Appendix E

Air Quality Calculations

Table E-1 Calculation Factors and Conversions

				Duration				
PM_{10} fraction	**$PM_{2.5}$ fraction**	**tons/ acre/ month**	**Percent Control**	**Weeks**	**Work Days**	**acres/ day**	**tons/ acre/ day**	**tons/ day**
0.75	0.1	1.2	0.5	26	156	3.2	0.04	0.128

Formula used in PM_x Calculations: PM_x = acres * (tons/ acre/ day) * (percent control) * (days) * (PM_x fraction)

Table E-2 Construction Disturbance of Project Terminals and Associated Facilities

	Construction Disturbance (acres)	**PM10 from Construction Disturbance (tons)**	**PM2.5 from Construction Disturbance (tons)**
Northern Terminal	**519.0**	15.6	1.6
Southern Terminal	**557.0**	16.7	1.7
Northern Ground Electrode	**151.0**	4.5	0.5
Southern Ground Electrode	**170.0**	5.1	0.5

Table E-3 Calculation of Constrution Impacts on Air Quality

Alternatives Summary

Regional Alternative	I-A	I-B	I-C	I-D
600kV T-Line (mi)	156	158	186	168
Access Roads (mi)	201	204	237	213

Regional Alternative	II-A	II-B	II-C	II-D	II-E	II -F	II-G
600kV T-Line (mi)	258	346	365	259	268	265	252
Access Roads (mi)	395	492	488	422	412	455	395

Regional Alternative	III-A	III-B	III-C	III-D
600kV T-Line (mi)	276	284	308	281
Access Roads (mi)	335	320	338	303

Regional Alternative	IV-A	IV-B	IV-C
600kV T-Line (mi)	37	40	44
Access Roads (mi)	49	51	54

Project Duration

	(wks)	Months
Region I	57	13.2
Region II	83	19.2
Region III	83	19.2
Region IV	12	2.8

Assumptions:

1.2	tons per acre per month of disturbed area (EPA Emissions factor)
5%	active construction acres per day of the total disturbance area in a region
50%	controls from watering or other dust abatement procedure
30	days per month
0.75	PM10 fraction of TSP per acre per month of disturbed area
0.1	PM2.5 fraction of PM10 per acre per month of disturbed area
5280	feet per mile
1500	feet between towers (span)

Formula used in PM_x Calculations: PM_x = acres * (tons/ acre/ day) * (percent control) * (days) * (PM_x fraction)

Project Phase	Construction Disturbance (acres)				Construction Disturbance Emissions (tons/mo)				Construction Disturbance Emissions PM10 (tons)				Construction Disturbance Emissions PM2.5 (tons)			
Regional Alternative	I-A	I-B	I-C	I-D	I-A	I-B	I-C	I-D	I-A	I-B	I-C	I-D	I-A	I-B	I-C	I-D
Access Roads	447	456	537	464	1	1	1	1	10	10	12	10	1	1	1	1
Structures & Communication Sites-Construction	735	746	866	793	2	2	2	2	17	17	19	18	2	2	2	2
Stringing & Tensioning Sites	516	520	634	552	1	1	1	1	12	12	14	12	1	1	1	1
ETWA	374	379	447	403	1	1	1	1	8	9	10	9	1	1	1	1
Facilities Total	**2072**	**2101**	**2484**	**2212**	**5**	**5**	**6**	**5**	**47**	**47**	**56**	**50**	**5**	**5**	**6**	**5**
Additional ROW-veg clearing	3269	3310	3925	3524	7	8	9	8	74	74	88	79	7	7	9	8
Emission Total					12	12	15	13	120	122	144	129	12	12	14	13

Project Phase	Construction Disturbance (acres)							Construction Disturbance (tons/mo)							Construction Disturbance Emissions PM10 (tons)							Construction Disturbance Emissions PM2.5 (tons)						
Regional Alternative	II-A	II-B	II-C	II-D	II-E	II-F	II-G	II-A	II-B	II-C	II-D	II-E	II-F	II-G	II-A	II-B	II-C	II-D	II-E	II-F	II-G	II-A	II-B	II-C	II-D	II-E	II-F	II-G
Access Roads	987	1178	1129	1064	1032	1200	990	2	3	3	2	2	3	2	22	27	25	24	23	27	22	2	3	3	2	2	3	2
Structures & Communication Sites-Construction	1206	1603	1686	1205	1254	1236	1181	3	4	4	3	3	3	3	27	36	38	27	28	28	27	3	4	4	3	3	3	3
Stringing & Tensioning Sites	946	1262	1289	1080	1047	1103	927	2	3	3	2	2	3	2	21	28	29	24	24	25	21	2	3	3	2	2	2	2
ETWA	620	831	877	621	644	636	604	1	2	2	1	1	1	1	14	19	20	14	14	14	14	1	2	2	1	1	1	1
Facilities Total	**3759**	**4874**	**4980**	**3971**	**3976**	**4176**	**3703**	**9**	**11**	**11**	**9**	**9**	**10**	**8**	**85**	**########**	**112**	**89**	**89**	**94**	**83**	**8**	**11**	**11**	**9**	**9**	**9**	**8**
Additional ROW-veg clearing	5406	7192	7662	5185	5538	5323	5250	12	16	17	12	13	12	12	122	########	172	117	125	120	118	12	16	17	12	12	12	12
Emission Total								21	28	29	21	22	22	20	206	########	284	206	214	214	201	21	27	28	21	21	21	20

