Yuba County IRWMP | 2015 UPDATE

APPENDIX 14-4 Completed Greenhouse Gas Inventories

Note: Not all projects were sufficiently developed to complete Greenhouse Gas Inventories.

BYLT-02: Yuba Watershed Forest and Fuels Project Component 1 - CWPP Implementation Inventory and Calculation of Greenhouse Gas Emissions

Line	Emissions	from	Construction	Equipment
------	------------------	------	--------------	-----------

	Type of Equipment	Maximum Number per	Total Operation	Total Operation	Fuel Consumption	Total Fuel Consumption	CO₂e/gal diesel³	Total CO₂ Equivalent
1		Day	Days	Hours ¹	Per Hour ²	(gal. diesel)		Emissions (metric tons)
	Masticator (equivalent to D 120 Excavator)	1	100	800	3.38	2,704	0.010	28
3				0		-	0.010	-
4				0		-	0.010	-
5				0		-	0.010	-
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-

26 ¹ An 8-hour work day is assumed.

27 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 World Resources Institute-Mobile combustion CO₂ emissions tool, June 2003 Version 1.2

29

30 Emissions from Transportation of Construction Workforce

31	Workers per Day	Number of Workdays	Average Distance Traveled (round trip)		Ŭ		Gasoline ³	Total CO ₂ Equivalent Emissions (metric tons)
32	13	300	7.95	31005	23.8	1302.7	0.009	11.74

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive

33 Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

	Trip Type	Average Trip Distance	Traveled			Diesel ³	Total CO ₂ Equivalent Emissions
36							(metric tons)
37	Delivery			4.25	0	0.010	0
38	Spoils			4.25	0	0.010	0
30	TOTAL						0

TOTAL

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel 40 Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 Construction Electricity Emissions

42		mtCO2_e/[MWh]]^6	CO ₂ e emissions
43 Electricity Needed	0	0.310	0

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 **Total Construction Activity Emissions**

39.8 (from lines 25, 32, 39, and 43)

1

47 Total Years of Construction

48 Expected Start Date of Construction

n/a

49

50 Estimated Project Useful life

10 Years

51 Average Annual Total GHG Emissions

3.9835888 MT CO₂ equivalents

CAMPTONVILLE WATER SYSTEM IMPROVEMENT PROJECT Inventory and Calculation of Greenhouse Gas Emissions

Line	Emissions	from	Construction	Equipment
------	------------------	------	--------------	------------------

Type of	Maximum	Total	Total	Fuel	Total Fuel	CO₂e/gal	Total CO₂
Equipment	Number per	Operation	Operation	Consumption	Consumptio	diesel ³	Equivalent
	Day	Days	Hours ¹	Per Hour ²	n (gal.		Emissions
					diesel)		(metric tons)
1							
2 Chainsaw			12	0.27	3	0.010	0
3 Chipper			4	5.49	22	0.010	0
4 Crane			8	8.18	65	0.010	1
5 Dump Truck			12	11.51	138	0.010	1
6 Equip Haul			6	7.55	45	0.010	0
7 Excavator			8	10.6	85	0.010	1
8 Loader			10	6.76	68	0.010	1
Material Ha	ul		0	7.55	_	0.010	_
9			U		_		
10 Spoils Haul			4	7.55	30	0.010	0
11 Skidder			6	10.76	65	0.010	1
12 Self Loader			6	7.55	45	0.010	0
Transit Mixe	er		12	11.51	138	0.010	1
14 Trencher			8	10.14	81	0.010	1
15 Well Drill			20	9.04	181	0.010	2
16 Well Pump			504	0.46	232	0.010	2
17			0		-	0.010	-
18			0		-	0.010	-
19			0		-	0.010	-
20			0		-	0.010	-
21			0		_	0.010	-
22			0		-	0.010	-
23			0		_	0.010	-
24			0		-	0.010	-
25 TOTAL					1,198		12

26 An 8-hour work day is assumed.

 2 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

³ World Resources Institute-Mobile combustion CO₂ emissions tool, June 2003 Version 1.2 28

30 Emissions from Transportation of Construction Workforce

	Average	Total	Average	Total Miles	Average	Total Fuel	CO₂e/gal	Total CO ₂
	Number of	Number of	Distance	Traveled	Passenger	Consumptio	Gasoline ³	Equivalent
	Workers per	Workdays	Traveled		Vehicle Fuel	n (gal.		Emissions
	Day		(round		Efficiency ⁴	gasoline)		(metric tons)
31			trip)					
32	3	28	50	4200	23.8	176.5	0.009	1.59

United States Environmental Protection Agency. 2013. Light-Duty Automotive
 Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36		Total Number of Trips	Average Trip Distance	Traveled	Efficiency]]^5	Total Fuel Consumptio n (gal. diesel)		Total CO ₂ Equivalent Emissions (metric tons)
37	Delivery	4	50	200	4.25	47	0.010	0.49
38	Spoils	2	50	100	4.25	24	0.010	0.24

39 TOTAL 0.73

41 Construction Electricity Emissions

42		MWh of electricity		CO ₂ e emissions
43	Electricity Needed	1	0.310	0.31

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

46 Total Construction Activity Emissions

15.1 (from lines 25, 32, 39, and 43)

Total Years of Construction

0.25

48 Expected Start Date of Construction

June-16

50 Estimated Project Useful life

49

35 Years

Average Annual Total GHG Emissions⁷

0.43 MT CO₂ equivalents

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

Well System Monitoring Rehabilitation Project - Inventory and Calculation of Greenhouse Gas Emissions

ne	Emissions	from	Construction	Equipment
----	------------------	------	--------------	-----------

	Type of	Maximum	Total	Total	Fuel	Total Fuel	CO₂e/gal	Total CO ₂
	Equipment	Number per	Operation	Operation	Consumption	Consumption	diesel ³	Equivalent
		Day	Days	Hours ¹	Per Hour ²	(gal. diesel)		Emissions
								(metric tons)
1								
	Drill Rig	1	50	400	6.42	2,568	0.010	27
3	Backhoe	1	50	400	2.37	948	0.010	10
4	Trencher	1	20	160	6.58	1,053	0.010	11
5	Excavator	1	20	160	3.38	541	0.010	6
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					5,110		53

26 An 8-hour work day is assumed.

27 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 Emissions from Transportation of Construction Workforce

31	Workers per Day	Number of Workdays	Average Distance Traveled (round trip)		J	l <u>.</u>	Gasoline ³	Total CO ₂ Equivalent Emissions (metric tons)
32	4	50	100	20000	23.8	840.3	0.009	7.57

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive

33 Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36			Average Trip Distance	Traveled	7.00	Total Fuel Consumption (gal. diesel)	Diesel ³	Total CO₂ Equivalent Emissions (metric tons)	
37	Delivery	15	100	1500	4.25	352.94	0.010	3.67	
38	Spoils	5	50	250	4.25	58.82	0.010	0.61	
20	20 TOTAL								

