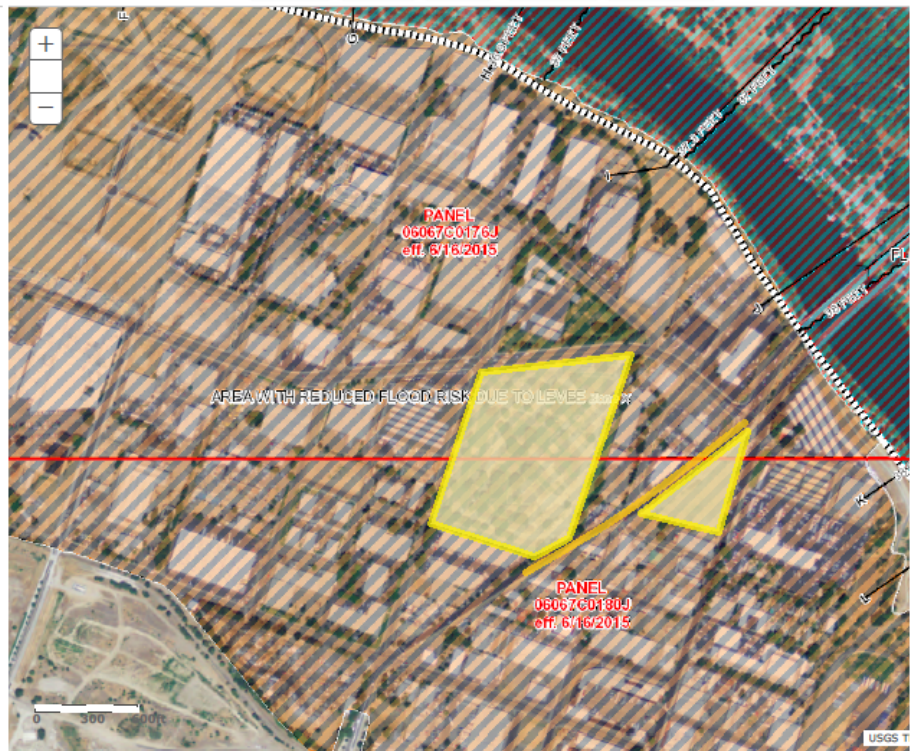
Levees  
|| Unaccredited Levee  
▨ Accredited Levee

General Structures  
- Flood Structure  
X Bridge  
— Dam, Weir, Jetty  
— Other Structure

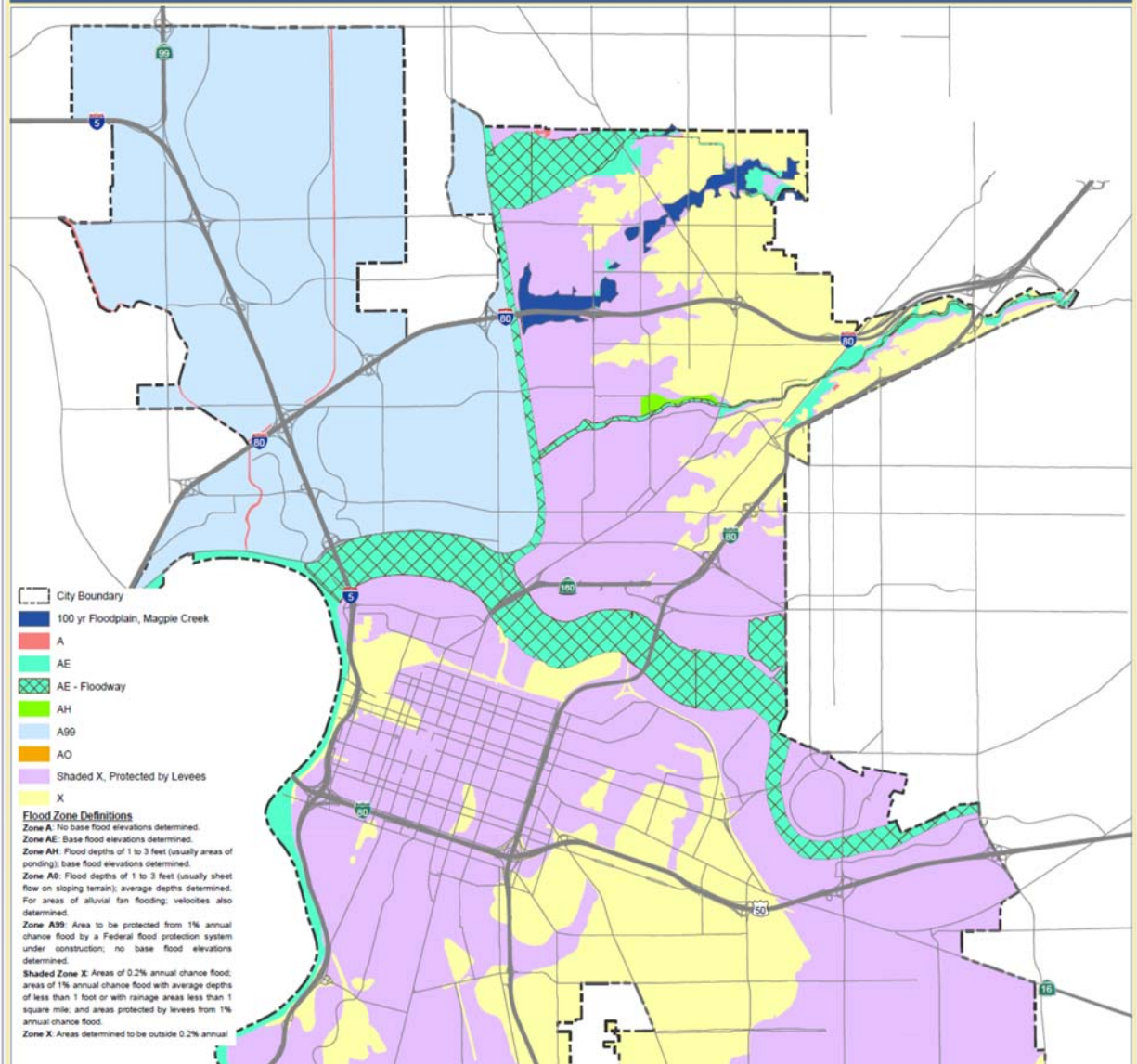
Flood Hazard Boundaries  
— Limit Lines  
— SFHA / Flood Zone Boundary  
— Other Boundaries

Flood Hazard Zones  
■ 1% Annual Chance Flood Hazard  
▨ Regulatory Floodway  
▨ Special Floodway  
■ Area of Undetermined Flood Hazard  
■ 0.2% Annual Chance Flood Hazard  
■ Future Conditions 1% Annual Chance Flood Hazard  
■ Area with Reduced Risk Due to Levee

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# Flood Zones



**NOTES TO USERS**

This map is to be used in conjunction with the National Flood Insurance Program's Flood Insurance Study for the Sacramento-San Joaquin River Delta. The map is intended to provide information to users regarding the flood hazard areas shown on this map.

**General:** This Flood Insurance Study was prepared by the Federal Emergency Management Agency (FEMA) in cooperation with the State of California. The map shows the flood hazard areas for the Sacramento-San Joaquin River Delta. The map is based on the Flood Insurance Study for the Sacramento-San Joaquin River Delta, which was prepared by FEMA in cooperation with the State of California. The map is based on the Flood Insurance Study for the Sacramento-San Joaquin River Delta, which was prepared by FEMA in cooperation with the State of California.

**Map Scale:** The map is based on a scale of 1 inch = 1 mile. The map is based on a scale of 1 inch = 1 mile. The map is based on a scale of 1 inch = 1 mile.

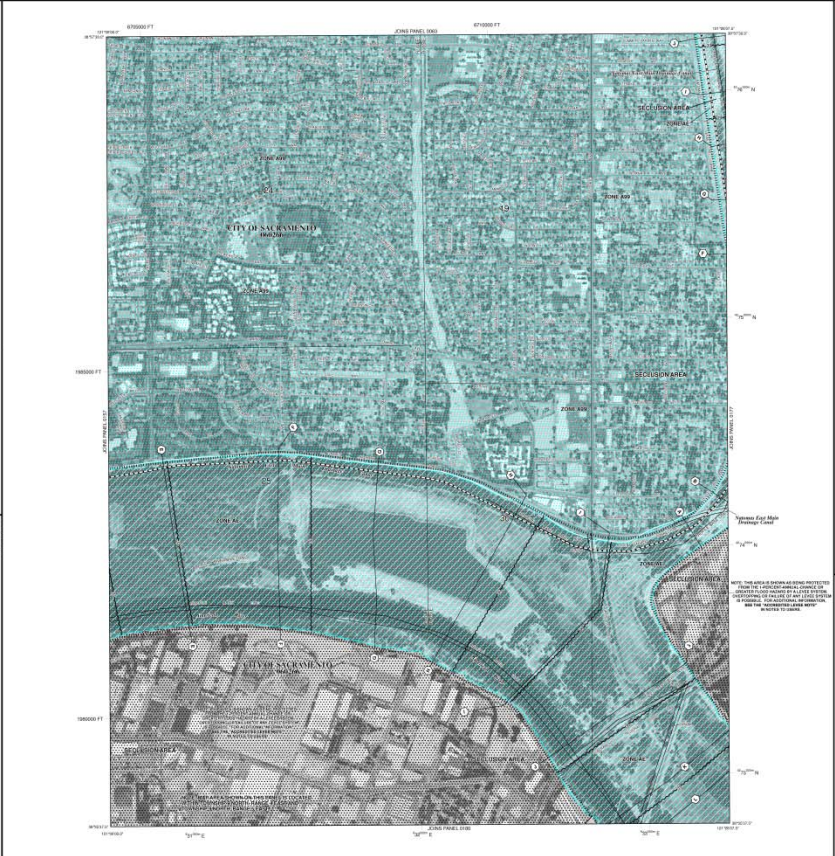
**Map Accuracy:** The map is based on the best available data. The map is based on the best available data. The map is based on the best available data.

**Map Date:** The map is based on the best available data. The map is based on the best available data. The map is based on the best available data.

**Map Source:** The map is based on the best available data. The map is based on the best available data. The map is based on the best available data.

**Map Contact:** The map is based on the best available data. The map is based on the best available data. The map is based on the best available data.

**Map Disclaimer:** The map is based on the best available data. The map is based on the best available data. The map is based on the best available data.



**LEGEND**

**OTHER FLOOD AREAS:**

- 100 Year Flood Hazard Area
- 500 Year Flood Hazard Area
- 100 Year Flood Hazard Area - Special Flood Hazard Area
- 500 Year Flood Hazard Area - Special Flood Hazard Area
- 100 Year Flood Hazard Area - Special Flood Hazard Area
- 500 Year Flood Hazard Area - Special Flood Hazard Area

**OTHER AREAS:**

- Other Areas
- Other Areas
- Other Areas
- Other Areas
- Other Areas

**OTHER FEATURES:**

- Other Features
- Other Features
- Other Features
- Other Features
- Other Features

**MAP SCALE:** 1" = 1 MILE

**MAP NUMBER:** SACRAMENTO COUNTY, CALIFORNIA

**MAP DATE:** JUNE 16, 2015

**FIRM**

**FLOOD INSURANCE RATE MAP**

**SACRAMENTO COUNTY, CALIFORNIA**

**AND UNOPERATED AREAS**

**PANEL 0176J**

**NATIONAL FLOOD INSURANCE PROGRAM**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

## Floodplain Management (CEST and EA)

General Requirements	Legislation	Regulation
Executive Order 11988, Floodplain Management, requires Federal activities to avoid impacts to floodplains and to avoid direct and indirect support of floodplain development to the extent practicable.	Executive Order 11988	24 CFR 55
<b>Reference</b>		
<a href="https://www.hudexchange.info/environmental-review/floodplain-management">https://www.hudexchange.info/environmental-review/floodplain-management</a>		

1. Does [24 CFR 55.12\(c\)](#) exempt this project from compliance with HUD's floodplain management regulations in Part 55?

Yes

Provide the applicable citation at 24 CFR 55.12(c) here. If project is exempt under 55.12(c)(7) or (8), provide supporting documentation.

→ Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.

No → Continue to Question 2.

2. Provide a FEMA/FIRM or ABFE map showing the site.

The Federal Emergency Management Agency (FEMA) designates floodplains. The FEMA Map Service Center provides this information in the form of FEMA Flood Insurance Rate Maps (FIRMs) or Advisory Base Flood Elevations (ABFEs). For projects in areas not mapped by FEMA, use the best available information to determine floodplain information. Include documentation, including a discussion of why this is the best available information for the site.

**Does your project occur in a floodplain?**

No → Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.

Yes

**Select the applicable floodplain using the FEMA map or the best available information:**

Floodway → Continue to Question 3, Floodways

- Coastal High Hazard Area (V Zone) → Continue to Question 4, Coastal High Hazard Areas
- 500-year floodplain (B Zone or shaded X Zone) → Continue to Question 5, 500-year Floodplains
- 100-year floodplain (A Zone) → The 8-Step Process is required. Continue to Question 6, 8-Step Process

### 3. **Floodways**

#### **Is this a functionally dependent use?**

- Yes

The 8-Step Process is required. Work with your HUD FEO to determine a way to satisfactorily continue with this project. Provide a completed 8-Step Process, including the early public notice and the final notice.

→ Continue to Question 6, 8-Step Process

- No

Federal assistance may not be used at this location unless a 55.12(c) exception applies. You must either choose an alternate site or cancel the project at this location.

### 4. **Coastal High Hazard Area**

#### **Is this a critical action?**

- Yes

Critical actions are prohibited in coastal high hazard areas. Federal assistance may not be used at this location. Unless the action is excepted at 24 CFR 55.12(c), you must either choose an alternate site or cancel the project.