Project Phase	Construction Disturbance (acres)				Construction Disturbance (ton/mo)				Construction Disturbance Emissions PM10 (tons)				Construction Disturbance Emissions PM2.5 (tons)			
Regional Alternative	III-A	III-B	III-C	III-D	III-A	III-B	III-C	III-D	III-A	III-B	III-C	III-D	III-A	III-B	III-C	III-D
Access Roads	765	671	721	638	2	2	2	1	25	22	24	21	3	2	2	2
Structures & Communication Sites-Construction	1286	1317	1422	1303	3	3	3	3	42	43	47	43	4	4	5	4
Stringing & Tensioning Sites	874	889	915	884	2	2	2	2	29	29	30	29	3	3	3	3
ETWA	663	681	739	675	2	2	2	2	22	22	24	22	2	2	2	2
Facilities Total	**3588**	**3559**	**3797**	**3500**	**8**	**8**	**9**	**8**	**118**	**117**	**124**	**115**	**12**	**12**	**12**	**11**
Additional ROW-veg clearing	5981	6092	6727	6089	0	0	0	0	0	0	0	0	0	0	0	0
Emission Total					8	8	9	8	118	117	124	115	12	12	12	11

Project Phase	Construction Disturbance (acres)			Construction Disturbance (ton/mo)			Construction Disturbance Emissions PM10 (tons)			Construction Disturbance Emissions PM2.5 (tons)		
Regional Alternative	IV-A	IV-B	IV-C	IV-A	IV-B	IV-C	IV-A	IV-B	IV-C	IV-A	IV-B	IV-C
Access Roads	120	119	124	0	0	0	4	4	4	0	0	0
Structures & Communication Sites-Construction	177	190	207	0	0	0	6	6	7	1	1	1
Stringing & Tensioning Sites	161	161	186	0	0	0	5	5	6	1	1	1
ETWA	89	95	106	0	0	0	3	3	3	0	0	0
Facilities Total	**547**	**565**	**622**	**1**	**1**	**1**	**18**	**19**	**20**	**2**	**2**	**2**
Additional ROW-veg clearing	771	818	901	2	2	2	25	27	30	3	3	3
Emission Total				3	3	3	43	45	50	4	5	5