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 Construction Electricity Emissions

42		MINTLE TAC	CO ₂ e emissions
43 Electricity Needed	0	0.310	0

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 Total Construction Activity Emissions

64.9 (from lines 25, 32, 39, and 43)

47 Total Years of Construction

48 Expected Start Date of Construction TBD

49

50 Estimated Project Useful life

40 Years

51 Average Annual Total GHG Emissions⁷

1.6 MT CO₂ equivalents

1

Forbestown Ditch Improvement Project - Inventory and Calculation of Greenhouse Gas Emissions

Ī	Line	Emissions	from Co	nstruction	Equipme	nt
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	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours ¹	Fuel Consumption Per Hour ²	Total Fuel Consumption (gal. diesel)	CO ₂ e/gal diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
	Trackhoe - Excavator	1	240	1920	5.12	9,830	0.010	102
3	Front End Loader	1	240	1920	4.85	9,312	0.010	97
4	Pick-up Truck	1	240	1920	1.5	2,880	0.010	30
5				0		-	0.010	-
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	
10				0		-	0.010	-
11				0		-	0.010	
12				0		-	0.010	
13				0		-	0.010	
14				0		-	0.010	
15				0		-	0.010	
16				0		-	0.010	
17				0		-	0.010	
18				0		-	0.010	
19				0		-	0.010	
20				0		-	0.010	
21				0		-	0.010	
22				0		-	0.010	
23				0		-	0.010	
24	TOTAL			0			0.010	- 220

25 TOTAL 22,022 229

27 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

29

30 Emissions from Transportation of Construction Workforce

	Average	Total	Average	Total Miles	Average	Total Fuel	CO₂e/gal	Total CO₂
	Number of	Number of	Distance	Traveled	Passenger	Consumption	Gasoline ³	Equivalent
	Workers per	Workdays	Traveled		Vehicle Fuel	(gal. gasoline)		Emissions
	Day		(round trip)		Efficiency ⁴			(metric tons)
31								
10	10	250	70	175000	23.8	7352.9	0.009	66.25

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive

^{26 &}lt;sup>1</sup> An 8-hour work day is assumed.

²⁸ World Resources Institute-Mobile combustion CO₂ emissions tool, June 2003 Version 1.2

³³ Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001

35 Emissions from Transportation of Construction Materials

36			•	Traveled	Average Semi- Truck Fuel Efficiency]]^5		Diesel ³	Total CO₂ Equivalent Emissions (metric tons)	
37	Delivery	90	150	13500	4.25	3176.470588	0.010	33.01	
38	Spoils	0	0	0	4.25	0	0.010	0	
20	20 TOTAL								

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 Construction Electricity Emissions

42			mtCO2_e/[MWh]]^6	CO ₂ e emissions
	Electricity Needed (portable			
43	generator)	4.5	0.310	1.395

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 Total Construction Activity Emissions 329.5 (from lines 25, 32, 39, and 43)

Total Years of Construction 0.5
Expected Start Date of Construction April-15

49

50 Estimated Project Useful life 100 Years

51 Average Annual Total GHG Emissions 3.2949594 MT CO₂ equivalents

CO₂e/gal Total CO₂

0.010

0.010

0.010

0.010

0.010

0.010

0.010

0.010

0.010

0.010

0.010

0.010

0.010

0.010

0

0

51

28

28

44

3

4,867

2,717

2,659

Acquisition of Landside Urban Levee Maintenance Corridor- Inventory and Calculation of Greenhouse Gas Emissions

Fuel

Total Fuel

Total

1	Equipment	Number per Day	Operation Days	Operation Hours ¹	Consumption Per Hour ²	Consumption (gal. diesel)	diesel ³	Equivalent Emissions (metric tons)
2	Cranes	1	5	40	1.94	78	0.010	1
3	Rough Terrain Forklifts	2	120	1920	3.3	6,336	0.010	66
4	Rubber Tired Loaders	3	120	2880	2.44	7,027	0.010	73
5	Concrete Industrial Saws	1	10	80	0.75	60	0.010	1
6	Cement and Mortar Mixers	2	10	160	0.8	128	0.010	1
7	Other Construction Equipment	5	120	4800	0.6	2,880	0.010	30
8	Misc Portable Equipment	10	60	4800	3.15	3	0.010	0
9	Tampers / Rammers	2	30	480	0.49	235	0.010	2
		1	ī.	1		i e		

80

16

1440

480

480

0

0

0

0

0

0

0

0

2

60

20

20

1 3

3

0.55

0.2

3.38

5.66

5.54

0.010 25 TOTAL 27,038 281

Line Emissions from Construction Equipment Maximum

Total

Type of

10 Rollers

Paving

11 Equipment

12 Excavators

Crawler

13 Graders

14 Tractors

15

16

17

18

19

20

21

22

23

24

^{26 &}lt;sup>1</sup> An 8-hour work day is assumed.

California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

World Resources Institute-Mobile combustion CO₂ emissions tool, June 2003 Version 1.2

Emissions from Transportation of Construction Workforce

	Average	Total	Average	Total Miles	Average	Total Fuel	CO₂e/gal	Total CO ₂
	Workers per	Number of Workdays	Distance Traveled		Vehicle Fuel	Consumption (gal. gasoline)		Equivalent Emissions
	Day		(round trip)		Efficiency ⁴			(metric tons)
33	L							
32	5	150	120	90000	23.8	3781.5	0.009	34.07

United States Environmental Protection Agency. 2013. Light-Duty Automotive
 Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36		Total Number of Trips	Average Trip Distance	Traveled	7.00		Diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
37	Delivery	30	120	3600	4.25	847.0588235	0.010	8.802106729
38	Spoils	30	120	3600	4.25	847.0588235	0.010	8.802106729

TOTAL 17.60421346

41 Construction Electricity Emissions

42		MINITAR	CO ₂ e emissions	
43 Electricity Needed	2	0.310	0.62	

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 Total Construction Activity Emissions 333.3 (from lines 25, 32, 39, and 43)

47 Total Years of Construction 0.5

48 Expected Start Date of Construction TBD

49

50 Estimated Project Useful life 40

Average Annual Total GHG Emissions 8.3313248 MT CO₂ equivalents

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

Chestnut Pump Station Reconstruction- Inventory and Calculation of Greenhouse Gas Emissions

Line	Emissions from	Construction	Equipment
------	-----------------------	--------------	------------------