- No

**Does this action include construction that is not a functionally dependent use, existing construction (including improvements), or reconstruction following destruction caused by a disaster?**

- Yes, there is new construction.

New construction is prohibited in V Zones ((24 CFR 55.1(c)(3)).

- No, this action concerns only a functionally dependent use, existing construction(including improvements), or reconstruction following destruction caused by a disaster.

This construction must have met FEMA elevation and construction standards for a coastal high hazard area or other standards applicable at the time of construction.

→ Continue to Question 6, 8-Step Process



**5. 500-year Floodplain**

**Is this a critical action?**

No → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.*

Yes → *Continue to Question 6, 8-Step Process*

**6. 8-Step Process.**

**Does the 8-Step Process apply? Select one of the following options:**

8-Step Process applies.

Provide a completed 8-Step Process, including the early public notice and the final notice.

→ *Continue to Question 7, Mitigation*

5-Step Process is applicable per 55.12(a)(1-3).

Provide documentation of 5-Step Process.

Select the applicable citation:

*55.12(a)(1)* HUD actions involving the disposition of HUD-acquired multifamily housing projects or “bulk sales” of HUD-acquired one- to four-family properties in communities that are in the Regular Program of the National Flood Insurance Program (NFIP) and in good standing (i.e., not suspended from program eligibility or placed on probation under 44 CFR 59.24).

*55.12(a)(2)* HUD's actions under the National Housing Act (12 U.S.C. 1701) for the purchase or refinancing of existing multifamily housing projects, hospitals, nursing homes, assisted living facilities, board and care facilities, and intermediate care facilities, in communities that are in good standing under the NFIP.

*55.12(a)(3)* HUD's or the recipient's actions under any HUD program involving the repair, rehabilitation, modernization, weatherization, or improvement of existing multifamily housing projects, hospitals, nursing homes, assisted living facilities, board and care facilities, intermediate care facilities, and one- to four-family properties, in communities that are in the Regular Program of the National Flood Insurance Program (NFIP) and are in good standing, provided that the number of units is not increased more than 20 percent, the action does not involve a conversion from nonresidential to residential land use, the action does not meet the thresholds for “substantial improvement” under § 55.2(b)(10), and the footprint of the structure and paved areas is not significantly increased.

*55.12(a)(4)* HUD's (or the recipient's) actions under any HUD program involving the repair, rehabilitation, modernization, weatherization, or improvement of existing nonresidential buildings and structures, in communities that are in the Regular Program of the NFIP and are in good standing, provided that the action does not meet the thresholds for “substantial improvement” under §

55.2(b)(10) and that the footprint of the structure and paved areas is not significantly increased.

→ *Continue to Question 7, Mitigation*

8-Step Process is inapplicable per 55.12(b)(1-4).

Select the applicable citation:

- 55.12(b)(1) HUD's mortgage insurance actions and other financial assistance for the purchasing, mortgaging or refinancing of existing one- to four-family properties in communities that are in the Regular Program of the National Flood Insurance Program (NFIP) and in good standing (i.e., not suspended from program eligibility or placed on probation under 44 CFR 59.24), where the action is not a critical action and the property is not located in a floodway or coastal high hazard area.
- 55.12(b)(2) Financial assistance for minor repairs or improvements on one- to four-family properties that do not meet the thresholds for "substantial improvement" under § 55.2(b)(10)
- 55.12(b)(3) HUD actions involving the disposition of individual HUD-acquired, one- to four-family properties.
- 55.12(b)(4) HUD guarantees under the Loan Guarantee Recovery Fund Program (24 CFR part 573) of loans that refinance existing loans and mortgages, where any new construction or rehabilitation financed by the existing loan or mortgage has been completed prior to the filing of an application under the program, and the refinancing will not allow further construction or rehabilitation, nor result in any physical impacts or changes except for routine maintenance.
- 55.12(b)(5) The approval of financial assistance to lease an existing structure located within the floodplain, but only if—
  - (i) The structure is located outside the floodway or Coastal High Hazard Area, and is in a community that is in the Regular Program of the NFIP and in good standing (i.e., not suspended from program eligibility or placed on probation under 44 CFR 59.24);
  - (ii) The project is not a critical action; and
  - (iii) The entire structure is or will be fully insured or insured to the maximum under the NFIP for at least the term of the lease.

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.*

## 7. **Mitigation**

**For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

**Which of the following mitigation/minimization measures have been identified for this project in the 8-Step or 5-Step Process? Select all that apply.**

- Permeable surfaces
- Natural landscape enhancements that maintain or restore natural hydrology
- Planting or restoring native plant species
- Bioswales
- Evapotranspiration
- Stormwater capture and reuse
- Green or vegetative roofs with drainage provisions
- Natural Resources Conservation Service conservation easements or similar easements
- Floodproofing of structures
- Elevating structures including freeboarding above the required base flood elevations
- Other

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.*

### **Worksheet Summary**

#### **Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

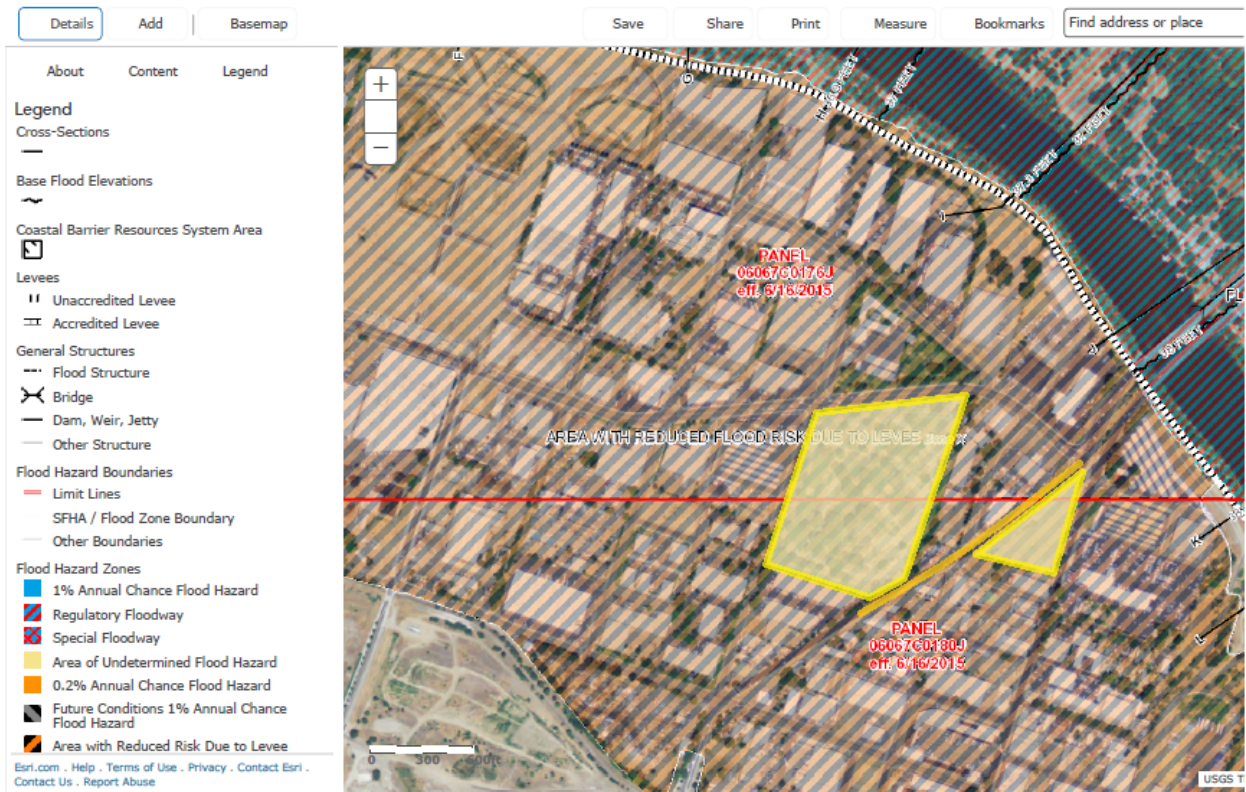
The updated FEMA maps have been updated and released as of June 16, 2015. These updated floodmaps shows the project site as located within a Zone X, with .2 PCT, which is the 500-year floodplain. According to FEMA this is not a Special Flood Hazard Area which is defined as “the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year.” Additionally, the project site is protected by levees and dams. Development of the project does not constitute a critical action and so the 8-Step or 5-Step Process is not required. The project would not involve either direct or indirect support of development in a floodplain. Please refer to the figures below (see following page)

References:

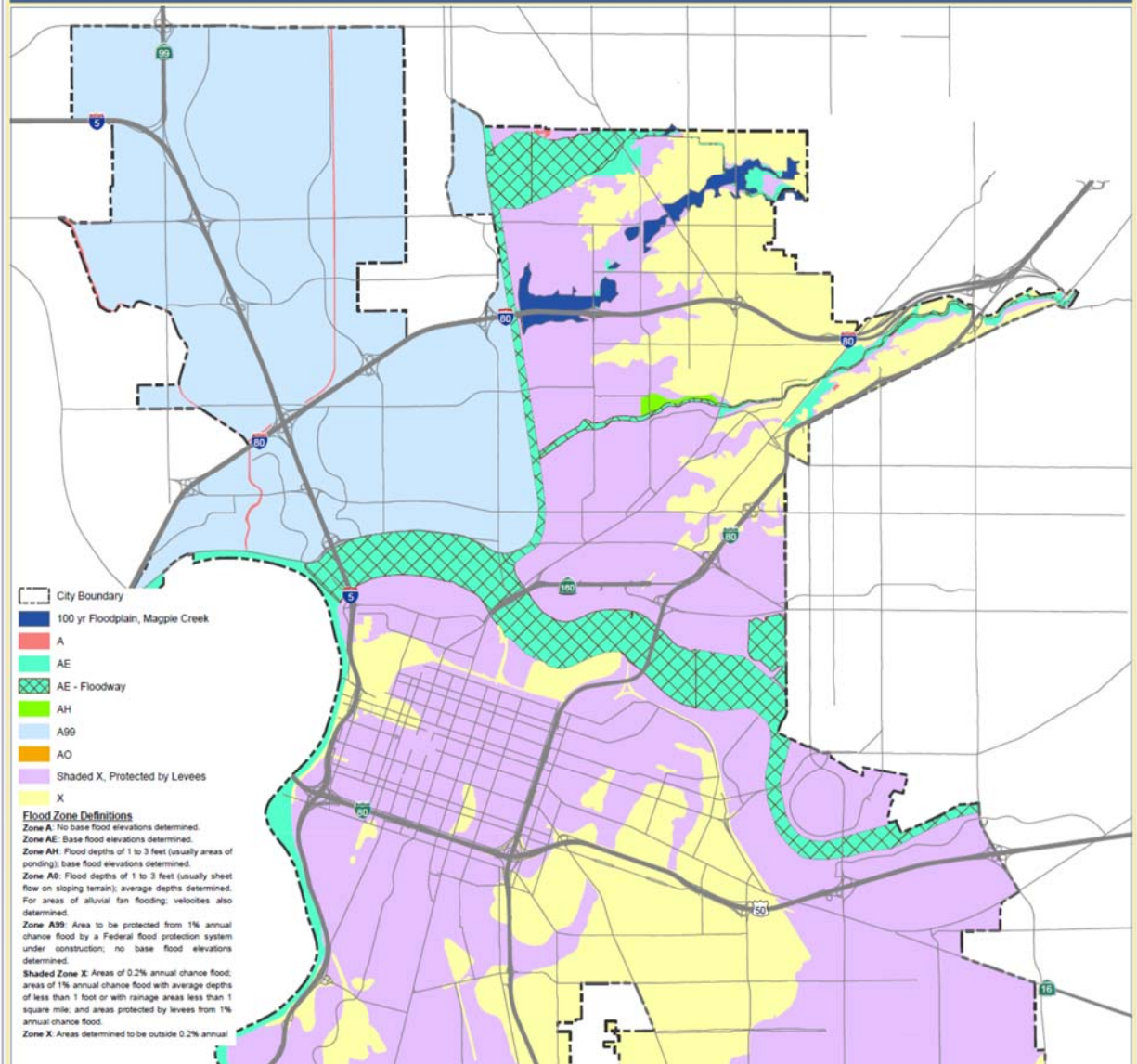
1. FEMA, Effective: June 16, 2015. FEMA Flood Map Service Center: Search by Address; Maps 06067C0180J and 06067C0176J. Available: <https://msc.fema.gov/portal/search?AddressQuery=sacramento#searchresultsanchor>. Accessed December 22, 2016
2. FEMA, Last Modified Dec 13, 2016.. FEMA's National Flood Hazard Layer (Official). Available at: <http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=cbe088e7c8704464aa0fc34eb99e7f30&extent=-121.7563522612301,38.49303201035,-121.23244173876991,38.67016432615534>. Accessed December 27, 2016
3. City of Sacramento, 2015. 100-year Floodplain Map. Available at: <http://www.cityofsacramento.org/Utilities/Education/Flood-Ready/Maps>. Accessed December 22, 2016.

**Are formal compliance steps or mitigation required?**

- Yes
- No



# Flood Zones



**NOTES TO USERS**

This map is to be used in conjunction with the National Flood Insurance Program's Standard Flood Hazard Determination Manual, which provides the criteria for the determination of special categories of flood hazard areas.

**Special Flood Hazard Areas:** Areas of special flood hazard are shown on this map as follows: Zone A: Areas of special flood hazard which are subject to flooding without the presence of a flood-carrying waterway. Zone AE: Areas of special flood hazard which are subject to flooding with the presence of a flood-carrying waterway. Zone X: Areas of special flood hazard which are subject to flooding without the presence of a flood-carrying waterway and which are not subject to flooding without the presence of a flood-carrying waterway.