Table E-3 Calculation of Constrution Impacts on Air Quality

Project Phase	Construction Disturbance (acres)						Construction Disturbance Emissions (ton/mo)						Construction Disturbance Emissions PM10 (tons)						Construction Disturbance Emissions PM2.5 (tons)					
Alternative Name	Access Roads	Structures & Comm Sites-Construction	Stringing & Tensioning Sites	ETWA	Facilities Total	Additional ROW-veg clearing	Access Roads	Structures & Comm Sites-Construction	Stringing & Tensioning Sites	ETWA	Facilities Total	Additional ROW-veg clearing	Access Roads	Structures & Comm Sites-Construction	Stringing & Tensioning Sites	ETWA	Facilities Total	Additional ROW-veg clearing	Access Roads	Structures & Comm Sites-Construction	Stringing & Tensioning Sites	ETWA	Facilities Total	Additional ROW-veg clearing
Reservation Ridge Alternative Variation	140	92	143	47	**423**	334	0	0	0	0	**1**	1	3	2	3	1	10	8	0	0	0	0	**1**	1
Reservation Ridge Alternative Variation Comparison	141	100	152	51	**444**	362	0	0	0	0	**1**	1	3	2	3	1	10	8	0	0	0	0	**1**	1
Ox Valley East Alternative Variation	106	77	96	40	**319**	300	0	0	0	0	**1**	1	2	2	2	1	7	7	0	0	0	0	**1**	1
Ox Valley East Alternative Variation Comparison	77	75	94	36	**282**	282	0	0	0	0	**1**	1	2	2	2	1	6	6	0	0	0	0	**1**	1
Ox Valley West Alternative Variation	108	78	86	41	**313**	321	0	0	0	0	**1**	1	2	2	2	1	7	7	0	0	0	0	**1**	1
Ox Valley West Alternative Variation Comparison	77	75	94	36	**282**	282	0	0	0	0	**1**	1	2	2	2	1	6	6	0	0	0	0	**1**	1
Pinto Alternative Variation	111	132	150	69	**461**	532	0	0	0	0	**1**	1	2	3	3	2	10	12	0	0	0	0	**1**	1
Pinto Alternative Variation Comparison	113	113	133	56	**415**	445	0	0	0	0	**1**	1	3	3	3	1	9	10	0	0	0	0	**1**	1
Marketplace Alternative Variation	19	37	33	19	**108**	159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marketplace Alternative Variation Comparison	11	33	20	17	**81**	161	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project Phase	Construction Disturbance (acres)						Construction Disturbance Emissions (ton/mo)						Construction Disturbance Emissions PM10 (tons)						Construction Disturbance Emissions PM2.5 (tons)					
Alternative Name	Access Roads	Structures & Comm Sites-Construction	Stringing & Tensioning Sites	ETWA	Facilities Total	Additional ROW-veg clearing	Access Roads	Structures & Comm Sites-Construction	Stringing & Tensioning Sites	ETWA	Facilities Total	Additional ROW-veg clearing	Access Roads	Structures & Comm Sites-Construction	Stringing & Tensioning Sites	ETWA	Facilities Total	Additional ROW-veg clearing	Access Roads	Structures & Comm Sites-Construction	Stringing & Tensioning Sites	ETWA	Facilities Total	Additional ROW-veg clearing
Roan Cliffs Alternative Connector	13	8	9	4	**33**	29	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Castle Dale Alternative Connector	28	51	45	26	**150**	219	0	0	0	0	0	0	1	1	1	1	3	5	0	0	0	0	0	0
Price Alternative Connector	64	84	71	44	**263**	376	0	0	0	0	1	1	1	2	2	1	6	8	0	0	0	0	**1**	1
Lynndyl Alternative Connector	65	111	72	58	**306**	503	0	0	0	0	1	1	1	3	2	1	7	11	0	0	0	0	**1**	1
IPP East Alternative Connector	8	17	19	9	**53**	68	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0
Avon Alternative Connector	18	36	27	18	**99**	156	0	0	0	0	0	0	0	1	1	0	2	4	0	0	0	0	0	0
Arrowhead Alternative Connector	9	15	23	7	**54**	49	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0
Moapa Alternative Connector	32	62	50	32	**176**	270	0	0	0	0	0	1	1	1	1	1	4	6	0	0	0	0	0	1
Sunrise Mountain Alternative Connector	8	14	23	7	**51**	42	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0
Lake Las Vegas Alternative Connector	20	20	26	10	**75**	74	0	0	0	0	0	0	0	0	1	0	2	2	0	0	0	0	0	0
Three Kids Mine Alternative Connector	26	25	34	13	**98**	95	0	0	0	0	0	0	1	1	1	0	2	2	0	0	0	0	0	0
River Mountain Alternative Connector	57	38	51	19	**165**	146	0	0	0	0	0	0	1	1	1	0	4	3	0	0	0	0	0	0
Railroad Pass Alternative Connector	16	18	25	9	**69**	65	0	0	0	0	0	0	0	0	1	0	2	1	0	0	0	0	0	0

Site Alternatives	Length (miles)		Construction Disturbance (acres)				Construction Disturbance Emissions (ton/mo)				Construction Disturbance Emissions PM10 (tons)				Construction Disturbance Emissions PM2.5 (tons)			
	34.5 kV AC Overhead Line	Access Road	Ground Electrode Sites	Overhead Lines	Access Roads	Total	Ground Electrode Sites	Overhead Lines	Access Roads	Total	Ground Electrode Sites	Overhead Lines	Access Roads	Total	Ground Electrode Sites	Overhead Lines	Access Roads	Total
Northern System Alternatives																		
Bolten Ranch (All Alts)	15	21	65	40	46	151	0	0	0	0	2	5	1	1	1	3	15	49
Separation Flat (All Alts)	12	15	65	27	30	121	0	0	0	0	1	4	1	1	1	3	10	39
Separation Creek (All Alts)	2	3	65	5	6	76	0	0	0	0	0	2	1	0	0	2	2	25
Eight Mile Basin (All Alts)	5	1	65	11	12	89	0	0	0	0	0	3	1	0	0	2	4	29
Southern System Alternatives																		
Mormon Mesa-Carp Elgin Rd (Alt. A)	6	7	65	12	13	90	0	0	0	0	0	3	1	0	0	2	4	29
Halfway Wash - Virgin River (Alt. A)	8	10	65	9	9	83	0	0	0	0	0	3	1	0	0	2	3	27
Halfway Wash East (Alt. A)	4	5	65	18	18	101	0	0	0	0	1	3	1	0	0	2	6	33
Mormon Mesa-Carp Elgin Rd (Alt. B)	6	7	65	18	19	102	0	0	0	0	1	3	1	0	0	2	6	33
Halfway Wash - Virgin River (Alt. B)	8	9	65	13	13	92	0	0	0	0	0	3	1	0	0	2	4	30
Halfway Wash East (Alt. B)	10	12	65	23	23	111	0	0	0	0	1	4	1	1	1	2	7	36
Meadow Valley 2 (Alt. C)	22	27	65	49	56	170	0	0	0	0	2	6	1	1	1	4	18	55
Delta (Design Option 2)	14	16	65	31	31	127	0	0	0	0	1	4	1	1	1	3	10	41