	Type of	Maximum	Total	Total	Fuel	Total Fuel	CO₂e/gal	Total CO ₂
	Equipment	Number per	Operation	Operation	Consumption	Consumption	diesel ³	Equivalent
		Day	Days	Hours ¹	Per Hour ²	(gal. diesel)		Emissions
								(metric tons)
1								
2	Cranes	1	25	200	1.94	388	0.010	4
	Rough Terrain	1	120					
2	Forklifts			960	3.3	3,168	0.010	33
3	Rubber Tired	1	120					
1	Loaders	1	120	960	2.44	2,342	0.010	24
4	Concrete		10					
	Industrial		10	80	0.75	60	0.010	1
5	Saws	1		00	0.75		0.010	
	Cement and		10					
	Mortar			80	0.8	64	0.010	1
6	Mixers	1						
	Other		60					
	Construction			480	0.6	288	0.010	3
7	Equipment	1						
	Misc Portable		40					
	Equipment			3200	3.15	3	0.010	0
8		10						
	Tampers /		20	320	0.49	157	0.010	2
	Rammers	2						
10	Rollers	1	5	40	0.55	22	0.010	0
	Paving	_	2	16	0.2	3	0.010	0
	Equipment	1	20					
	Excavators	1	30		3.38	811	0.010	
13				0		-	0.010 0.010	
14 15				0		-	0.010	
16				0		-	0.010	
17				0			0.010	
18				0		_	0.010	
19				0		_	0.010	
20				0		_	0.010	-
21				0		_	0.010	
22				0		_	0.010	
23				0		-	0.010	
24				0		-	0.010	
25	TOTAL	•			•	7,307	•	76

²⁶ An 8-hour work day is assumed.

²⁷ California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

²⁸ World Resources Institute-Mobile combustion CO₂ emissions tool, June 2003 Version 1.2

²⁹

³⁰ Emissions from Transportation of Construction Workforce

	Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)		Passenger		Gasoline ³	Total CO ₂ Equivalent Emissions (metric tons)
31								
32	4	150	120	72000	23.8	3025.2	0.009	27.26

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive

³³ Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

	Number of	• .	Traveled	Truck Fuel	Consumption	Diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
Delivery	30	120	3600	4.25	847.0588235	0.010	8.802106729
Spoils	30	120	3600	4.25	847.0588235	0.010	8.802106729
	Delivery	Number of Trips Delivery 30	Number of Trips Delivery 30 120	Number of Trips Distance Traveled Delivery 30 120 3600	Number of Trips Distance Traveled Truck Fuel Efficiency 55 Delivery 30 120 3600 4.25	Number of Trips Distance Traveled Truck Fuel (gal. diesel) Delivery 30 120 3600 4.25 847.0588235	Number of Trips Distance Traveled Truck Fuel (gal. diesel) Delivery 30 120 3600 4.25 847.0588235 0.010

TOTAL 17.60421346

41 Construction Electricity Emissions

42			mtCO2_e/[MWh]]^6	CO ₂ e emissions
43	Electricity Needed	4	0.310	1.24

446 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 **Total Construction Activity Emissions**

122.0 (from lines 25, 32, 39, and 43)

47 Total Years of Construction

0.5

48 Expected Start Date of Construction

TBD

49

50 Estimated Project Useful life

40

51 Average Annual Total GHG Emissions

3.0507136 MT CO₂ equivalents

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel 40 Consumption of Medium- and Heavy-Duty Vehicles, 2010.

Pump Station 5 (Avondale) Improvements- Inventory and Calculation of Greenhouse Gas Emissions

ine	Emissions	from	Construction	Equipment
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	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours ¹	Fuel Consumption Per Hour ²	Total Fuel Consumption (gal. diesel)	CO₂e/gal diesel ³	Total CO₂ Equivalent Emissions
1								(metric tons)
	Cranes	1	25	200	1.94	388	0.010	4
	Rough Terrain Forklifts	1	120	960	3.3	3,168	0.010	33
	Rubber Tired Loaders	1	120	960	2.44	2,342	0.010	24
	Concrete Industrial Saws	1	10	80	0.75	60	0.010	1
	Cement and Mortar Mixers	1	10	80	0.8	64	0.010	1
	Other Construction Equipment	1	60	480	0.6	288	0.010	3
	Misc Portable Equipment	10	40	3200	3.15	3	0.010	0
	Tampers / Rammers	2	20	320	0.49	157	0.010	2
10	Rollers	1	5	40	0.55	22	0.010	0
	Paving Equipment	1	2	16	0.2	3	0.010	0
	Excavators	1	30	240	3.38	811	0.010	8
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	
16				0		-	0.010	-
17				0		-	0.010	
18 19				0		-	0.010 0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		_	0.010	_
23				0		-	0.010	
24				0		-	0.010	
25	TOTAL					7,307		76

^{26 &}lt;sup>1</sup> An 8-hour work day is assumed.

²⁷ California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

 $[\]overline{28}^3$ World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

²⁹

³⁰ Emissions from Transportation of Construction Workforce

	Average	Total	Average	Total Miles	Average	Total Fuel	CO₂e/gal	Total CO ₂
	Number of	Number of	Distance	Traveled	Passenger	Consumption	Gasoline ³	Equivalent
	Workers per	Workdays	Traveled		Vehicle Fuel	(gal. gasoline)		Emissions
	Day		(round trip)		Efficiency ⁴			(metric tons)
31								
32	4	150	120	72000	23.8	3025.2	0.009	27.26

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive

³³ Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36			Average Trip Distance	Traveled	Average Semi- Truck Fuel [Efficiency]]^5		Diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
37	Delivery	30	120	3600	4.25	847.0588235	0.010	8.802106729
38	Spoils	30	120	3600	4.25	847.0588235	0.010	8.802106729
20	TOTAL							47 60404046

TOTAL 17.60421346

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel 40 Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 Construction Electricity Emissions

42			mtCO2_e/[MWh]]^6	CO ₂ e emissions
43	Electricity Needed	4	0.310	1.24

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 Total Construction Activity Emissions 122.0 (from lines 25, 32, 39, and 43)

47 Total Years of Construction 0.5

48 Expected Start Date of Construction TBD

49

50 Estimated Project Useful life 40 40

51 Average Annual Total GHG Emissions 3.0507136 MT CO₂ equivalents

Pump Station 1 Reconstruction- Inventory and Calculation of Greenhouse Gas Emissions

Line Er	nissions	from	Constr	uction	Equipment
----------------	----------	------	--------	--------	-----------

	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours ¹	Fuel Consumption Per Hour ²	Total Fuel Consumption (gal. diesel)	CO₂e/gal diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
	Cranes	1	5	40	1.94	78	0.010	
3	Rough Terrain Forklifts	1	10	80	3.3	264	0.010	
4	Rubber Tired Loaders	1	5	40	2.44	98	0.010	·
5	Concrete Industrial Saws	1	2	16	0.75	12	0.010	(
6	Cement and Mortar Mixers	1	1	8	0.8	6	0.010	(
7	Other Construction Equipment	1	5	40	0.6	24	0.010	(
8	Misc Portable Equipment	10	30	2400	3.15	3	0.010	
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	
17				0		-	0.010	
18				0		-	0.010	
19				0		-	0.010	
20				0		-	0.010	
21				0		-	0.010	
22				0		-	0.010	
23				0		-	0.010	
24				0		-	0.010	-

26 ¹ An 8-hour work day is assumed.