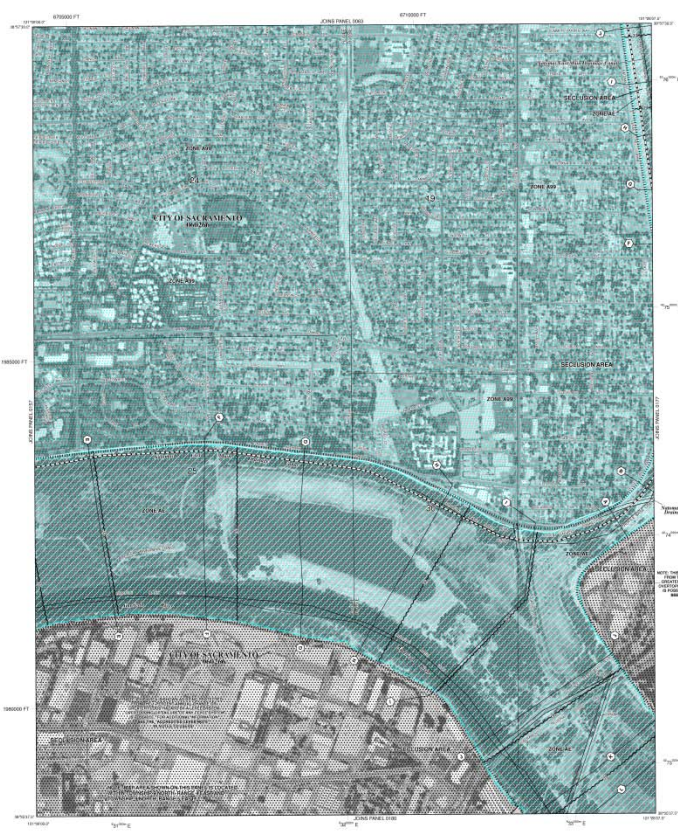
**General Note:** Flood elevations shown on this map apply only to the extent of the Special Flood Hazard Determination Manual. Flood elevations shown on this map are based on the Flood Insurance Rate Study (FIRS) data for the City of Sacramento. Flood elevations shown on this map are based on the Flood Insurance Rate Study (FIRS) data for the City of Sacramento.

**Map Accuracy:** The information on this map was derived from the best available data at the time of publication. The information on this map is not intended to be used as a substitute for a site-specific flood hazard determination.

**Map Scale:** The map scale is 1 inch = 1 mile. The map scale is 1 inch = 1 mile.

**Map Date:** The map was published on June 16, 2015. The map was published on June 16, 2015.

**Map Author:** The map was prepared by the Federal Emergency Management Agency. The map was prepared by the Federal Emergency Management Agency.



**LEGEND**

**Special Flood Hazard Areas (SFHA)**

Zone AE: Areas of special flood hazard which are subject to flooding with the presence of a flood-carrying waterway.

Zone A: Areas of special flood hazard which are subject to flooding without the presence of a flood-carrying waterway.

Zone X: Areas of special flood hazard which are subject to flooding without the presence of a flood-carrying waterway and which are not subject to flooding without the presence of a flood-carrying waterway.

**Other Flooded Areas**

Other Areas: Areas that are not subject to flooding but are shown on this map for informational purposes.

**Other Features**

City of Sacramento: The City of Sacramento is shown on this map with a dashed line boundary.

Sacramento County: Sacramento County is shown on this map with a dashed line boundary.

Sacramento River: The Sacramento River is shown on this map with a solid line boundary.

Map Scale: 1 inch = 1 mile.

Map Date: June 16, 2015.

Map Author: Federal Emergency Management Agency.

**FIRM PANEL 0176J**

**FIRM FLOOD INSURANCE RATE MAP**

**SACRAMENTO COUNTY, CALIFORNIA**

**AND UNOPERATED AREAS**

**PANEL 0176J**

**DATE: JUNE 16, 2015**

**SCALE: 1" = 1 MILE**

**MAP NUMBER: 010010176J**

**MAP REVISION: JUNE 16, 2015**

**Federal Emergency Management Agency**

## Noise (EA Level Reviews)

General requirements	Legislation	Regulation
HUD's noise regulations protect residential properties from excessive noise exposure. HUD encourages mitigation as appropriate.	Noise Control Act of 1972  General Services Administration Federal Management Circular 75-2: "Compatible Land Uses at Federal Airfields"	Title 24 CFR 51 Subpart B
References		
<a href="https://www.hudexchange.info/programs/environmental-review/noise-abatement-and-control">https://www.hudexchange.info/programs/environmental-review/noise-abatement-and-control</a>		

### 1. What activities does your project involve? Check all that apply:

- New construction for residential use

NOTE: HUD assistance to new construction projects is generally prohibited if they are located in an Unacceptable zone, and HUD discourages assistance for new construction projects in Normally Unacceptable zones. See 24 CFR 51.101(a)(3) for further details.

→ *Continue to Question 2.*

- Rehabilitation of an existing residential property

NOTE: For major or substantial rehabilitation in Normally Unacceptable zones, HUD encourages mitigation to reduce levels to acceptable compliance standards. For major rehabilitation in Unacceptable zones, HUD strongly encourages mitigation to reduce levels to acceptable compliance standards. See 24 CFR 51 Subpart B for further details.

→ *Continue to Question 2.*

- A research demonstration project which does not result in new construction or reconstruction, interstate, land sales registration, or any timely emergency assistance under disaster assistance provisions or appropriations which are provided to save lives, protect property, protect public health and safety, remove debris and wreckage, or assistance that has the effect of restoring facilities substantially as they existed prior to the disaster

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.*

- None of the above

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.*

**2. Complete the Preliminary Screening to identify potential noise generators in the vicinity (1000' from a major road, 3000' from a railroad, or 15 miles from an airport).**

**Indicate the findings of the Preliminary Screening below:**

There are no noise generators found within the threshold distances above.  
→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing the location of the project relative to any noise generators.*

Noise generators were found within the threshold distances.  
→ *Continue to Question 3.*

**3. Complete the Noise Assessment Guidelines to quantify the noise exposure. Indicate the findings of the Noise Assessment below:**

Acceptable: (65 decibels or less; the ceiling may be shifted to 70 decibels in circumstances described in §24 CFR 51.105(a))

**Indicate noise level here:**

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide noise analysis, including noise level and data used to complete the analysis.*

Normally Unacceptable: (Above 65 decibels but not exceeding 75 decibels; the floor may be shifted to 70 decibels in circumstances described in 24 CFR 51.105(a))

**Indicate noise level here:**

If project is rehabilitation:

→ *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis.*

If project is new construction:

**Is the project in a largely undeveloped area<sup>1</sup>?**

No

→ *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis, and any other relevant information.*

---

<sup>1</sup> A largely undeveloped area means the area within 2 miles of the project site is less than 50 percent developed with urban uses and does not have water and sewer capacity to serve the project.



Yes

→ Your project requires completion of an Environmental Impact Statement (EIS) pursuant to 51.104(b)(1)(i). Elevate this review to an EIS-level review.

Unacceptable: (Above 75 decibels)

Indicate noise level here:

If project is rehabilitation:

HUD strongly encourages conversion of noise-exposed sites to land uses compatible with high noise levels. Consider converting this property to a non-residential use compatible with high noise levels.

→ Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis, and any other relevant information.

If project is new construction:

**Your project requires completion of an Environmental Impact Statement (EIS) pursuant to 51.104(b)(1)(i). You may either complete an EIS or provide a waiver signed by the appropriate authority. Indicate your choice:**

Convert to an EIS

→ Provide noise analysis, including noise level and data used to complete the analysis.

Continue to Question 4.

Provide waiver

→ Provide an Environmental Impact Statement waiver from the Certifying Officer or the Assistant Secretary for Community Planning and Development per 24 CFR 51.104(b)(2) and noise analysis, including noise level and data used to complete the analysis.

Continue to Question 4.

- 4. HUD strongly encourages mitigation be used to eliminate adverse noise impacts. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation. This information will be automatically included in the Mitigation summary for the environmental review.**

Mitigation as follows will be implemented:

Title 24 of the California Code of Regulations establishes uniform noise insulation standards for residential projects. Residences must be designed to limit intruding noise to an interior CNEL (or DNL) of at least 45 dB. Prior to the issuance of building permits for residential projects within the Twin Rivers community housing area, the City of Sacramento shall require project applicants for residential development to submit a detailed noise analysis, prepared by a qualified acoustical professional, to identify design measures to be implemented to achieve the City interior standard of 45 CNEL in the proposed new residences. The resulting study shall be submitted to the City for review and approval. Design measures such as the following could be required, depending on the specific findings of the noise study: double-paned glass windows facing noise sources; solid-core doors; increased sound insulation of exterior walls (such as through staggered-or double-studs, multiple layers of gypsum board, and incorporation of resilient channels); weather-tight seals for doors and windows; or sealed windows with an air conditioning system installed for ventilation. The building plans submitted for building permit approval shall be accompanied by certification of a licensed engineer that the plans include the identified noise-attenuating design measures and satisfy the requirements of City standards.

*Describe the project's noise mitigation measures. Continue to the Worksheet Summary.*

No mitigation is necessary.

**Explain why mitigation will not be made here:**

*→ Continue to the Worksheet Summary.*

### **Worksheet Summary**

#### **Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

The major roadways that are within 1,000 feet of the project site are Richards Boulevard, Dos Rio Street, North 12<sup>th</sup> Street and North 16<sup>th</sup> Street. The DNL Calculator was used to estimate the maximum noise exposure of the project site. All traffic volumes are based on the traffic study prepared by Fehr & Peers for this project. Although there are 2 airports within 15 miles, their noise contours do not influence the project site. The Sacramento Regional Transit (RT) light rail is located within 3,000 feet from the proposed project. The light rail operations are based on the light rail station inbound and outbound schedule found on the Sacramento RT website. See Attachment 1 for the combined DNL for these sources. The noise exposure was estimated to fall within normally unacceptable levels. Mitigation has been included to limit intruding noise to an interior CNEL (or DNL) of at least 45 dB.

Attachments: Noise Attachment 1

**Are formal compliance steps or mitigation required?**

Yes

No

## DNL Calculator

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the [Day/Night Noise Level Calculator Electronic Assessment Tool Overview \(/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/\)](/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/).

### Guidelines

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.
- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- Note #2:** DNL Calculator assumes roadway data is always entered.

### DNL Calculator

<b>Site ID</b>	Twin Rivers Transit-Oriented Development and Dos Rios Light Rail Station
<b>Record Date</b>	01/30/2017
<b>User's Name</b>	Stan Armstrong

<b>Road # 1 Name:</b>	Richards Boulevard
-----------------------	--------------------

#### Road #1

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	100	100	100
Distance to Stop Sign	100	100	100
Average Speed	45	45	45
Average Daily Trips (ADT)	18802	392	392
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	58.7	51.9	68.7
Calculate Road #1 DNL	69.2	Reset	

<b>Road # 2 Name:</b>	Dos Rio Street
-----------------------	----------------

#### Road #2

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	100	100	100
Distance to Stop Sign	100	100	100
Average Speed	45	45	45
Average Daily Trips (ADT)	1425	20	20

Average Daily Trips (ADT)	1450	50	50
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	47.5	40.7	57.5
Calculate Road #2 DNL	58	Reset	

**Road # 3 Name:** North 12th Street

**Road #3**

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	100	100	100
Distance to Stop Sign	100	100	100
Average Speed	45	45	45
Average Daily Trips (ADT)	20050	418	418
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	59	52.2	69
Calculate Road #3 DNL	69.5	Reset	

**Road # 4 Name:** North 16th Street

**Road #4**

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	100	100	100
Distance to Stop Sign	100	100	100
Average Speed	45	45	45
Average Daily Trips (ADT)	44419	925	925
Night Fraction of ADT	15	15	15
Road Gradient (%)			2
Vehicle DNL	62.4	55.6	72.4
Calculate Road #4 DNL	72.9	Reset	

**Railroad #1 Track Identifier:** Sacramento Regional Transit light rail

**Rail # 1**

Train Type	Electric <input checked="" type="checkbox"/>	Diesel <input type="checkbox"/>
Effective Distance	100	
Average Train Speed	30	

Average Train Speed	<input type="text" value="20"/>	
Engines per Train	<input type="text" value="1"/>	
Railway cars per Train	<input type="text" value="2"/>	
Average Train Operations (ATO)	<input type="text" value="135"/>	
Night Fraction of ATO	<input type="text" value="15"/>	
Railway whistles or horns?	Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Bolted Tracks?	Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
<b>Train DNL</b>	<input type="text" value="69.2"/>	
<input type="button" value="Calculate Rail #1 DNL"/>	<input type="text" value="69.2"/>	<input type="button" value="Reset"/>

Airport Noise Level	<input type="text"/>
Loud Impulse Sounds?	<input type="radio"/> Yes <input type="radio"/> No
Combined DNL for all Road and Rail sources	<input type="text" value="0"/>
Combined DNL including Airport	<input type="text"/>
Site DNL with Loud Impulse Sound	<input type="text"/>
<input type="button" value="Calculate"/>	

