

**APPENDIX A**  
**AIR QUALITY CALCULATIONS**



# WWCRP

## 1.0 Project Characteristics

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**Location**

Orange - County

**Operational year**

2014

**Land Usage**

Land Uses	Size	Metric
City Park	1	Acre

## 2.0 Construction Characteristics

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**Construction Phases**

Phase Name	Start Date	End Date	Days per Week	Days per Phase
Grading	2013/03/04	2013/03/15	5	10

**Offroad**

Phase	Equipment Type	Pieces of Equipment	Hours per Day	HP	LF
Grading	Cranes	1	2	208	0.43
Grading	Excavators	1	4	157	0.57
Grading	Rubber Tired Dozers	1	4	358	0.59
Grading	Skid Steer Loaders	1	6	37	0.55
Grading	Tractors/Loaders/Backhoes	1	6	75	0.55

**Onroad**

Phase	Worker Trips	Vendor Trips	Hauling Trips	Worker Trip Length	Vendor Trip Length	Hauling Trip Length
Grading	13	0	5	12.7	7.4	20

**Grading**

Phase	Import	Export	Acres Disturbed
Grading	40	0	0.75

## 4.0 Mitigation

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**Construction**

**Dust**

Water Exposed Areas	PM10 (% Redu	61
	PM2.5 (% Red	61

**WWCRP**  
**Orange County, Winter**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric
City Park	1	Acre

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>		<b>Utility Company</b>	
<b>Climate Zone</b>	8		2.2		
		<b>Precipitation Freq (Days)</b>			
					30

**1.3 User Entered Comments**

- Project Characteristics -
- Land Use -
- Construction Phase - 2 weeks of construction in 2013
- Off-road Equipment - Equipment based on email received fom Joanne Quirk 3/15/12 at 1:32PM
- Grading - .
- Construction Off-road Equipment Mitigation -

## 2.0 Emissions Summary

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### 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					
2013	2.80	20.91	13.38	0.02	3.41	1.07	4.47	1.66	1.07	2.73	0.00	2,380.60	0.00	0.25	0.00	2,385.89
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

#### 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					
2013	2.80	20.91	13.38	0.02	1.52	1.07	2.59	0.65	1.07	1.72	0.00	2,380.60	0.00	0.25	0.00	2,385.89
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## 3.0 Construction Detail

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### 3.1 Mitigation Measures Construction

Water Exposed Area

### 3.2 Grading - 2013

**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					3.09	0.00	3.09	1.66	0.00	1.66						0.00
Off-Road	2.69	20.55	12.40	0.02		1.05	1.05		1.05	1.05		2,192.19		0.24		2,197.27
<b>Total</b>	<b>2.69</b>	<b>20.55</b>	<b>12.40</b>	<b>0.02</b>	<b>3.09</b>	<b>1.05</b>	<b>4.14</b>	<b>1.66</b>	<b>1.05</b>	<b>2.71</b>		<b>2,192.19</b>		<b>0.24</b>		<b>2,197.27</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	0.03	0.27	0.16	0.00	0.12	0.01	0.13	0.00	0.01	0.01		40.49		0.00		40.52
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.08	0.09	0.82	0.00	0.20	0.01	0.21	0.01	0.01	0.01		147.92		0.01		148.10
<b>Total</b>	<b>0.11</b>	<b>0.36</b>	<b>0.98</b>	<b>0.00</b>	<b>0.32</b>	<b>0.02</b>	<b>0.34</b>	<b>0.01</b>	<b>0.02</b>	<b>0.02</b>		<b>188.41</b>		<b>0.01</b>		<b>188.62</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					1.21	0.00	1.21	0.65	0.00	0.65						0.00

Off-Road	2.69	20.55	12.40	0.02		1.05	1.05		1.05	1.05	0.00	2,192.19		0.24		2,197.27
<b>Total</b>	<b>2.69</b>	<b>20.55</b>	<b>12.40</b>	<b>0.02</b>	<b>1.21</b>	<b>1.05</b>	<b>2.26</b>	<b>0.65</b>	<b>1.05</b>	<b>1.70</b>	<b>0.00</b>	<b>2,192.19</b>		<b>0.24</b>		<b>2,197.27</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	0.03	0.27	0.16	0.00	0.12	0.01	0.13	0.00	0.01	0.01		40.49		0.00		40.52
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.08	0.09	0.82	0.00	0.20	0.01	0.21	0.01	0.01	0.01		147.92		0.01		148.10
<b>Total</b>	<b>0.11</b>	<b>0.36</b>	<b>0.98</b>	<b>0.00</b>	<b>0.32</b>	<b>0.02</b>	<b>0.34</b>	<b>0.01</b>	<b>0.02</b>	<b>0.02</b>		<b>188.41</b>		<b>0.01</b>		<b>188.62</b>

**WWCRP**  
**Orange County, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric
City Park	1	Acre

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>		<b>Utility Company</b>
<b>Climate Zone</b>	8		2.2	
		<b>Precipitation Freq (Days)</b>		
			30	

**1.3 User Entered Comments**

- Project Characteristics -
- Land Use -
- Construction Phase - 2 weeks of construction in 2013
- Off-road Equipment - Equipment based on email received fom Joanne Quirk 3/15/12 at 1:32PM
- Grading - .
- Construction Off-road Equipment Mitigation -



## 2.0 Emissions Summary

### 2.1 Overall Construction

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2013	0.01	0.10	0.07	0.00	0.02	0.01	0.02	0.01	0.01	0.01	0.00	10.81	10.81	0.00	0.00	10.83
<b>Total</b>	<b>0.01</b>	<b>0.10</b>	<b>0.07</b>	<b>0.00</b>	<b>0.02</b>	<b>0.01</b>	<b>0.02</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.00</b>	<b>10.81</b>	<b>10.81</b>	<b>0.00</b>	<b>0.00</b>	<b>10.83</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	tons/yr										MT/yr					
2013	0.01	0.10	0.07	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.00	10.81	10.81	0.00	0.00	10.83
<b>Total</b>	<b>0.01</b>	<b>0.10</b>	<b>0.07</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>0.00</b>	<b>10.81</b>	<b>10.81</b>	<b>0.00</b>	<b>0.00</b>	<b>10.83</b>

## 3.0 Construction Detail

### 3.1 Mitigation Measures Construction

Water Exposed Area

### 3.2 Grading - 2013

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.02	0.00	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.10	0.06	0.00		0.01	0.01		0.01	0.01	0.00	9.94	9.94	0.00	0.00	9.96
<b>Total</b>	<b>0.01</b>	<b>0.10</b>	<b>0.06</b>	<b>0.00</b>	<b>0.02</b>	<b>0.01</b>	<b>0.03</b>	<b>0.01</b>	<b>0.01</b>	<b>0.02</b>	<b>0.00</b>	<b>9.94</b>	<b>9.94</b>	<b>0.00</b>	<b>0.00</b>	<b>9.96</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	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.18	0.00	0.00	0.18
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.69	0.00	0.00	0.69
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.87</b>	<b>0.87</b>	<b>0.00</b>	<b>0.00</b>	<b>0.87</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.10	0.06	0.00		0.01	0.01		0.01	0.01	0.00	9.94	9.94	0.00	0.00	9.96

Total	0.01	0.10	0.06	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	9.94	9.94	0.00	0.00	9.96
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**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.18	0.00	0.00	0.18
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.69	0.00	0.00	0.69
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.87</b>	<b>0.87</b>	<b>0.00</b>	<b>0.00</b>	<b>0.87</b>