30 Emissions from Transportation of Construction Workforce

²⁷ California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

²⁸ World Resources Institute-Mobile combustion CO₂ emissions tool, June 2003 Version 1.2

		Total Number of Workdays	Average Distance Traveled	Total Miles Traveled	Passenger		Gasoline ³	Total CO ₂ Equivalent Emissions
	Day		(round trip)		Efficiency ⁴			(metric tons)
31								
32	2	30	120	7200	23.8	302.5	0.009	2.73

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive

³³ Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36			•	Traveled	7.00		Diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
37	Delivery	5	120	600	4.25	141.1764706	0.010	1.467017788
38	Spoils	2	120	240	4.25	56.47058824	0.010	0.586807115
20	TOTAL							2.052924004

TOTAL 2.053824904

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel 40 Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 Construction Electricity Emissions

42		MINTHIAG	CO ₂ e emissions	
43 Electricity Needed	3	0.310	0.93	

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 Total Construction Activity Emissions

10.7 (from lines 25, 32, 39, and 43)

47 Total Years of Construction

0.1

48 Expected Start Date of Construction

TBD

49

50 Estimated Project Useful life

40

51 Average Annual Total GHG Emissions⁷

0.268669 MT CO₂ equivalents

Pump Station 2 Improvements- Inventory and Calculation of Greenhouse Gas Emissions

Line Em i	issions fro	om Constr	uction Eq	uipment
------------------	-------------	-----------	-----------	---------

	Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours ¹	Fuel Consumption Per Hour ²	Total Fuel Consumption (gal. diesel)	CO₂e/gal diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
	Cranes	1	5	40	1.94	78	0.010	1
	Rough Terrain Forklifts	1	10	80	3.3	264	0.010	3
	Rubber Tired Loaders	1	5	40	2.44	98	0.010	1
ļ	Concrete Industrial Saws	1	2	16	0.75	12	0.010	0
l	Cement and Mortar Mixers	1	1	8	0.8	6	0.010	0
(Other Construction Equipment	1	5	40	0.6	24	0.010	C
	Misc Portable Equipment	10	30	2400	3.15	3	0.010	C
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24	TOTAL			0		485	0.010	- 5

26 ¹ An 8-hour work day is assumed.

²⁷ California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

²⁸ World Resources Institute-Mobile combustion CO₂ emissions tool, June 2003 Version 1.2

³⁰ Emissions from Transportation of Construction Workforce

	Average	Total	Average	Total Miles	Average	Total Fuel	CO₂e/gal	Total CO ₂
	Number of	Number of	Distance	Traveled	Passenger	Consumption	Gasoline ³	Equivalent
	Workers per	Workdays	Traveled		Vehicle Fuel	(gal. gasoline)		Emissions
	Day		(round trip)		Efficiency ⁴			(metric tons)
31								
32	2	30	120	7200	23.8	302.5	0.009	2.73

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive

³³ Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36	Trip Type	Total Number of Trips	Average Trip Distance	Traveled	7.00		Diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
37	Delivery	5	120	600	4.25	141.1764706	0.010	1.467017788
38	Spoils	2	120	240	4.25	56.47058824	0.010	0.586807115
20	TOTAL							2.052924004

TOTAL 2.053824904

41 Construction Electricity Emissions

42		MINTLE TAC	CO ₂ e emissions	
43 Electricity Needed	3	0.310	0.93	

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 Total Construction Activity Emissions 10.7 (from lines 25, 32, 39, and 43)

47 Total Years of Construction 0.1

48 Expected Start Date of Construction TBD

49

50 Estimated Project Useful life 40

Average Annual Total GHG Emissions 0.268669 MT CO₂ equivalents

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel 40 Consumption of Medium- and Heavy-Duty Vehicles, 2010.

Pump Station 10 Improvements- Inventory and Calculation of Greenhouse Gas Emissions

Line	Fmissions	from	Construction	Fauinment

	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours ¹	Fuel Consumption Per Hour ²	Total Fuel Consumption (gal. diesel)	CO₂e/gal diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
2	Cranes	2	20	320	1.94	621	0.010	(
3	Rough Terrain Forklifts	2	120	1920	3.3	6,336	0.010	66
4	Rubber Tired Loaders	3	120	2880	2.44	7,027	0.010	73
5	Concrete Industrial Saws	2	10	160	0.75	120	0.010	-
6	Cement and Mortar Mixers	1	10	80	0.8	64	0.010	:
7	Other Construction Equipment	5	120	4800	0.6	2,880	0.010	30
8	Misc Portable Equipment	10	60	4800	3.15	3	0.010	
9	Tampers / Rammers	2	30	480	0.49	235	0.010	
10	Rollers	2	5	80	0.55	44	0.010	
11	Paving Equipment	2	4	64	0.2	13	0.010	
	Excavators	2	60	960	3.38	3,245	0.010	3
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19 20				0		-	0.010 0.010	-
20 21				0		-	0.010	-
21				0		-	0.010	-
23				0			0.010	
24		 		0		-	0.010	-
	TOTAL			U		20,588	0.010	21

²⁶ An 8-hour work day is assumed.

²⁷ California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

²⁸ World Resources Institute-Mobile combustion CO₂ emissions tool, June 2003 Version 1.2

²⁹

³⁰ Emissions from Transportation of Construction Workforce

		Number of	Ŭ	Total Miles Traveled	Passenger		Gasoline ³	Total CO ₂ Equivalent Emissions
	Day	Workdays	(round trip)		Efficiency ⁴	(gai. gasoiiile)		(metric tons)
31								
32	5	150	120	90000	23.8	3781.5	0.009	34.07

United States Environmental Protection Agency. 2013. Light-Duty Automotive
 Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36			Average Trip Distance	Traveled	Average Semi- Truck Fuel [Efficiency]]^5		Diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
37	Delivery	30	120	3600	4.25	847.0588235	0.010	8.802106729
38	Spoils	30	120	3600	4.25	847.0588235	0.010	8.802106729
20	TOTAL							47 60404046

TOTAL 17.60421346

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel 40 Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 Construction Electricity Emissions

42			mtCO2_e/[MWh]]^6	CO ₂ e emissions	
43	Electricity Needed	4	0.310	1.24	

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 Total Construction Activity Emissions

266.9 (from lines 25, 32, 39, and 43)

47 Total Years of Construction

0.5

48 Expected Start Date of Construction

TBD

49

50 Estimated Project Useful life

40

51 Average Annual Total GHG Emissions

6.6713193 MT CO₂ equivalents

Daguerre Point Dam Fish Passage Improvement- Inventory and Calculation of Greenhouse Gas Emissions

Line Emissions from Construction Equipment

	Equipment	Maximum Number per	Total Operation	Total Operation	Fuel Consumption	Total Fuel Consumption	CO ₂ e/gal diesel ³	Total CO₂ Equivalent
1		Day	Days	Hours ¹	Per Hour ²	(gal. diesel)		Emissions (metric tons)
2	Excavator	2	60	960	3.38	3,245	0.010	34
3	Cranes	1	30	240	2.3	552	0.010	6
	Rubber Tired Dozers	1	30	240	5.93	1,423	0.010	15
5	Tractors/Loader	2	100	1600	1.41	2,256	0.010	23
6	Other Construct	2	100	1600	1.3	2,080	0.010	22
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-

26 ¹ An 8-hour work day is assumed.