## Mitigation Options

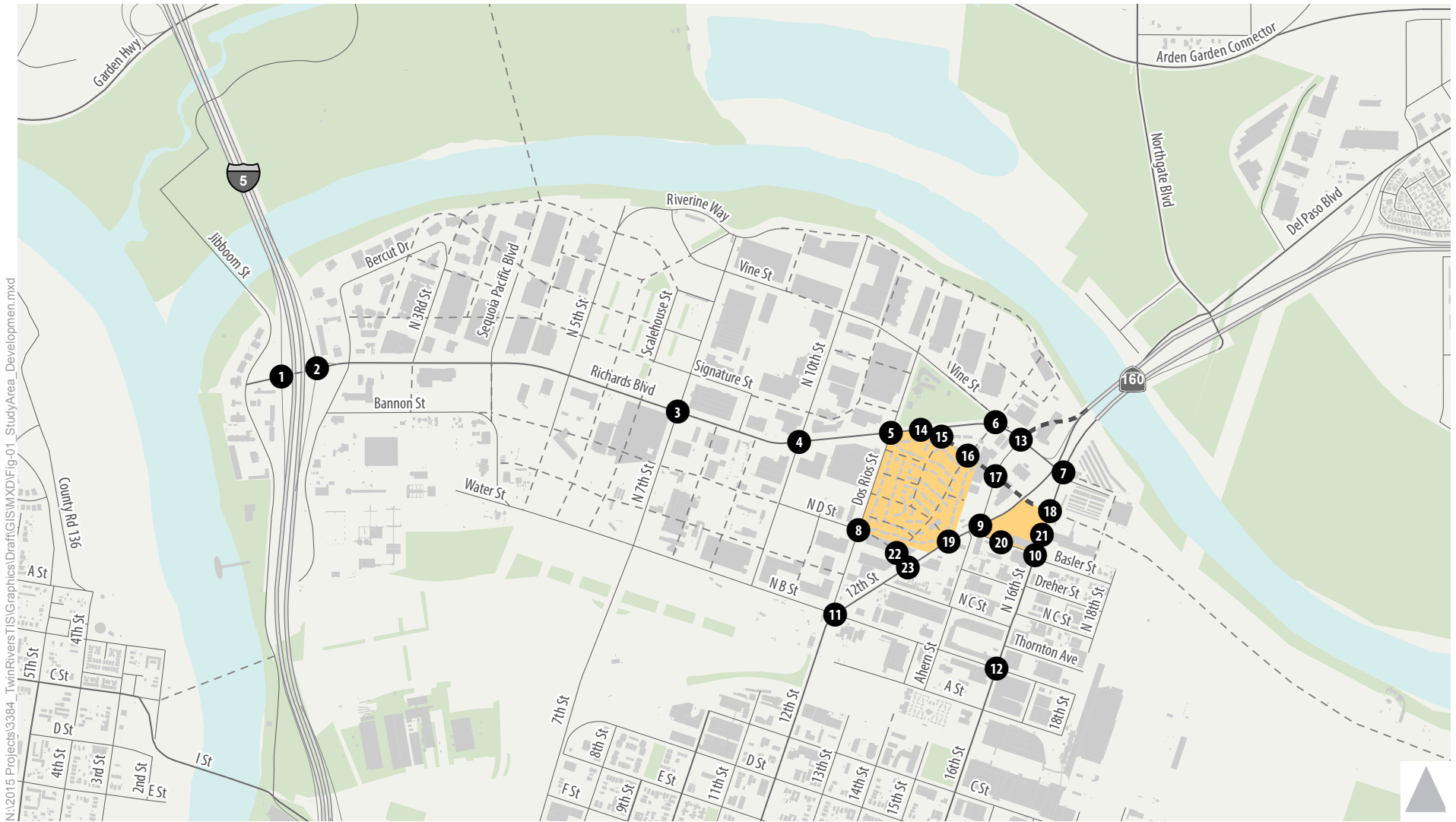
If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative:** Cancel the project at this location
- **Other Reasonable Alternatives:** Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer** (</programs/environmental-review/hud-environmental-staff-contacts/>)
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See *The Noise Guidebook* (</resource/313/hud-noise-guidebook/>)
  - Construct noise barrier. See the **Barrier Performance Module** (</programs/environmental-review/bpm-calculator/>)

## Tools and Guidance

[Day/Night Noise Level Assessment Tool User Guide \(/resource/3822/day-night-noise-level-assessment-tool-user-guide/\)](/resource/3822/day-night-noise-level-assessment-tool-user-guide/)

[Day/Night Noise Level Assessment Tool Flowcharts \(/resource/3823/day-night-noise-level-assessment-tool-flowcharts/\)](/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)



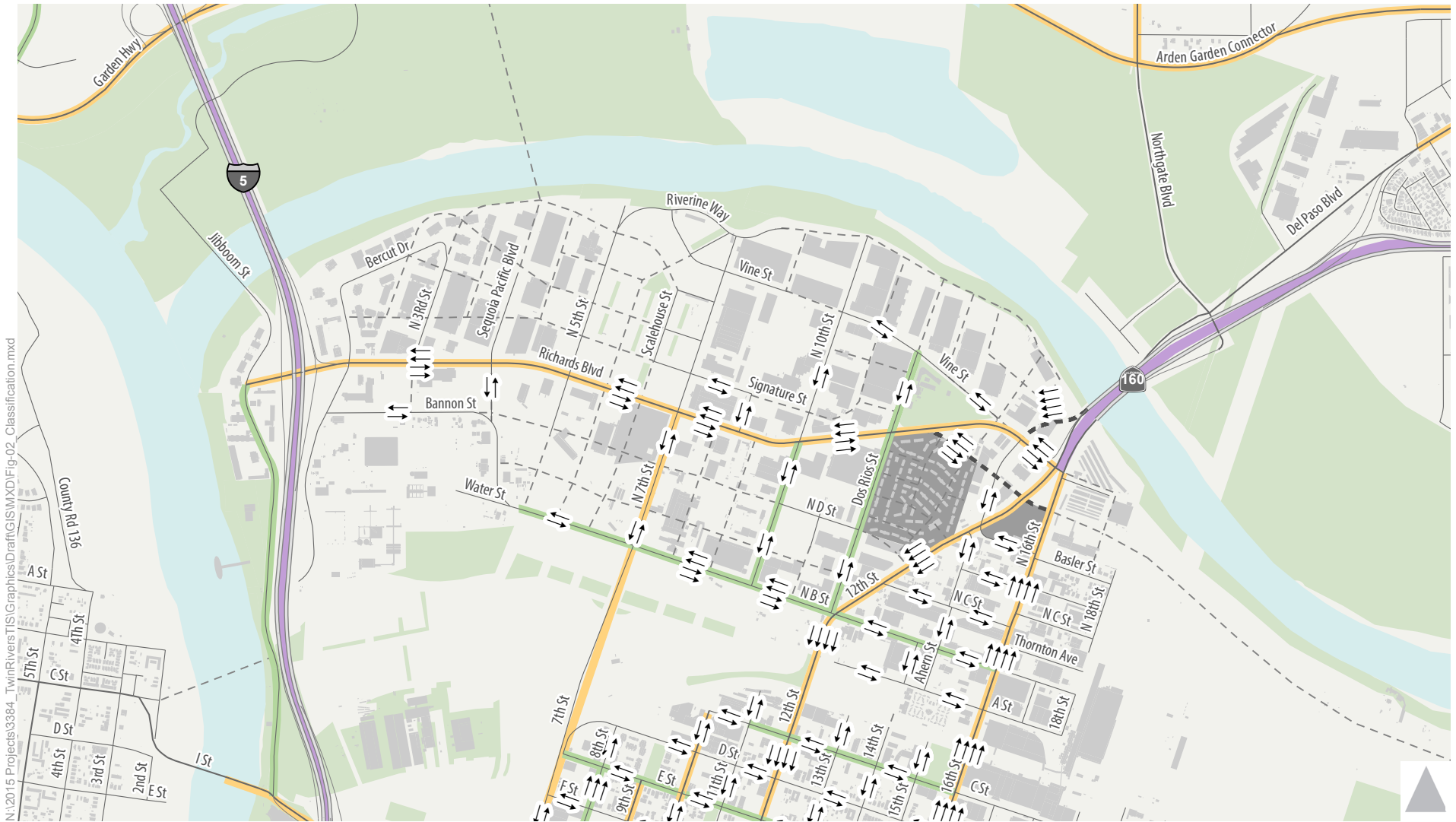
N:\2015 Projects\3384\_TwinRivers\GIS\Graphics\Draft\GISMXD\Fig-01\_StudyArea\_Development.mxd

- Study Intersections
- Future Roads
- Project Site
- - - Future Realignment



Figure 1

## Study Area



N:\2015 Projects\3384\_TwinRivers\GIS\Graphics\Draft\GIS\MXD\Fig-02\_Classification.mxd

- |                               |                          |   |
|-------------------------------|--------------------------|---|
| <b>Roadway Classification</b> | - - - Future Roads       | ↕↔ Number of Travel Lanes by Direction (excluding turn lanes) |
| Freeway                       | - - - Future Realignment | Project Site  |
| Arterial                      |                          |   |
| Collector                     |                          |   |

Figure 2

## Roadway Facilities





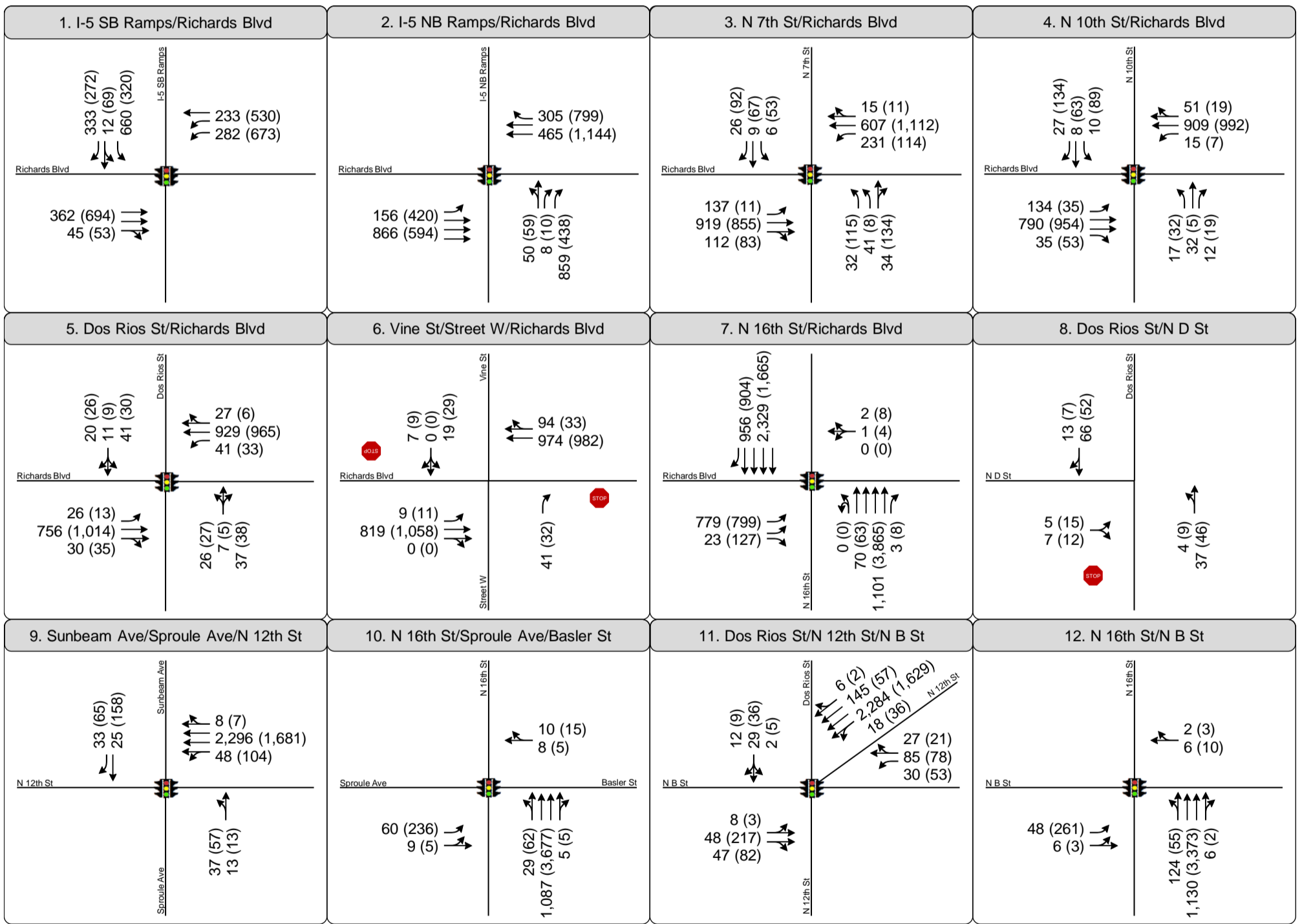


Figure 8  
Peak Hour Traffic Volumes  
and Lane Configurations -  
Existing Plus Project Conditions



Source: N:\2015 Projects\3384\_TwinRiversTIS\Graphics\QuickFigure2\_Ex\_PlusProject



14. Richards Blvd/Richards Blvd (future)	19. N 12th St/Project Driveway	20. Project Driveway/Sproule Ave	21. N 16th St/Project Driveway
<p>Richards Blvd</p> <p>←→ 981 (991)</p> <hr/> <p>828 (1,069) ←→ 6 (13) ←→</p> <p>16 (13) →</p> <p>STOP</p>	<p>N 12th St</p> <p>← 20 (42) ← 2,346 (1,761)</p> <hr/> <p>Project Driveway</p> <p>23 (18) →</p> <p>STOP</p>	<p>Project Driveway</p> <p>← 15 (10) ← 5 (3)</p> <hr/> <p>Sproule Ave</p> <p>9 (24) 64 (238) →</p> <p>STOP</p>	<p>Project Driveway</p> <p>← 2 (7) ← 35 (60)</p> <hr/> <p>Project Driveway</p> <p>20 (15) →</p> <hr/> <p>N 16th St</p> <p>← 3 (7) ← 1,154 (3,921)</p> <p>STOP</p>

Figure 8  
Peak Hour Traffic Volumes  
and Lane Configurations -  
Existing Plus Project Conditions



# 533 - BLUE LINE Train

[Click for Route Map](#)