27 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 World Resources Institute-Mobile combustion CO₂ emissions tool, June 2003 Version 1.2

29

30 Emissions from Transportation of Construction Workforce

	Workers per Day		Average Distance Traveled (round trip)		J		2 . 0	Total CO ₂ Equivalent Emissions (metric tons)
32	3	120	100	36000	23.8	1512.6	0.009	13.63

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive

33 Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36			•	Traveled	7.00		Diesel ³	Total CO₂ Equivalent Emissions (metric tons)			
37	Delivery	20	100	2000	4.25	470.5882353	0.010	4.890059294			
38	Spoils	30	100	3000	4.25	705.8823529	0.010	7.335088941			
20	20 TOTAL										

TOTAL 12.22514824

41 Construction Electricity Emissions

42			mtCO2_e/[MWh]]^6	CO ₂ e emissions	
43 Electricity I	Needed	100	0.310		31

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

Total Construction Activity Emissions

156.2 (from lines 25, 32, 39, and 43)

47 Total Years of Construction

48 Expected Start Date of Construction

49

50 Estimated Project Useful life

100 Years

Average Annual Total GHG Emissions⁷

1.5615371 MT CO₂ equivalents

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel 40 Consumption of Medium- and Heavy-Duty Vehicles, 2010.

Water Conservation Education-Inventory and Calculation of Greenhouse Gas Emissions

Line E	missions	from	Construction	Equipment
---------------	----------	------	--------------	-----------

1	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours ¹	Fuel Consumption Per Hour ²	Total Fuel Consumption (gal. diesel)	CO₂e/gal diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
2				0		-	0.010	-
3				0		-	0.010	1
4				0		-	0.010	ı
5				0		-	0.010	ı
6				0		-	0.010	ı
7				0		-	0.010	ı
8				0		-	0.010	ı
9				0		-	0.010	ı
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	ı
13				0		-	0.010	ı
14				0		-	0.010	1
15				0		-	0.010	ı
16				0		-	0.010	ı
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	1
20				0		-	0.010	ı
21				0		-	0.010	ı
22				0		-	0.010	ı
23				0		-	0.010	ı
24				0		-	0.010	-

26 An 8-hour work day is assumed.

27 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 Emissions from Transportation of Construction Workforce

31	Workers per Day	Number of Workdays	Average Distance Traveled (round trip)		J		Gasoline ³	Total CO ₂ Equivalent Emissions (metric tons)
32	1	30	50	1500	23.8	63.0	0.009	0.57

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive

33 Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36			Average Trip Distance	Traveled	7.00		Diesel ³	Total CO ₂ Equivalent Emissions (metric tons)			
37	Delivery				4.25	0	0.010	0			
38	Spoils				4.25	0	0.010	0			
20	20 TOTAL										

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 Construction Electricity Emissions

42			mtCO2_e/[MWh]]^6	CO ₂ e emissions	
43 Electr	icity Needed	10	0.310		3.1

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

Total Construction Activity Emissions

3.7 (from lines 25, 32, 39, and 43)

47 Total Years of Construction

48 Expected Start Date of Construction

49

50 Estimated Project Useful life

100 Years

Average Annual Total GHG Emissions⁷

0.0366786 MT CO₂ equivalents

Yuba River Recreation Projects- Inventory and Calculation of Greenhouse Gas Emissions

ne	Emissions	from	Construction	Equip	pment
----	------------------	------	--------------	-------	-------

	Type of	Maximum	Total	Total	Fuel	Total Fuel	CO₂e/gal	Total CO₂
	Equipment	Number per	Operation	Operation	Consumption	Consumption	diesel ³	Equivalent
		Day	Days	Hours ¹	Per Hour ²	(gal. diesel)		Emissions
								(metric
1								tons)
2	Tampers/Rammers	1	30	240	0.2	48	0.010	0
3	Paving Equipment	1	30	240	0.2	48	0.010	0
4	Surfacing Equipmen	1	30	240	0.2	48	0.010	0
5	Scrapers	1	10	80	4.32	346	0.010	4
6	Off-Highway Trucks	3	30	720	5.71	4,111	0.010	43
7	Other Construction I	5	30	1200	0.6	720	0.010	7
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					5.321		55

26 An 8-hour work day is assumed.

27 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 Emissions from Transportation of Construction Workforce

		Average Number	Total	Average	Total Miles	Average	Total Fuel	CO₂e/gal	Total CO ₂
		of Workers per	Number of	Distance	Traveled	Passenger	Consumption	Gasoline ³	Equivalent
		Day	Workdays	Traveled		Vehicle Fuel	(gal. gasoline)		Emissions
				(round trip)		Efficiency⁴			(metric
	31								tons)
ľ	32	4	60	100	24000	23.8	1008.4	0.009	9.09

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology

33 and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36	Trip Type		Average Trip Distance	Traveled	7.00		Diesel ³	Total CO ₂ Equivalent Emissions (metric
37	Delivery	10	100	1000	4.25	235.2941176	0.010	2.4450296
38	Spoils				4.25	0	0.010	0
39	TOTAL							2.4450296

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 Construction Electricity Emissions

42		mtCO2_e/[MWh]]^6	CO ₂ e emissions
43 Electricity Needed	0	0.310	0

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 **Total Construction Activity Emissions**

66.8 (from lines 25, 32, 39, and 43)

47 Total Years of Construction

48 Expected Start Date of Construction

49

50 Estimated Project Useful life

100 Years

51 Average Annual Total GHG Emissions⁷

0.67 MT CO₂ equivalents

Yuba Salmon Education-Inventory and Calculation of Greenhouse Gas Emissions

ine	Emissions	from	Construction	Equipment
-----	------------------	------	--------------	-----------

1	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours ¹	Fuel Consumption Per Hour ²	Total Fuel Consumption (gal. diesel)	CO₂e/gal diesel³	Total CO ₂ Equivalent Emissions (metric tons)
2				0		-	0.010	-
3				0		-	0.010	-
4				0		-	0.010	-
5				0		-	0.010	-
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-

26 An 8-hour work day is assumed.

27 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

 3 World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 Emissions from Transportation of Construction Workforce

	Average Number of	Total	Average	Total Miles	Average	Total Fuel	CO₂e/gal	Total CO ₂
	Workers per Day	Number of	Distance	Traveled	Passenger	Consumption	Gasoline	Equivalent
		Workdays	Traveled		Vehicle Fuel	(gal. gasoline)	3	Emissions
			(round		Efficiency ⁴			(metric
31			trip)					tons)
32	1	90	50	4500	23.8	189.1	0.009	1.70

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology

33 and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

		Average Trip Distance	Traveled	7.4		Diesel ³	Total CO ₂ Equivalent Emissions (metric
36							(metric
37	Delivery			4.25	0	0.010	0
38	Spoils			4.25	0	0.010	0
39	ΤΟΤΑΙ						0

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 Construction Electricity Emissions

42	MWh of electricity	mtCO2_e/[MWh]]^6	CO ₂ e emissions
43 Electricity Needed	0	0.310	0

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region .

45

46 Total Construction Activity Emissions

1.7 (from lines 25, 32, 39, and 43)

47 Total Years of Construction

48 Expected Start Date of Construction

49

50 Estimated Project Useful life

3 Years

51 Average Annual Total GHG Emissions⁷

0.5678571 MT CO₂ equivalents

Yuba Salmon Habitat Restoration-Inventory and Calculation of Greenhouse Gas **Emissions**

ne	Emissions	from	Construction	Equi	pment
----	------------------	------	--------------	------	-------

per Day Days Hours ¹ Per Hour ² (gal. diesel) Emiss	Type of Equipment	Maximum	Total	Total	Fuel	Total Fuel	CO₂e/gal	Total CO ₂
Per Day Per Day Per Hour		Number	Operation	Operation	Consumption	Consumption	diesel ³	Equivalent
Tractors/Loaders/Backhoes 2 30 480 1.41 677 0.010		per Day	Days	Hours ¹	Per Hour ²	(gal. diesel)		Emissions
2 Tractors/Loaders/Backhoes 2 30 480 1.41 677 0.010 Other Construction 4 30 960 0.46 442 0.010 4 0 0 - 0.010 5 0 - 0.010 6 0 - 0.010 7 0 - 0.010 8 0 - 0.010 9 0 - 0.010 10 0 - 0.010 11 0 - 0.010 12 0 - 0.010 13 0 - 0.010 14 0 - 0.010 15 0 - 0.010 16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 21 0								(metric
Other Construction 4 30 960 0.46 442 0.010 4 0 0 - 0.010 5 0 0 - 0.010 6 0 0 - 0.010 7 0 0 - 0.010 8 0 0 - 0.010 9 0 - 0.010 10 0 - 0.010 11 0 - 0.010 12 0 - 0.010 13 0 - 0.010 14 0 - 0.010 15 0 - 0.010 16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 - 0.010 21 0 - 0.010	1							tons)
Sequipment Seq	-1	2	30	480	1.41	677	0.010	7
5 0 - 0.010 6 0 - 0.010 7 0 - 0.010 8 0 - 0.010 9 0 - 0.010 10 0 - 0.010 11 0 - 0.010 12 0 - 0.010 13 0 - 0.010 14 0 - 0.010 15 0 - 0.010 16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010		4	30	960	0.46	442	0.010	5
6 0 - 0.010 7 0 0 - 0.010 8 0 - 0.010 9 0 - 0.010 10 0 - 0.010 11 0 - 0.010 12 0 - 0.010 13 0 - 0.010 14 0 - 0.010 15 0 - 0.010 16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010	4			0		-	0.010	-
7 0 - 0.010 8 0 - 0.010 9 0 - 0.010 10 0 - 0.010 11 0 - 0.010 12 0 - 0.010 13 0 - 0.010 14 0 - 0.010 15 0 - 0.010 16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010	5			0		-	0.010	-
8 0 - 0.010 9 0 - 0.010 10 0 - 0.010 11 0 - 0.010 12 0 - 0.010 13 0 - 0.010 14 0 - 0.010 15 0 - 0.010 16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010	6			0		-	0.010	-
9 0 - 0.010 10 0 - 0.010 11 0 - 0.010 12 0 - 0.010 13 0 - 0.010 14 0 - 0.010 15 0 - 0.010 16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010	7			0		-	0.010	-
10 0 - 0.010 11 0 - 0.010 12 0 - 0.010 13 0 - 0.010 14 0 - 0.010 15 0 - 0.010 16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010	8			0		-	0.010	-
11 0 - 0.010 12 0 - 0.010 13 0 - 0.010 14 0 - 0.010 15 0 - 0.010 16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010	9			0		-	0.010	-
12 0 - 0.010 13 0 - 0.010 14 0 - 0.010 15 0 - 0.010 16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010	10			0		-		
13 0 - 0.010 14 0 - 0.010 15 0 - 0.010 16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010				0		-		
14 0 - 0.010 15 0 - 0.010 16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010				0		-		
15 0 - 0.010 16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010						-		
16 0 - 0.010 17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010				0		-		
17 0 - 0.010 18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010						-		-
18 0 - 0.010 19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010						-		-
19 0 - 0.010 20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010						-		
20 0 - 0.010 21 0 - 0.010 22 0 - 0.010 23 0 - 0.010						-		
21 0 - 0.010 22 0 - 0.010 23 0 - 0.010						-		-
22 0 - 0.010 23 0 - 0.010						-		-
23 0 - 0.010						-		
						-		
24 - 0.010						-		
	24			0		-	0.010	-

26 An 8-hour work day is assumed.

27 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 World Resources Institute-Mobile combustion CO₂ emissions tool, June 2003 Version 1.2

30 Emissions from Transportation of Construction Workforce

	Average Number of	Total	Average	Total Miles	Average	Total Fuel	CO₂e/gal	Total CO ₂
	Workers per Day	Number of	Distance	Traveled	Passenger	Consumption	Gasoline	Equivalent
		Workdays	Traveled		Vehicle Fuel	(gal. gasoline)	3	Emissions
			(round trip)		Efficiency⁴			(metric
31								tons)
32	5	60	50	15000	23.8	630.3	0.009	5.68

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36		Number of	_	Traveled	T.CC . T.A.		Diesel ³	Total CO ₂ Equivalent Emissions (metric
37	Delivery	5	50	250	4.25	58.82352941	0.010	0.61125741
38	Spoils				4.25	0	0.010	0
20	TOTAL							0.61135741

TOTAL **0.61125741**

41 Construction Electricity Emissions

42		mtCO2_e/[MWh]]^6	CO ₂ e emissions
43 Electricity Needed	2	0.310	0.62

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 **Total Construction Activity Emissions**

18.5 (from lines 25, 32, 39, and 43)