## Monday through Friday

### Watt & I-80 Light Rail To Cosumnes River College

Watt & I-80 Light Rail	Marconi Arcade Light Rail	Swanston Station	Arden/Del Paso	St Rose of Lima Light Rail	8th & O Light Rail	16th Street Light Rail	City College	Meadowview Light Rail	Franklin Light Rail	Cosumnes River College
		3:53a	3:57a	4:11a	4:14a	4:19a	4:27a	4:36a	4:42a	4:47a
		4:12a	4:16a	4:30a	4:33a	4:38a	4:46a	4:55a	5:01a	5:06a
		4:27a	4:31a	4:45a	4:48a	4:53a	5:01a	5:10a	5:16a	5:21a
		4:42a	4:46a	5:00a	5:03a	5:08a	5:16a	5:25a	5:31a	5:36a
		4:57a	5:01a	5:15a	5:18a	5:23a	5:31a	5:40a	5:46a	5:51a
5:03a	5:09a		5:16a	5:30a	5:33a	5:38a	5:46a	5:55a	6:01a	6:06a
5:18a	5:24a		5:31a	5:45a	5:48a	5:53a	6:01a	6:10a	6:16a	6:21a
5:33a	5:39a		5:46a	6:00a	6:03a	6:08a	6:16a	6:25a	6:31a	6:36a
5:48a	5:54a		6:01a	6:15a	6:18a	6:23a	6:31a	6:40a	6:46a	6:51a
6:03a	6:09a		6:16a	6:30a	6:33a	6:38a	6:46a	6:55a	7:01a	7:06a
6:18a	6:24a		6:31a	6:45a	6:48a	6:53a	7:01a	7:10a	7:16a	7:21a
6:33a	6:39a		6:46a	7:00a	7:03a	7:08a	7:16a	7:25a	7:31a	7:36a
6:48a	6:54a		7:01a	7:15a	7:18a	7:23a	7:31a	7:40a	7:46a	7:51a
7:03a	7:09a		7:16a	7:30a	7:33a	7:38a	7:46a	7:55a	8:01a	8:06a
7:18a	7:24a		7:31a	7:45a	7:48a	7:53a	8:01a	8:10a	8:16a	8:21a
7:33a	7:39a		7:46a	8:00a	8:03a	8:08a	8:16a	8:25a	8:31a	8:36a
7:48a	7:54a		8:01a	8:15a	8:18a	8:23a	8:31a	8:40a	8:46a	8:51a
8:03a	8:09a		8:16a	8:30a	8:33a	8:38a	8:46a	8:55a	9:01a	9:06a
8:18a	8:24a		8:31a	8:45a	8:48a	8:53a	9:01a	9:10a	9:16a	9:21a
8:33a	8:39a		8:46a	9:00a	9:03a	9:08a	9:16a	9:25a	9:31a	9:36a
8:48a	8:54a		9:01a	9:15a	9:18a	9:23a	9:31a	9:40a	9:46a	9:51a
9:03a	9:09a		9:16a	9:30a	9:33a	9:38a	9:46a	9:55a	10:01a	10:06a
9:18a	9:24a		9:31a	9:45a	9:48a	9:53a	10:01a	10:10a	10:16a	10:21a
9:33a	9:39a		9:46a	10:00a	10:03a	10:08a	10:16a	10:25a	10:31a	10:36a
9:48a	9:54a		10:01a	10:15a	10:18a	10:23a	10:31a	10:40a	10:46a	10:51a
10:03a	10:09a		10:16a	10:30a	10:33a	10:38a	10:46a	10:55a	11:01a	11:06a
10:18a	10:24a		10:31a	10:45a	10:48a	10:53a	11:01a	11:10a	11:16a	11:21a
10:33a	10:39a		10:46a	11:00a	11:03a	11:08a	11:16a	11:25a	11:31a	11:36a
10:48a	10:54a		11:01a	11:15a	11:18a	11:23a	11:31a	11:40a	11:46a	11:51a
11:03a	11:09a		11:16a	11:30a	11:33a	11:38a	11:46a	11:55a	12:01p	12:06p
11:18a	11:24a		11:31a	11:45a	11:48a	11:53a	12:01p	12:10p	12:16p	12:21p
11:33a	11:39a		11:46a	12:00p	12:03p	12:08p	12:16p	12:25p	12:31p	12:36p
11:48a	11:54a		12:01p	12:15p	12:18p	12:23p	12:31p	12:40p	12:46p	12:51p
12:03p	12:09p		12:16p	12:30p	12:33p	12:38p	12:46p	12:55p	1:01p	1:06p
12:18p	12:24p		12:31p	12:45p	12:48p	12:53p	1:01p	1:10p	1:16p	1:21p
12:33p	12:39p		12:46p	1:00p	1:03p	1:08p	1:16p	1:25p	1:31p	1:36p
12:48p	12:54p		1:01p	1:15p	1:18p	1:23p	1:31p	1:40p	1:46p	1:51p
1:03p	1:09p		1:16p	1:30p	1:33p	1:38p	1:46p	1:55p	2:01p	2:06p
1:18p	1:24p		1:31p	1:45p	1:48p	1:53p	2:01p	2:10p	2:16p	2:21p
1:33p	1:39p		1:46p	2:00p	2:03p	2:08p	2:16p	2:25p	2:31p	2:36p
1:48p	1:54p		2:01p	2:15p	2:18p	2:23p	2:31p	2:40p	2:46p	2:51p
2:03p	2:09p		2:16p	2:30p	2:33p	2:38p	2:46p	2:55p	3:01p	3:06p
2:18p	2:24p		2:31p	2:45p	2:48p	2:53p	3:01p	3:10p	3:16p	3:21p
2:33p	2:39p		2:46p	3:00p	3:03p	3:08p	3:16p	3:25p	3:31p	3:36p
2:48p	2:54p		3:01p	3:15p	3:18p	3:23p	3:31p	3:40p	3:46p	3:51p
3:03p	3:09p		3:16p	3:30p	3:33p	3:38p	3:46p	3:55p	4:01p	4:06p
3:18p	3:24p		3:31p	3:45p	3:48p	3:53p	4:01p	4:10p	4:16p	4:21p
3:33p	3:39p		3:46p	4:00p	4:03p	4:08p	4:16p	4:25p	4:31p	4:36p
3:48p	3:54p		4:01p	4:15p	4:18p	4:23p	4:31p	4:40p	4:46p	4:51p
4:03p	4:09p		4:16p	4:30p	4:33p	4:38p	4:46p	4:55p	5:01p	5:06p
4:18p	4:24p		4:31p	4:45p	4:48p	4:53p	5:01p	5:10p	5:16p	5:21p
4:33p	4:39p		4:46p	5:00p	5:03p	5:08p	5:16p	5:25p	5:31p	5:36p
4:48p	4:54p		5:01p	5:15p	5:18p	5:23p	5:31p	5:40p	5:46p	5:51p
5:03p	5:09p		5:16p	5:30p	5:33p	5:38p	5:46p	5:55p	6:01p	6:06p
5:18p	5:24p		5:31p	5:45p	5:48p	5:53p	6:01p	6:10p	6:16p	6:21p
5:33p	5:39p		5:46p	6:00p	6:03p	6:08p	6:16p	6:25p	6:31p	6:36p
5:48p	5:54p		6:01p	6:15p	6:18p	6:23p	6:31p	6:40p	6:46p	6:51p
6:18p	6:24p		6:31p	6:45p	6:48p	6:53p	7:01p	7:10p	7:16p	7:21p
6:48p	6:54p		7:01p	7:15p	7:18p	7:23p	7:31p	7:40p	7:46p	7:51p
7:18p	7:24p		7:31p	7:45p	7:48p	7:53p	8:01p	8:10p	8:16p	8:21p
7:48p	7:54p		8:01p	8:15p	8:18p	8:23p	8:31p	8:40p	8:46p	8:51p
8:18p	8:24p		8:31p	8:45p	8:48p	8:53p	9:01p	9:10p	9:16p	9:21p
8:48p	8:54p		9:01p	9:15p	9:18p	9:23p	9:31p	9:40p	9:46p	9:51p
9:18p	9:24p		9:31p	9:45p	9:48p	9:53p	10:01p	10:10p	10:16p	10:21p
9:48p	9:54p		10:01p	10:15p	10:18p	10:23p	10:31p	10:40p	10:46p	10:51p
10:18p	10:24p		10:31p	10:45p	10:48p	10:53p	11:01p	11:10p	11:16p	11:21p
10:48p	10:54p		11:01p	11:15p	11:18p	11:23p	11:31p	11:40p	11:46p	11:51p

total pass-by 135  
 average pass-by in 6.75  
 day 109  
 night 26

**Monday through Friday**

**Cosumnes River College To Watt & I-80 Light Rail**

Cosumnes River College	Franklin Light Rail	Meadowview Light Rail	City College	16th Street Light Rail	St Rose of Lima Light Rail	Arden/Del Paso	Marconi Light Rail	Watt & I-80 Light Rail
4:56a	5:01a	5:07a	5:16a	5:24a	5:32a	5:46a	5:53a	5:59a
5:11a	5:16a	5:22a	5:31a	5:39a	5:47a	6:01a	6:08a	6:14a
5:26a	5:31a	5:37a	5:46a	5:54a	6:02a	6:16a	6:23a	6:29a
5:41a	5:46a	5:52a	6:01a	6:09a	6:17a	6:31a	6:38a	6:44a
5:56a	6:01a	6:07a	6:16a	6:24a	6:32a	6:46a	6:53a	6:59a
6:11a	6:16a	6:22a	6:31a	6:39a	6:47a	7:01a	7:08a	7:14a
6:26a	6:31a	6:37a	6:46a	6:54a	7:02a	7:16a	7:23a	7:29a
6:41a	6:46a	6:52a	7:01a	7:09a	7:17a	7:31a	7:38a	7:44a
6:56a	7:01a	7:07a	7:16a	7:24a	7:32a	7:46a	7:53a	7:59a
7:11a	7:16a	7:22a	7:31a	7:39a	7:47a	8:01a	8:08a	8:14a
7:26a	7:31a	7:37a	7:46a	7:54a	8:02a	8:16a	8:23a	8:29a
7:41a	7:46a	7:52a	8:01a	8:09a	8:17a	8:31a	8:38a	8:44a
7:56a	8:01a	8:07a	8:16a	8:24a	8:32a	8:46a	8:53a	8:59a
8:11a	8:16a	8:22a	8:31a	8:39a	8:47a	9:01a	9:08a	9:14a
8:26a	8:31a	8:37a	8:46a	8:54a	9:02a	9:16a	9:23a	9:29a
8:41a	8:46a	8:52a	9:01a	9:09a	9:17a	9:31a	9:38a	9:44a
8:56a	9:01a	9:07a	9:16a	9:24a	9:32a	9:46a	9:53a	9:59a
9:11a	9:16a	9:22a	9:31a	9:39a	9:47a	10:01a	10:08a	10:14a
9:26a	9:31a	9:37a	9:46a	9:54a	10:02a	10:16a	10:23a	10:29a
9:41a	9:46a	9:52a	10:01a	10:09a	10:17a	10:31a	10:38a	10:44a
9:56a	10:01a	10:07a	10:16a	10:24a	10:32a	10:46a	10:53a	10:59a
10:11a	10:16a	10:22a	10:31a	10:39a	10:47a	11:01a	11:08a	11:14a
10:26a	10:31a	10:37a	10:46a	10:54a	11:02a	11:16a	11:23a	11:29a
10:41a	10:46a	10:52a	11:01a	11:09a	11:17a	11:31a	11:38a	11:44a
10:56a	11:01a	11:07a	11:16a	11:24a	11:32a	11:46a	11:53a	11:59a
11:11a	11:16a	11:22a	11:31a	11:39a	11:47a	12:01p	12:08p	12:14p
11:26a	11:31a	11:37a	11:46a	11:54a	12:02p	12:16p	12:23p	12:29p
11:41a	11:46a	11:52a	12:01p	12:09p	12:17p	12:31p	12:38p	12:44p
11:56a	12:01p	12:07p	12:16p	12:24p	12:32p	12:46p	12:53p	12:59p
12:11p	12:16p	12:22p	12:31p	12:39p	12:47p	1:01p	1:08p	1:14p
12:26p	12:31p	12:37p	12:46p	12:54p	1:02p	1:16p	1:23p	1:29p
12:41p	12:46p	12:52p	1:01p	1:09p	1:17p	1:31p	1:38p	1:44p
12:56p	1:01p	1:07p	1:16p	1:24p	1:32p	1:46p	1:53p	1:59p
1:11p	1:16p	1:22p	1:31p	1:39p	1:47p	2:01p	2:08p	2:14p
1:26p	1:31p	1:37p	1:46p	1:54p	2:02p	2:16p	2:23p	2:29p
1:41p	1:46p	1:52p	2:01p	2:09p	2:17p	2:31p	2:38p	2:44p
1:56p	2:01p	2:07p	2:16p	2:24p	2:32p	2:46p	2:53p	2:59p
2:11p	2:16p	2:22p	2:31p	2:39p	2:47p	3:01p	3:08p	3:14p
2:26p	2:31p	2:37p	2:46p	2:54p	3:02p	3:16p	3:23p	3:29p
2:41p	2:46p	2:52p	3:01p	3:09p	3:17p	3:31p	3:38p	3:44p
2:56p	3:01p	3:07p	3:16p	3:24p	3:32p	3:46p	3:53p	3:59p
3:11p	3:16p	3:22p	3:31p	3:39p	3:47p	4:01p	4:08p	4:14p
3:26p	3:31p	3:37p	3:46p	3:54p	4:02p	4:16p	4:23p	4:29p
3:41p	3:46p	3:52p	4:01p	4:09p	4:17p	4:31p	4:38p	4:44p
3:56p	4:01p	4:07p	4:16p	4:24p	4:32p	4:46p	4:53p	4:59p
4:11p	4:16p	4:22p	4:31p	4:39p	4:47p	5:01p	5:08p	5:14p
4:26p	4:31p	4:37p	4:46p	4:54p	5:02p	5:16p	5:23p	5:29p
4:41p	4:46p	4:52p	5:01p	5:09p	5:17p	5:31p	5:38p	5:44p
4:56p	5:01p	5:07p	5:16p	5:24p	5:32p	5:46p	5:53p	5:59p
5:11p	5:16p	5:22p	5:31p	5:39p	5:47p	6:01p	6:08p	6:14p
5:26p	5:31p	5:37p	5:46p	5:54p	6:02p	6:16p	6:23p	6:29p
5:41p	5:46p	5:52p	6:01p	6:09p	6:17p	6:31p	6:38p	6:44p
5:56p	6:01p	6:07p	6:16p	6:24p	6:32p	6:46p	6:53p	6:59p
6:11p	6:16p	6:22p	6:31p	6:39p	6:47p	7:01p	7:08p	7:14p
6:26p	6:31p	6:37p	6:46p	6:54p	7:02p	7:16p	7:23p	7:29p
6:41p	6:46p	6:52p	7:01p	7:09p	7:17p	7:31p	7:38p	7:44p
6:56p	7:01p	7:07p	7:16p	7:24p	7:32p	7:46p	7:53p	7:59p
7:11p	7:16p	7:22p	7:31p	7:39p	7:47p	8:01p	8:08p	8:14p
7:26p	7:31p	7:37p	7:46p	7:54p	8:02p	8:16p	8:23p	8:29p
7:56p	8:01p	8:07p	8:16p	8:24p	8:32p	8:46p	8:53p	8:59p
8:26p	8:31p	8:37p	8:46p	8:54p	9:02p	9:16p	9:23p	9:29p
8:56p	9:01p	9:07p	9:16p	9:24p	9:32p	9:46p	9:53p	9:59p
9:26p	9:31p	9:37p	9:46p	9:54p	10:02p	10:16p	10:23p	10:29p
9:56p	10:01p	10:07p	10:16p	10:24p	10:32p	10:46p	10:53p	10:59p
10:26p	10:31p	10:37p	10:46p	10:54p	11:02p	11:16p	11:23p	11:29p
10:56p	11:01p	11:07p	11:16p	11:24p	11:32p	11:46p	11:53p	11:59p
11:26p	11:31p	11:37p	11:46p	11:54p	12:02a	12:16a	12:23a	12:29a
11:56p	12:01a	12:07a	12:16a	12:24a	12:32a	12:46a	12:53a	12:59a