47 Total Years of Construction

48 Expected Start Date of Construction

49

50 Estimated Project Useful life

200 Years

Average Annual Total GHG Emissions⁷

0.0926577 MT CO₂ equivalents

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

Lower Yuba Environmental Flows- Inventory and Calculation of Greenhouse Gas Emissions

ine E	Emissions	from	Construction	Equipment
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	Type of Equipment		Total	Total	Fuel	Total Fuel		Total CO ₂
		Number	Operation	Operation	Consumption	Consumption	diesel ³	Equivalent
		per Day	Days	Hours ¹	Per Hour ²	(gal. diesel)		Emissions
								(metric
1								tons)
2				0		-	0.010	-
3				0		-	0.010	-
4				0		-	0.010	-
5				0		-	0.010	-
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-

26 An 8-hour work day is assumed.

27 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 World Resources Institute-Mobile combustion CO₂ emissions tool, June 2003 Version 1.2

29

30 Emissions from Transportation of Construction Workforce

	Workers per Day	Number of Workdays			Passenger	Consumption	Gasoline 3	Total CO ₂ Equivalent Emissions (metric tons)
32	2	10	50	1000	23.8	42.0	0.009	0.38

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology

33 and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36		Number of	•	Traveled	Average Semi- Truck Fuel [Efficiency]]^5		Diesel ³	Total CO ₂ Equivalent Emissions (metric
37	Delivery	0	0	0	4.25	0	0.010	0
38	Spoils				4.25	0	0.010	0
39	TOTAL							0

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 Construction Electricity Emissions

42	MWh of electricity	mtCO2_e/[MWh]]^6	CO ₂ e emissions
43 Electricity Needed	0	0.310	0

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 Total Construction Activity Emissions

0.4 (from lines 25, 32, 39, and 43)

47 Total Years of Construction

48 Expected Start Date of Construction

49

50 Estimated Project Useful life

200 Years

51 Average Annual Total GHG Emissions⁷

0.0018929 MT CO₂ equivalents

Hydrilla Eradication and Canal Lining- Inventory and Calculation of Greenhouse Gas Emissions

ine	Emissions	from	Construction	Equipment
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	Type of	Maximum	Total	Total	Fuel	Total Fuel	CO₂e/gal	Total CO ₂
	Equipment	Number per	Operation	Operation	Consumption	Consumption	diesel ³	Equivalent
		Day	Days	Hours ¹	Per Hour ²	(gal. diesel)		Emissions
								(metric tons)
1								
	Cement Mixer	1	12	96	0.8	58	0.010	1
	Backhoe	1	12	96	4.63	444	0.010	5
•	Skid Steer	1	12	96	1.95	187	0.010	2
5	Dump Truck	1	12	96	0.35	34	0.010	0
6	Misc. Portable Equipment	1	12	96	3.15	302	0.010	3
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24	TOTAL			0		1.025	0.010	44

25 TOTAL 1,025 1

	Average	Total	Average	Total Miles	Average	Total Fuel	CO₂e/gal	Total CO₂
		Number of Workdays	Distance Traveled (round trip)	Traveled	Vehicle Fuel	Consumption (gal. gasoline)	- Cusoc	Equivalent Emissions
31	1 -		(round trip)		Efficiency ⁴			(metric tons)
32		12	156	3744	23.8	157.3	0.009	1.42
1 32	10	12	130	3/44	25.0	137.3	0.003	1.42

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive

²⁶ An 8-hour work day is assumed.

²⁷ California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

²⁸ World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

³³ Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36			Average Trip Distance	Traveled	Average Semi- Truck Fuel Efficiency]]^5		Diesel ³	Total CO₂ Equivalent Emissions (metric tons)
37	Delivery	5	55	275	4.25	64.70588235	0.010	0.672383153
38	Spoils				4.25	0	0.010	0

39 TOTAL 0.672383153

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 Construction Electricity Emissions

42			ntCO2_e/[MWh]]^6	CO ₂ e emissions
43 E	lectricity Needed	0	0.310	(

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 **Total Construction Activity Emissions**

13.1 (from lines 25, 32, 39, and 43)

47 Total Years of Construction

48 Expected Start Date of Construction

Winter 2015

49

50 Estimated Project Useful life

20 Years

51 Average Annual Total GHG Emissions

0.6572641 MT CO₂ equivalents

Yuba County Airport Drainage Improvements - Inventory and Calculation of Greenhouse Gas Emissions

ne	Emissions	from	Construction	Equipment
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	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours ¹	Fuel Consumption Per Hour ²	Total Fuel Consumption (gal. diesel)	CO ₂ e/gal diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
1								, ,
2	Pavers	1	15	120	8.84	1,061	0.010	11
	Plate compactors	2	80	1280	0.2	256	0.010	3
4	Rollers	2	80	1280	2.64	3,379	0.010	35
5	Rollers	2	60	960	4.94	4,742	0.010	49
	Tractor/Backh oes	2	90	1440	2.97	4,277	0.010	44
	Tractor/Backh oes	2	50	800	7.78	6,224	0.010	65
8	Excavators	1	25	200	5.12	1,024	0.010	11
	Paving Equipment	1	15	120	4.62	554	0.010	6
10	Trenchers	1	75	600	2.98	1,788	0.010	19
	Other consturction equipment	5	90	3600	3.7	13,320	0.010	138
12						-	0.010	-
13						-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	
16				0		-	0.010	
17				0		-	0.010	
18				0		-	0.010	
19				0		-	0.010	
20				0		-	0.010	
21				0		-	0.010	-
22 23				0		-	0.010 0.010	-
23				0	+	-	0.010	-
	TOTAL					36,626	0.010	381

26 ¹ An 8-hour work day is assumed.

27 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

	Average Number of Workers per Day		Ŭ		Passenger	Total Fuel Consumption (gal. gasoline)	Gasoline ³	Total CO ₂ Equivalent Emissions (metric tons)
32	8	90	100	72000	23.8	3025.2	0.009	27.26

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive 33 Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36	. ,,		Average Trip Distance	Traveled	Average Semi- Truck Fuel Efficiency]]^5		Diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
37	Delivery	200	30	6000	4.25	1411.764706	0.010	14.67017788
38	Spoils	300	20	6000	4.25	1411.764706	0.010	14.67017788
	=0=44							

TOTAL

29.34035576

The National Academies, Technologies and Approaches to Reducing the Fuel

41 Construction Electricity Emissions

42		ATATL TAC	CO ₂ e emissions
43 Electricity Needed	0	0.310	0

446 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 **Total Construction Activity Emissions**

437.2 (from lines 25, 32, 39, and 43)

47 Total Years of Construction

48 Expected Start Date of Construction

49

50 Estimated Project Useful life

50 Years

51 Average Annual Total GHG Emissions⁷

8.74 MT CO₂ equivalents

1

Consumption of Medium- and Heavy-Duty Vehicles, 2010.

Linda Drainage Improvements- Inventory and Calculation of Greenhouse Gas Emissions

Line Emi	ssions from	Construction	Equipment
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	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours ¹	Fuel Consumption Per Hour ²	Total Fuel Consumption (gal. diesel)	CO ₂ e/gal diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
1								(metric tons)
2	Pavers	1	10	80	8.84	707	0.010	7
3	Plate compactors	2	30	480	0.2	96	0.010	1
4	Rollers	2	30	480	2.64	1,267	0.010	13
5	Rollers	4	60	1920	4.94	9,485	0.010	99
6	Tractor/Backh oes	2	60	960	2.97	2,851	0.010	30
7	Scrapers	3	30	720	9.52	6,854	0.010	71
8	Excavators	2	60	960	5.12	4,915	0.010	51
9	Graders	2	30	480	7.81	3,749	0.010	39
10	Tractor/Backh oes	2	100	1600	7.78	12,448	0.010	129
11	Paving Equipment	1	20	160	4.62	739	0.010	8
12	Trenchers	1	40	320	2.98	954	0.010	10
13	Other consturction equipment	5	90	3600	3.7	13,320	0.010	138
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	
25	TOTAL					57,386		596

26 ¹ An 8-hour work day is assumed.

27 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 World Resources Institute-Mobile combustion CO₂ emissions tool, June 2003 Version 1.2

29

	Average	Total	Average	Total Miles	Average	Total Fuel	CO₂e/gal	Total CO ₂		
		Workdays	Distance Traveled (round trip)		_	Consumption (gal. gasoline)		Equivalent Emissions (metric tons)		
31										
32	10	180	100	180000	23.8	7563.0	0.009	68.14		

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive 33 Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36			Average Trip Distance	Traveled	Average Semi- Truck Fuel Efficiency]]^5		Diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
37	Delivery	300	30	9000	4.25	2117.647059	0.010	22.00526682
38	Spoils	500	20	10000	4.25	2352.941176	0.010	24.45029647
	====							

TOTAL

5 The National Academies, Technologies and Approaches to Reducing the Fuel

Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 Construction Electricity Emissions

42		ATATLEA	CO ₂ e emissions
43 Electricity Needed	0	0.310	0

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

Total Construction Activity Emissions

710.9 (from lines 25, 32, 39, and 43)

1

47 Total Years of Construction

48 Expected Start Date of Construction

49

50 Estimated Project Useful life

50 Years

Average Annual Total GHG Emissions⁷

14.218275 MT CO₂ equivalents

Olivehurst Drainage Improvements- Inventory and Calculation of Greenhouse Gas Emissions

Line	Fmissions	from	Construction	Fauinment
LIHE	EIIII3310113	11 0111	Constituction	Equipment

	, .	Maximum Number per Day	Total Operation Days	Total Operation Hours ¹	Fuel Consumption Per Hour ²	Total Fuel Consumption (gal. diesel)	CO₂e/gal diesel³	Total CO ₂ Equivalent Emissions
1								(metric tons)
2	Pavers	1	100	800	8.84	7,072	0.010	73
	Plate compactors	2	300	4800	0.2	960	0.010	10
4	Rollers	2	300	4800	2.64	12,672	0.010	132
5	Rollers	4	100	3200	4.94	15,808	0.010	164
	Tractor/Backh oes	2	200	3200	2.97	9,504	0.010	99
	Tractor/Backh oes	2	200	3200	7.78	24,896	0.010	259
8	Excavators	2	150	2400	5.12	12,288	0.010	128
	Paving Equipment	1	100	800	4.62	3,696	0.010	38
10	Trenchers	1	250	2000	2.98	5,960	0.010	62
	Other consturction equipment	5	400	16000	3.7	59,200	0.010	615
12						_	0.010	-
13						-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	
20				0		-	0.010	-
21				0		-	0.010	
22				0		-	0.010 0.010	
23				0		-	0.010	-
	TOTAL			1 0		152,056	0.010	1,580

26 ¹ An 8-hour work day is assumed.

27 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

	Average Number of Workers per Day		Ŭ		Passenger	Total Fuel Consumption (gal. gasoline)	Gasoline ³	Total CO ₂ Equivalent Emissions (metric tons)
32	10	500	100	500000	23.8	21008.4	0.009	189.29

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive 33 Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36	. ,,		•	Traveled	TICC: 704	Total Fuel Consumption (gal. diesel)	Diesel ³	Total CO₂ Equivalent Emissions (metric tons)
37	Delivery	600	30	18000	4.25	4235.294118	0.010	44.01053365
38	Spoils	1000	20	20000	4.25	4705.882353	0.010	48.90059294
20	20 TOTAL							

TOTAL 92.91112659

41 Construction Electricity Emissions

42			ntCO2_e/[MWh]]^6	CO ₂ e emissions
43	Electricity Needed	0	0.310	0

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

Total Construction Activity Emissions

1,862.3 (from lines 25, 32, 39, and 43)

47 Total Years of Construction

6

48 Expected Start Date of Construction

49

50 Estimated Project Useful life

50 Years

51 Average Annual Total GHG Emissions⁷

37.25 MT CO₂ equivalents

⁵ The National Academies, Technologies and Approaches to Reducing the Fuel 40 Consumption of Medium- and Heavy-Duty Vehicles, 2010.

Olivehurst Pump Station Inventory and Calculation of Greenhouse Gas Emissions

Line Emissions from Construction	n Equipment
----------------------------------	-------------

	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours ¹	Fuel Consumption Per Hour ²	Total Fuel Consumption (gal. diesel)	CO ₂ e/gal diesel ³	Total CO₂ Equivalent Emissions (metric tons)
	Other Construction Eauipment	2	2	32	5.49	176	0.010	2
	Misc. Portable Equipment	5	3	120	3.15	378	0.010	4
4				0		-	0.010	-
5				0		-	0.010	-
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL	•			•	554	•	

26 ¹ An 8-hour work day is assumed.

27 California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

 3 World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 Emissions from Transportation of Construction Workforce

31	Workers per Day		Average Distance Traveled (round trip)	Total Miles Traveled	Ü		Gasoline ³	Total CO ₂ Equivalent Emissions (metric tons)
32	1	4	120	480	23.8	20.2	0.009	0.18

⁴ United States Environmental Protection Agency. 2013. Light-Duty Automotive

33 Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

35 Emissions from Transportation of Construction Materials

36				Traveled	Average Semi- Truck Fuel [Efficiency]]^5		Diesel ³	Total CO₂ Equivalent Emissions (metric tons)
37	Delivery	2	120	240	4.25	56.47058824	0.010	0.586807115
38	Spoils	0	0	0	4.25	0	0.010	0

TOTAL

5 The National Academies, Technologies and Approaches to Reducing the Fuel

40 Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 Construction Electricity Emissions

42		MINTERNA	CO ₂ e emissions
43 Electricity Needed	1	0.310	0.31

44 6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) CAMX-WECC sub-region.

45

46 **Total Construction Activity Emissions** 6.8 (from lines 25, 32, 39, and 43)

47 Total Years of Construction 0.01

48 Expected Start Date of Construction TBD

49

50 Estimated Project Useful life 50 Years

51 Average Annual Total GHG Emissions 0.1366404 MT CO₂ equivalents