## Contamination and Toxic Substances (Multifamily and Non-Residential Properties)

General requirements	Legislation	Regulations
It is HUD policy that all properties that are being proposed for use in HUD programs be free of hazardous materials, contamination, toxic chemicals and gases, and radioactive substances, where a hazard could affect the health and safety of the occupants or conflict with the intended utilization of the property.		24 CFR 58.5(i)(2) 24 CFR 50.3(i)
<b>Reference</b>		
<a href="https://www.hudexchange.info/programs/environmental-review/site-contamination">https://www.hudexchange.info/programs/environmental-review/site-contamination</a>		

**1. How was site contamination evaluated?<sup>1</sup> Select all that apply.**

- ASTM Phase I ESA
- ASTM Phase II ESA
- Remediation or clean-up plan
- ASTM Vapor Encroachment Screening
- None of the above

→ Provide documentation and reports and include an explanation of how site contamination was evaluated in the Worksheet Summary.

Continue to Question 2.

**2. Were any on-site or nearby toxic, hazardous, or radioactive substances found that could affect the health and safety of project occupants or conflict with the intended use of the property? (Were any recognized environmental conditions or RECs identified in a Phase I ESA and confirmed in a Phase II ESA?)**

- No

**Explain:**

→ Based on the response, the review is in compliance with this section.

Continue to the Worksheet Summary below.

---

<sup>1</sup> HUD regulations at 24 CFR § 58.5(i)(2)(ii) require that the environmental review for multifamily housing with five or more dwelling units or non-residential property include the evaluation of previous uses of the site or other evidence of contamination on or near the site. For acquisition and new construction of multifamily and nonresidential properties HUD strongly advises the review include an ASTM Phase I Environmental Site Assessment (ESA) to meet real estate transaction standards of due diligence and to help ensure compliance with HUD's toxic policy at 24 CFR §58.5(i) and 24 CFR §50.3(i). Also note that some HUD programs require an ASTM Phase I ESA.

Yes.

→ Describe the findings, including any recognized environmental conditions (RECs), in Worksheet Summary below. Continue to Question 3.

### 3. Mitigation

Document the mitigation needed according to the requirements of the appropriate federal, state, tribal, or local oversight agency. If the adverse environmental effects cannot be mitigated, then HUD assistance may not be used for the project at this site.

#### Can adverse environmental impacts be mitigated?

Adverse environmental impacts cannot feasibly be mitigated

→ Project cannot proceed at this location.

Yes, adverse environmental impacts can be eliminated through mitigation.

→ Provide all mitigation requirements<sup>2</sup> and documents. Continue to Question 4.

### 4. Describe how compliance was achieved. Include any of the following that apply: State Voluntary Clean-up Program, a No Further Action letter, use of engineering controls<sup>3</sup>, or use of institutional controls<sup>4</sup>.

**Mitigation Measure 3.7-1: Phase II Assessment.** Prior to construction or development of the proposed project, a Phase II assessment and subsurface geophysical investigation shall be conducted. If the Phase II assessment concludes that site remediation would be necessary to protect human health and the environment, the site shall not be developed until the site is remediated to levels that would be protective of the most sensitive population for the planned use, as prescribed in applicable regulations.

**RDSP Mitigation Measure 5.4-1(b):** Prior to demolition or renovation of structures, the project applicant shall provide written documentation to the City that either there is no asbestos-containing materials and/or lead-based paint in the structures or that such materials have been abated and that any remaining hazardous substances and/or waste have been removed in compliance with applicable State and local laws.

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<sup>2</sup> Mitigation requirements include all clean-up actions required by applicable federal, state, tribal, or local law. Additionally, provide, as applicable, the long-term operations and maintenance plan, Remedial Action Work Plan, and other equivalent documents.

<sup>3</sup> Engineering controls are any physical mechanism used to contain or stabilize contamination or ensure the effectiveness of a remedial action. Engineering controls may include, without limitation, caps, covers, dikes, trenches, leachate collection systems, signs, fences, physical access controls, ground water monitoring systems and ground water containment systems including, without limitation, slurry walls and ground water pumping systems.

<sup>4</sup> Institutional controls are mechanisms used to limit human activities at or near a contaminated site, or to ensure the effectiveness of the remedial action over time, when contaminants remain at a site at levels above the applicable remediation standard which would allow for unrestricted use of the property. Institutional controls may include structure, land, and natural resource use restrictions, well restriction areas, classification exception areas, deed notices, and declarations of environmental restrictions.

**If a remediation plan or clean-up program was necessary, which standard does it follow?**

Complete removal

→ *Continue to the Worksheet Summary.*

Risk-based corrective action (RBCA)

→ *Continue to the Worksheet Summary.*

### **Worksheet Summary**

#### **Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

The Phase I Environmental Site Assessment (Phase I assessment), identified previous uses such as gasoline service stations, automobile repair facilities, battery shops, machine shops, car dealerships and vehicle wash areas, as uses that would have used hazardous materials (e.g., fuels, oils and greases, solvents, and metals). The current and historical industrial land uses on the project site and within the immediately vicinity could have resulted in the release of hazardous materials, resulting in contamination in the soil, soil vapor and groundwater beneath the sites. The potential spills or releases at the nearby locations could have resulted in the migration of contaminants from these facilities to the project site (Nichols Consulting, 2012; 2013).

The project site is also located within an area generally known to have imported fill. Much of the immediate vicinity was backfilled during initial development with imported fill from nearby industrial land use properties. Some locations that received fill during this period have been found to contain high levels of metals such as lead (Nichols Consulting, 2012; 2013).

Groundwater underlying a nearby site was recently measured at 12 to 22 feet below ground surface. As described in the environmental setting, groundwater in the proposed project vicinity has been documented as being contaminated by diesel, lead, other chlorinated hydrocarbons, and waste oil. The potential spills or releases at the nearby locations could result in the migration of contaminants in groundwater from these facilities to the project site (Nichols Consulting, 2012; 2013).

The Phase 1 assessment also identified that there is potential for lead to be present in the soil (at both the Twin Rivers Community Housing Complex and the Twin Rivers Community Housing Expansion Area) originating from lead based paints and coatings originally used on exterior building surfaces, which may have flaked or oxidized and deposited into the surrounding soils (Nichols Consulting, 2012; 2013).

**Are formal compliance steps or mitigation required?**

Yes

No

## Sole Source Aquifers (CEST and EA)

General requirements	Legislation	Regulation
The Safe Drinking Water Act of 1974 protects drinking water systems which are the sole or principal drinking water source for an area and which, if contaminated, would create a significant hazard to public health.	Safe Drinking Water Act of 1974 (42 U.S.C. 201, 300f et seq., and 21 U.S.C. 349)	40 CFR Part 149
<b>Reference</b>		
<a href="https://www.hudexchange.info/environmental-review/sole-source-aquifers">https://www.hudexchange.info/environmental-review/sole-source-aquifers</a>		

### 1. Is the project located on a sole source aquifer (SSA)<sup>1</sup>?

No → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination, such as a map of your project (or jurisdiction, if appropriate) in relation to the nearest SSA and its source area.*

Yes → *Continue to Question 2.*

### 2. Does your project consist solely of acquisition, leasing, or rehabilitation of an existing building(s)?

Yes → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.*

No → *Continue to Question 3.*

### 3. Does your region have a memorandum of understanding (MOU) or other working agreement with EPA for HUD projects impacting a sole source aquifer?

Contact your Field or Regional Environmental Officer or visit the HUD webpage at the link above to determine if an MOU or agreement exists in your area.

Yes → *Provide the MOU or agreement as part of your supporting documentation. Continue to Question 4.*

No → *Continue to Question 5.*

### 4. Does your MOU or working agreement exclude your project from further review?

Yes → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination and document where your project fits within the MOU or agreement.*

---

<sup>1</sup> A sole source aquifer is defined as an aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. This includes streamflow source areas, which are upstream areas of losing streams that flow into the recharge area.



No → Continue to Question 5.

**5. Will the proposed project contaminate the aquifer and create a significant hazard to public health?**

Consult with your Regional EPA Office. Your consultation request should include detailed information about your proposed project and its relationship to the aquifer and associated streamflow source area. EPA will also want to know about water, storm water and waste water at the proposed project. Follow your MOU or working agreement or contact your Regional EPA office for specific information you may need to provide. EPA may request additional information if impacts to the aquifer are questionable after this information is submitted for review.

No → Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide your correspondence with the EPA and all documents used to make your determination.

Yes → Work with EPA to develop mitigation measures. If mitigation measures are approved, attach correspondence with EPA and include the mitigation measures in your environmental review documents and project contracts. If EPA determines that the project continues to pose a significant risk to the aquifer, federal financial assistance must be denied. Continue to Question 6.

**6. In order to continue with the project, any threat must be mitigated, and all mitigation must be approved by the EPA. Explain in detail the proposed measures that can be implemented to mitigate for the impact or effect, including the timeline for implementation.**

→ Continue to the Worksheet Summary below. Provide documentation of the consultation (including the Managing Agency's concurrence) and any other documentation used to make your determination.

## Worksheet Summary

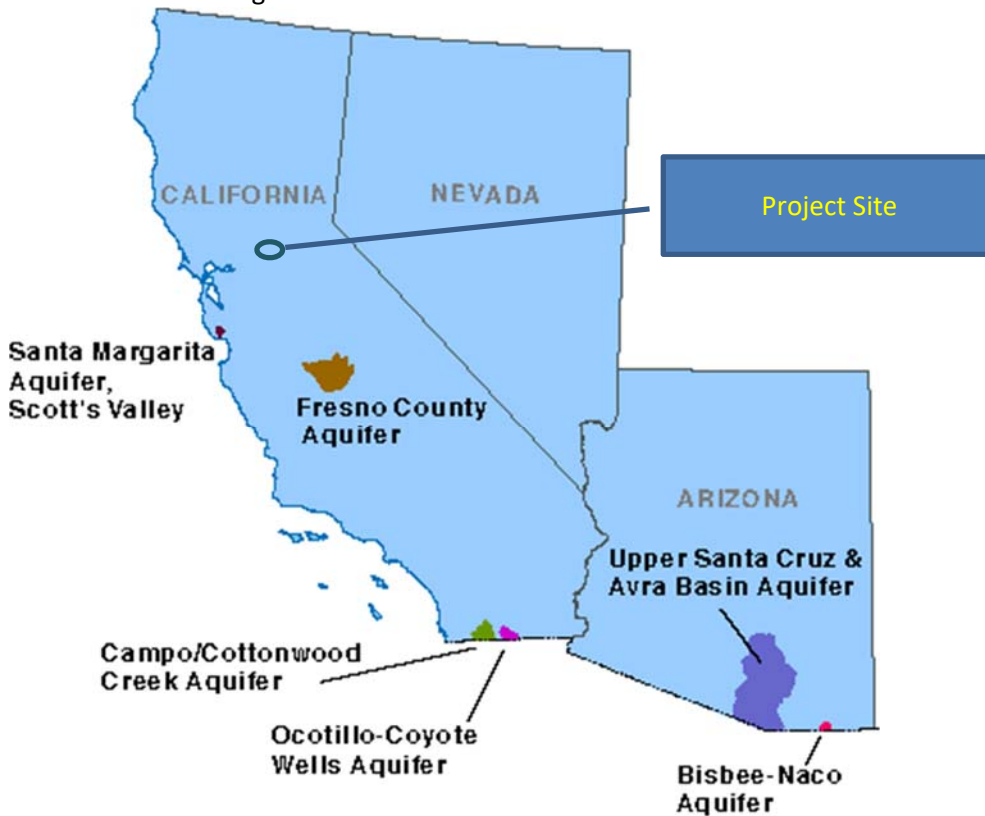
### **Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

The project is not served by a U.S. EPA designated sole-source aquifer, is not located within a sole source aquifer watershed, and would not affect a sole-source aquifer.

Please refer to the figure below:



1. U.S. Environmental Protection Agency, 2016. Sole Source Aquifers in Region 9. Available: <http://www3.epa.gov/region9/water/groundwater/ssa.html>. Accessed December 22, 2016.

**Are formal compliance steps or mitigation required?**

- Yes  
 No

## Wetlands (CEST and EA)

General requirements	Legislation	Regulation
Executive Order 11990 discourages that direct or indirect support of new construction impacting wetlands wherever there is a practicable alternative. The Fish and Wildlife Service's National Wetlands Inventory can be used as a primary screening tool, but observed or known wetlands not indicated on NWI maps must also be processed. Off-site impacts that result in draining, impounding, or destroying wetlands must also be processed.	Executive Order 11990	24 CFR 55.20 can be used for general guidance regarding the 8 Step Process.
<b>References</b>		
<a href="https://www.hudexchange.info/environmental-review/wetlands-protection">https://www.hudexchange.info/environmental-review/wetlands-protection</a>		

**1. Does this project involve new construction as defined in Executive Order 11990, expansion of a building's footprint, or ground disturbance?**

The term "new construction" shall include draining, dredging, channelizing, filling, diking, impounding, and related activities and any structures or facilities begun or authorized after the effective date of the Order.

No → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below.*

Yes → *Continue to Question 2.*

**2. Will the new construction or other ground disturbance impact an on- or off-site wetland?**

The term "wetlands" means those areas that are inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances does or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds. Wetlands under E.O. 11990 include isolated and non-jurisdictional wetlands.

No, a wetland will not be impacted in terms of E.O. 11990's definition of new construction.  
→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map or any other relevant documentation to explain your determination.*

Yes, there is a wetland that be impacted in terms of E.O. 11990's definition of new construction.

→ You must determine that there are no practicable alternatives to wetlands development by completing the 8-Step Process.

Provide a completed 8-Step Process as well as all documents used to make your determination, including a map. Be sure to include the early public notice and the final notice with your documentation.

Continue to Question 3.

- 3. For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

**Which of the following mitigation actions have been or will be taken? Select all that apply:**

- Permeable surfaces
- Natural landscape enhancements that maintain or restore natural hydrology through infiltration
- Native plant species
- Bioswales
- Evapotranspiration
- Stormwater capture and reuse
- Green or vegetative roofs with drainage provisions
- Natural Resources Conservation Service conservation easements
- Compensatory mitigation

## Worksheet Summary

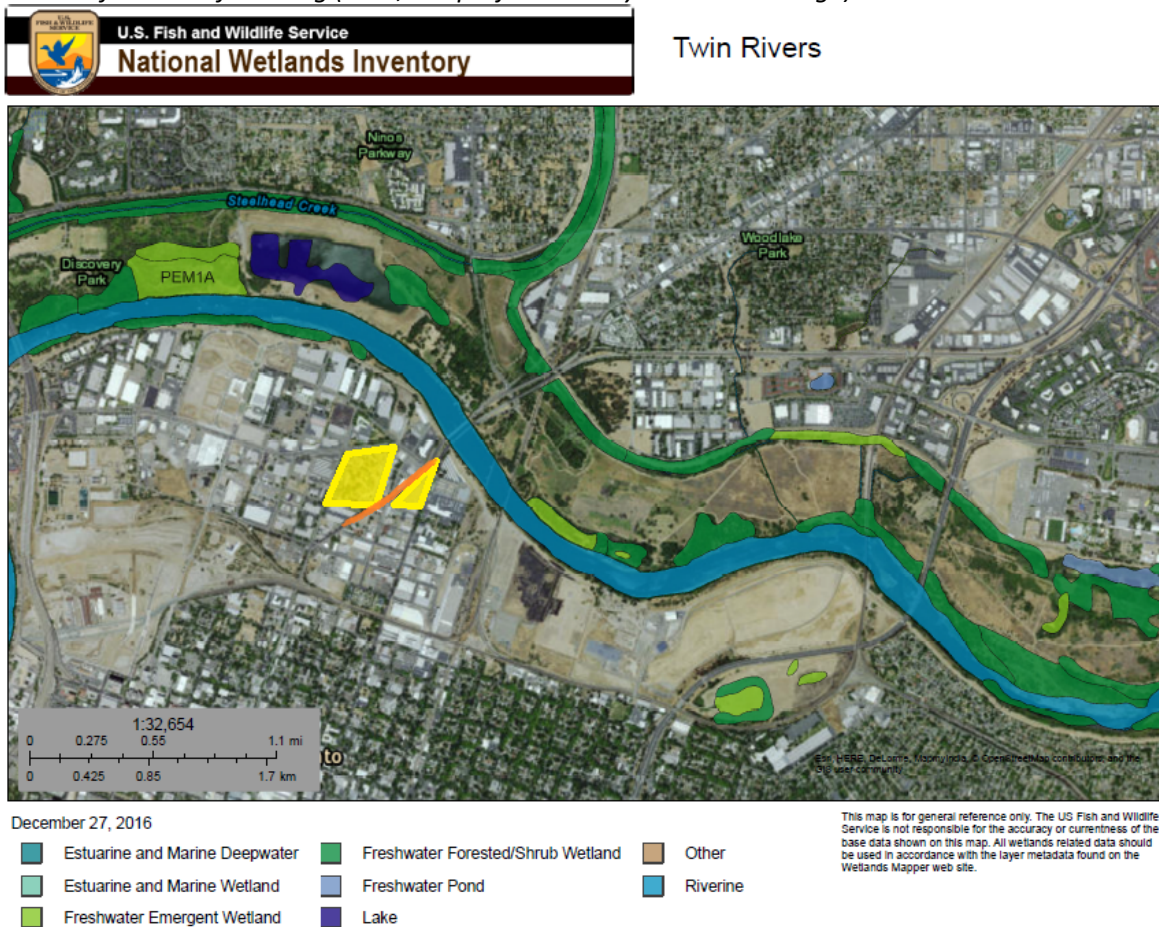
### Compliance Determination

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

The project site is not located near, or within, a wetland area. The American River is located over 500 feet from the nearest portion of the project site, and separated by existing development and roads. Therefore, the project would not affect wetland or riparian areas.

*Please refer to the following (note, the project site in yellow and orange):*



1. U.S. Fish and Wildlife Service, 2016. National Wetlands Inventory, Results of electronic mapping search. Madison, Wisconsin: U.S. Fish and Wildlife Service, Division of Habitat and Resource Conservation Branch of Resource and Mapping Support. Available: <http://www.fws.gov/wetlands/Data/Mapper.html>. Accessed December 27, 2016.

### Are formal compliance steps or mitigation required?

- Yes
- No

## Wild and Scenic Rivers (CEST and EA)

General requirements	Legislation	Regulation
The Wild and Scenic Rivers Act provides federal protection for certain free-flowing, wild, scenic and recreational rivers designated as components or potential components of the National Wild and Scenic Rivers System (NWSRS) from the effects of construction or development.	The Wild and Scenic Rivers Act (16 U.S.C. 1271-1287), particularly section 7(b) and (c) (16 U.S.C. 1278(b) and (c))	36 CFR Part 297
References		
<a href="https://www.hudexchange.info/environmental-review/wild-and-scenic-rivers">https://www.hudexchange.info/environmental-review/wild-and-scenic-rivers</a>		

### 1. Is your project within proximity of a NWSRS river as defined below?

**Wild & Scenic Rivers:** These rivers or river segments have been designated by Congress or by states (with the concurrence of the Secretary of the Interior) as wild, scenic, or recreational

**Study Rivers:** These rivers or river segments are being studied as a potential component of the Wild & Scenic River system.

**Nationwide Rivers Inventory (NRI):** The National Park Service has compiled and maintains the NRI, a register of river segments that potentially qualify as national wild, scenic, or recreational river areas

No

→ Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination, such as a map identifying the project site and its surrounding area or a list of rivers in your region in the Screen Summary at the conclusion of this screen.

Yes, the project is in proximity of a Nationwide Rivers Inventory (NRI) River.

→ Continue to Question 2.

### 2. Could the project do *any* of the following?

- Have a direct and adverse effect within Wild and Scenic River Boundaries,
- Invade the area or unreasonably diminish the river outside Wild and Scenic River Boundaries, or
- Have an adverse effect on the natural, cultural, and/or recreational values of a NRI segment.

Consultation with the appropriate federal/state/local/tribal Managing Agency(s) is required, pursuant to Section 7 of the Act, to determine if the proposed project may have an adverse effect on a Wild & Scenic River or a Study River and, if so, to determine the appropriate avoidance or mitigation measures.

Note: Concurrence may be assumed if the Managing Agency does not respond within 30 days; however, you are still obligated to avoid or mitigate adverse effects on the rivers identified in the NWSRS

No, the Managing Agency has concurred that the proposed project will not alter, directly, or indirectly, any of the characteristics that qualifies or potentially qualifies the river for inclusion in the NWSRS.

→ *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation of the consultation (including the Managing Agency's concurrence) and any other documentation used to make your determination.*

Yes, the Managing Agency was consulted and the proposed project may alter, directly, or indirectly, any of the characteristics that qualifies or potentially qualifies the river for inclusion in the NWSRS.

→ *Continue to Question 3.*

- 3. For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the proposed measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

→ *Continue to the Worksheet Summary below. Provide documentation of the consultation (including the Managing Agency's concurrence) and any other documentation used to make your determination.*

## Worksheet Summary

### Compliance Determination

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

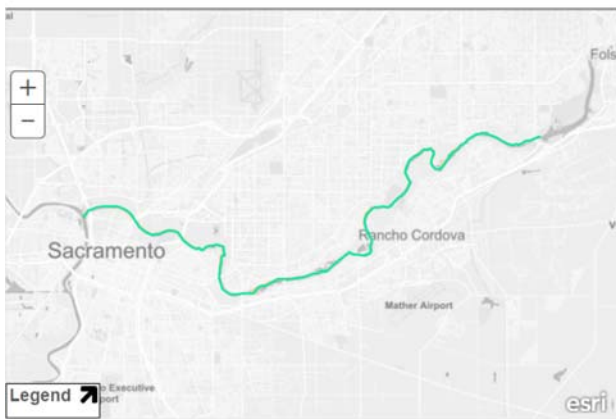
The Lower American River along Sacramento provides 23 miles of Recreational waterways near the project site. However, the project site is located beyond 500 feet (at the closest point) to the Lower American River, and is separated by roads, levees, and existing development, and is not visible from the River. Therefore, development under the project would not require compliance steps.

#### Reference:

National Wild and Scenic River System, 2016. AMERICAN RIVER (LOWER), CALIFORNIA. Available at <https://rivers.gov/rivers/american-lower.php>, Accessed December 22, 2016.



AMERICAN RIVER (LOWER), CALIFORNIA



#### Managing Agency:

California Resources Agency

#### Designated Reach:

January 19, 1981. From the confluence with the Sacramento River to the Nimbus Dam.

#### Classification/Mileage:

Recreational — 23.0 miles; Total — 23.0 miles.

Are formal compliance steps or mitigation required?

Yes

No



## Historic Preservation (CEST and EA)

General requirements	Legislation	Regulation
Regulations under Section 106 of the National Historic Preservation Act (NHPA) require a consultative process to identify historic properties, assess project impacts on them, and avoid, minimize, or mitigate adverse effects	Section 106 of the National Historic Preservation Act (16 U.S.C. 470f)	<a href="#">36 CFR 800 "Protection of Historic Properties"</a>
References		
<a href="https://www.hudexchange.info/environmental-review/historic-preservation">https://www.hudexchange.info/environmental-review/historic-preservation</a>		

### Threshold

#### Is Section 106 review required for your project?

- No, because the project consists solely of activities listed as exempt in a Programmatic Agreement (PA). (See the [PA Database](#) to find applicable PAs.)

**Either provide the PA itself or a link to it here. Mark the applicable exemptions or include the text here:**

→ Continue to the Worksheet Summary.

- No, because the project consists solely of activities included in a No Potential to Cause Effects memo or other determination [36 CFR 800.3(a)(1)].

**Either provide the memo itself or a link to it here. Explain and justify the other determination here:**

→ Continue to the Worksheet Summary.

- Yes, because the project includes activities with potential to cause effects (direct or indirect). → Continue to Step 1.

#### **The Section 106 Process**

After determining the need to do a Section 106 review, initiate consultation with regulatory and other interested parties, identify and evaluate historic properties, assess effects of the project on properties listed on or eligible for the National Register of Historic Places, and resolve any adverse effects through project design modifications or mitigation.

Note that consultation continues through all phases of the review.

Step 1: Initiate consultation

Step 2: Identify and evaluate historic properties

Step 3: Assess effects of the project on historic properties

Step 4: Resolve any adverse effects

### Step 1 - Initiate Consultation

The following parties are entitled to participate in Section 106 reviews: Advisory Council on Historic Preservation; State Historic Preservation Officers (SHPOs); federally recognized Indian tribes/Tribal Historic Preservation Officers (THPOs); Native Hawaiian Organizations (NHOs); local governments; and project grantees. The general public and individuals and organizations with a demonstrated interest in a project may participate as consulting parties at the discretion of the RE or HUD official. Participation varies with the nature and scope of a project. Refer to HUD's website for guidance on consultation, including the required timeframes for response. Consultation should begin early to enable full consideration of preservation options.

Use the [When To Consult With Tribes checklist](#) within [Notice CPD-12-006: Process for Tribal Consultation](#) to determine if you should invite tribes to consult on a particular project. Use the [Tribal Directory Assessment Tool \(TDAT\)](#) to identify tribes that may have an interest in the area where the project is located. Note that consultants may not initiate consultation with Tribes.

#### Select all consulting parties below (check all that apply):

- State Historic Preservation Officer (SHPO)
- Advisory Council on Historic Preservation
- Indian Tribes, including Tribal Historic Preservation Officers (THPOs) or Native
- Hawaiian Organizations (NHOs)

#### List all tribes that were consulted here and their status of consultation:

Request for consultation sent to Buena Vista Rancheria; Ione Band of Miwok Indians; Shingle Springs Band of Miwok Indians (Shingle Springs); United Auburn Indian Community; Wilton Rancheria (Wilton). Only Shingle Springs and Wilton replied and requested consultation. Consultation has been concluded. Also, the Native American Heritage Commission (NAHC). Also refer to the attached Appendix E to the EA, included at the end of this worksheet.

- Other Consulting Parties

#### List all consulting parties that were consulted here and their status of consultation:

#### Describe the process of selecting consulting parties and initiating consultation here:

SHRA acted on behalf of the City for purposes of Section 106 and AB 52 consultation. In January 2016 the Native American Heritage Commission (NAHC) was contacted to conduct a search of the Sacred Lands File (SLF) and a list of Native American representatives who may have interest in the project. The NAHC reply indicated that the SLF has no record of any cultural resources in the APE, and also included a contact list of Native American representatives. In June 2016, SHRA sent letters with project information to Native American contacts provided by the NAHC to solicit comments and concerns regarding potential project impacts to cultural resources and invite the contacts to consultation for purposes of Section 106 and California Assembly Bill 52 (AB 52). In July 2016, SHRA made follow-up phone calls to the same contacts. From these initial outreach efforts, SHRA received replies from the Shingle Springs Band of Miwok Indians (Shingle Springs) and Wilton Rancheria (Wilton), both of whom asked for additional information on the project and copies of the records search and draft CRSIR conducted for the project

(Continued...)

*(Continued from above)*

In preparation of the Extended Phase I (XPI) subsurface investigation, SHRA contacted Shingle Springs and Wilton to inform them of the proposed fieldwork and request if they had any concerns. Both tribes showed concern regarding cultural resources in the APE. On February 6, 2017, representatives from SHRA, ESA, Shingle Springs, and Wilton met on-site to discuss the XPI and the tribes' concerns. Both tribes stated that the Native American village *Sek*, recorded in ethnographic accounts, was present in the APE and vicinity and that the project has potential to impact the resource. All parties agreed that monitors from both tribes would participate in the XPI fieldwork, and Shingle Springs provided SHRA with background research regarding *Sek*. However, upon review by SHRA and ESA, the background research provided describes *Sek* as being located on the north bank of the American River, across the river from and outside the APE. Both tribes provided a monitor during the XPI fieldwork. Documentation of the project correspondence with the NAHC and other Native American representatives is included in **Appendix E** of this IS/EA.

**Define the Area of Potential Effect (APE), either by entering the address(es) or providing a map depicting the APE.** Attach an additional page if necessary.

Due to the nature of the Project and its minimal potential for indirect effects, it was determined that the APE for archaeological and architectural resources is the same. The APE includes both the horizontal and vertical maximum extents of potential direct and indirect impacts, and encompasses the Project footprint and staging and access areas. The APE consists of the 26.78-acre Project footprint, which includes two areas slated for redevelopment of a housing complex (21.32 and 3.20 acres), and a 3.15-acre area slated for a new light rail station—0.89 acres of the smaller housing complex area and the new light rail station overlap. The APE extends vertically to the maximum depth of proposed construction, though exact depths have yet to be determined. However, based on similar Projects in the region, estimated ground disturbance would most likely not exceed 10 feet—this study use this estimate as the vertical extent of the APE.

Gather information about known historic properties in the APE. Historic buildings, districts and archeological sites may have been identified in local, state, and national surveys and registers, local historic districts, municipal plans, town and county histories, and local history websites. If not already listed on the National Register of Historic Places, identified properties are then evaluated to see if they are eligible for the National Register.

Refer to HUD's website for guidance on identifying and evaluating historic properties.

**In the space below, list historic properties identified and evaluated in the APE.**

Every historic property that may be affected by the project should be listed. For each historic property or district, include the National Register status, whether the SHPO has concurred with the finding, and whether information on the site is sensitive. Attach an additional page if necessary.

Provide the documentation (survey forms, Register nominations, concurrence(s) and/or objection(s), notes, and photos) that justify your National Register Status determination.

**Was a survey of historic buildings and/or archeological sites done as part of the project?**

If the APE contains previously unsurveyed buildings or structures over 50 years old, or there is a likely presence of previously unsurveyed archeological sites, a survey may be necessary. For Archeological surveys, refer to HP Fact Sheet #6, [Guidance on Archeological Investigations in HUD Projects](#).

Yes → *Provide survey(s) and report(s) and continue to Step 3.*

Additional notes:

In February 2016, ESA conducted an archaeological pedestrian survey of the APE using intensive pedestrian survey methods. No archaeological resources were identified during the field survey. ESA conducted a field survey for architectural resources in January and June 2016, identifying two architectural resources, the Twin Rivers Housing Project and the c. 1957 Loaves and Fishes Building at 304 Friendship Alley (401 North 12th St.). In February 2017, ESA conducted an Extended Phase I (XPI) study by mechanically excavating 13 trenches throughout the APE. Monitors from Shingle Springs and Wilton were present during the XPI fieldwork. Other than isolated historic-period refuse, no archaeological resources were identified during the XPI. Additionally, no material associated with previously recorded historic-period archaeological resource P-34-001378 was identified.

No → *Continue to Step 3.*

**Step 3 - Assess Effects of the Project on Historic Properties**

Only properties that are listed on or eligible for the National Register of Historic Places receive further consideration under Section 106. Assess the effect(s) of the project by applying the Criteria of Adverse Effect. ([36 CFR 800.5](#)) Consider direct and indirect effects as applicable as per HUD guidance.

**Choose one of the findings below - No Historic Properties Affected, No Adverse Effect, or Adverse Effect; and seek concurrence from consulting parties.**

No Historic Properties Affected

**Document reason for finding:**

No historic properties present. → *Provide concurrence(s) or objection(s) and continue to the Worksheet Summary.*

One archaeological resource (P-34-001378) and two historic-period architectural resources (Twin Rivers Housing Project and 401 North 12th St. [Loaves and Fishes]) were identified in the APE. All three resources were evaluated as not eligible for listing in the National Register of Historic Places. SHPO concurred with these recommendations on [date].

- Historic properties present, but project will have no effect upon them. → *Provide concurrence(s) or objection(s) and continue to the Worksheet Summary.*

If consulting parties concur or fail to respond to user's request for concurrence, project is in compliance with this section. No further review is required. If consulting parties object, refer to [\(36 CFR 800.4\(d\)\(1\)\)](#) and consult further to try to resolve objection(s).

- No Adverse Effect

**Document reason for finding:**

**Does the No Adverse Effect finding contain conditions?**

- Yes

**Check all that apply:** (check all that apply)

- Avoidance  
 Modification of project  
 Other

**Describe conditions here:**

→ *Monitor satisfactory implementation of conditions. Provide concurrence(s) or objection(s) and continue to the Worksheet Summary.*

- No → *Provide concurrence(s) or objection(s) and continue to the Worksheet Summary.*

If consulting parties concur or fail to respond to user's request for concurrence, project is in compliance with this section. No further review is required. If consulting parties object, refer to [\(36 CFR 800.5\(c\)\(2\)\)](#) and consult further to try to resolve objection(s).

- Adverse Effect

**Document reason for finding:**

Copy and paste applicable Criteria into text box with summary and justification.

Criteria of Adverse Effect: [36 CFR 800.5](#)]

Provide  
decide

whether to enter the consultation (Not required for projects covered by a Programmatic Agreement).

→ Continue to Step 4.

#### Step 4 - Resolve Adverse Effects

Work with consulting parties to try to avoid, minimize or mitigate adverse effects. Refer to HUD guidance and [36 CFR 800.6 and 800.7](#).

**Were the Adverse Effects resolved?**

Yes

**Describe the resolution of Adverse Effects, including consultation efforts and participation by the Advisory Council on Historic Preservation:**

**For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

→ Provide signed Memorandum of Agreement (MOA) or Standard Mitigation Measures Agreement (SMMA). Continue to the Worksheet Summary.

No

The project must be cancelled unless the “Head of Agency” approves it. Either provide approval from the “Head of Agency” or cancel the project at this location.

**Describe the failure to resolve Adverse Effects, including consultation efforts and participation by the Advisory Council on Historic Preservation and “Head of the Agency”:**

**Explain in detail the exact conditions or measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

→ *Provide correspondence, comments, documentation of decision, and “Head of Agency” approval. Continue to the Worksheet Summary.*

**Worksheet Summary**

**Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

Through a records search, background research, pedestrian field survey, archaeological subsurface survey, and Native American consultation, three cultural resources were identified in the project area. The resources consist of one archaeological isolate (P-34-001378) and two architectural resources (Twin Rivers Housing Project and 401 North 12th Street [Loaves and Fishes]). All three resources were evaluated as not eligible for listing in the National. Therefore, the proposed project is not anticipated to adversely affect an historic property, as defined by the NHPA.

**Are formal compliance steps or mitigation required?**

- Yes
- No

**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**

1725 23<sup>rd</sup> Street, Suite 100  
SACRAMENTO, CA 95816-7100  
(916) 445-7000 Fax: (916) 445-7053  
calshpo@parks.ca.gov  
www.ohp.parks.ca.gov



April 6, 2017

Refer to HUD\_2017\_0306\_004

Dana Mahaffey  
Associate Planner  
Community Development Department  
City of Sacramento  
300 Richards Boulevard, 3<sup>rd</sup> Floor  
Sacramento, CA 95811

Re: Twin Rivers Transit-Oriented Housing & Light Rail Station Development Project

Dear Ms. Mahaffey:

Thank you for forwarding the above referenced undertaking to our office for review and comment pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations found at 36 CFR Part 800. The regulations and advisory material can be found at [www.achp.gov](http://www.achp.gov).

#### Undertaking

You have informed us that the City of Sacramento proposes to use funds from the U.S. Department of Housing and Urban Development through the Housing Authority of the County of Sacramento to demolish the existing Twin Rivers Housing Project, historically known as the Dos Rios Housing Project, and construct the Twin Rivers mixed-use, mixed-income multifamily housing development and the Dos Rios Light Rail Station on North 12<sup>th</sup> Street in Sacramento. The proposed housing development project involves the construction of 218, replacement, public affordable housing units and 268 market rate rental units, the realignment of the internal street network, the establishment green open space, and the construction of other community amenities.

#### Area of Potential Effects (APE)

The City has defined the APE as the area within the two subject parcels, totaling 26.78 acres. Internally, the parcels are divided by North 12<sup>th</sup> Street, with the larger and westernmost area consisting 21.32 acres known as the "Twin Rivers Complex" and the site of the proposed housing development. The second easternmost portion of the APE is 5.46 acres and is the site of the proposed Dos Rios Light Rail Station. Our office does not object to this definition of the APE.

#### Identification of Historic Properties

In an effort to identify potential historic properties within the APE the City's consultant, ESA, conducted a records search with the North Central Information Center (NCIC) of the California Historical Resources Information System (CHRIS), requested at Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC), completed historical background research, desktop archeological sensitivity analysis, archeological pedestrian and



subsurface surveys of the APE, and a built environment survey and evaluation of the area. The Sacramento Housing and Redevelopment Agency (SHRA), a partner in the undertaking, conducted Native American consultation for the project.

While the results of the records search at the NWIC and desktop archeological analysis indicated a potential to encounter subsurface archeological resources, the archeological pedestrian and subsurface surveys did not result in the identification of any archeological historic properties within the APE.

The following two historic era buildings within the APE were identified, documented, and evaluated:

- The City determined that the Twin Rivers Housing Project, historically known as the Dos Rios Housing Project, is ineligible for listing in National Register for Historic Places. Based on the report prepared by ESA, the City determined that the housing development does not meet any of the significance criteria for listing in the National Register, nor does it retain integrity. The argument that the Twin Rivers Housing Project does not appear eligible for listing under Criterion A relies heavily on the fact that it was not the first public housing project developed in Sacramento, despite the fact that it opened a mere two months after its predecessor, New Helvetia (which is listed in the National Register). Though our office does not believe that an argument against the significance of Twin Rivers Housing Project under Criterion A has been made, we do agree that the property no longer retains the integrity necessary for it to convey its significance. Therefore, we concur with the City's determination that the Twin Rivers Housing Project is not eligible for listing in the National Register of Historic Places under any criteria.
- The City also determined that the building located at 401 North 12<sup>th</sup> Street, commonly known as Loaves and Fishes, is ineligible for listing in the National Register of Historic Places under any of the four criteria. Our office concurs with the determination that the building located at 401 North 12<sup>th</sup> Street is not eligible for listing in the National Register.

#### Finding of Effects

The City has "reached a determination of *no historic properties affected* for the Project," based on the extensive research, survey work, and consultation carried out for the undertaking. Pursuant to 36 CFR §800.4(d) the California Office of Historic Preservation does not object to a finding that no historic properties will be affected by the undertaking. However, the City may have additional Section 106 responsibilities under certain circumstances set forth at 36 CFR Part 800 in the event that historic properties are discovered during implementation of the undertaking your agency is required to consult further pursuant to §800.13(b).

The City of Sacramento's consideration of historic properties in the project planning process is appreciated. If you have questions please contact Shannon Lauchner, Historian II, with the Local Government & Environmental Compliance Unit at (916)445-7013 or by email at [shannon.lauchner@parks.ca.gov](mailto:shannon.lauchner@parks.ca.gov).

Sincerely,



Julianne Polanco  
State Historic Preservation Officer