Table E-4 Calculation of Operation Impacts on Air Quality

Alternatives Summary

Regional Alternative	I-A	I-B	I-C	I-D
600kV T-Line (mi)	156	158	186	168
Access Roads (mi)	201	204	237	213

Regional Alternative	II-A	II-B	II-C	II-D	II-E	II -F	II -G
600kV T-Line (mi)	258	346	365	259	268	270	252
Access Roads (mi)	395	492	488	422	412	455	395

Regional Alternative	III-A	III-B	III-C	III-D
600kV T-Line (mi)	276	284	308	281
Access Roads (mi)	335	320	338	303

Regional Alternative	IV-A	IV-B	IV-C
600kV T-Line (mi)	37	40	44
Access Roads (mi)	49	51	54

Project Duration

	(wks)	Months
Region I	57	13.2
Region II	83	19.2
Region III	83	19.2
Region IV	12	2.8

Assumptions:

1.2	tons per acre per month of disturbed area Emissions factor
5%	active construction acres per day of the total disturbance area in a region
50%	controls from watering or other dust abatement procedure
30	days per month
0.75	PM10 fraction of TSP per acre per month of disturbed area
0.1	PM2.5 fraction of PM10 per acre per month of disturbed area
5280	feet per mile
1500	feet between towers (span)

Formula used in PM_x Calculations: PM_x = acres * (tons/ acre/ day) * (percent control) * (days) * (PM_x fraction)

Project Phase	Operation Disturbance (acres)				Operation Disturbance Emissions (tons/mo)				Operation Disturbance Emissions PM10 (tons)				Operation Disturbance Emissions PM2.5 (tons)			
Regional Alternative	**I-A**	**I-B**	**I-C**	**I-D**	**I-A**	**I-B**	**I-C**	**I-D**	**I-A**	**I-B**	**I-C**	**I-D**	**I-A**	**I-B**	**I-C**	**I-D**
Access Roads	447	456	537	464	1	1	1	1	10	10	12	10	1	1	1	1
Structures & Communication Sites-Construction	15	15	17	16	0	0	0	0	0	0	0	0	0	0	0	0
Stringing & Tensioning Sites	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETWA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Facilities Total	**462**	**470**	**554**	**480**	**1**	**1**	**1**	**1**	**10**	**11**	**12**	**11**	**1**	**1**	**1**	**1**
Additional ROW-veg clearing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Emission Total					1	1	1	1	10	11	12	11	1	1	1	1

Project Phase	Operation Disturbance (acres)							Operation Disturbance (tons/mo)							Operation Disturbance Emissions PM10 (tons)							Operation Disturbance Emissions PM2.5 (tons)						
Regional Alternative	**II-A**	**II-B**	**II-C**	**II-D**	**II-E**	**II-F**	**II-G**	**II-A**	**II-B**	**II-C**	**II-D**	**II-E**	**II-F**	**II-G**	**II-A**	**II-B**	**II-C**	**II-D**	**II-E**	**II-F**	**II-G**	**II-A**	**II-B**	**II-C**	**II-D**	**II-E**	**II-F**	**II-G**
Access Roads	987	1178	1129	1064	1032	1170	990	2	3	3	2	2	3	2	22	27	25	24	23	26	22	2	3	3	2	2	3	2
Structures & Communication Sites-Construction	24	32	34	25	26	26	24	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Stringing & Tensioning Sites	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETWA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Facilities Total	**1011**	**1210**	**1163**	**1089**	**1058**	**1196**	**1014**	**2**	**3**	**3**	**2**	**2**	**3**	**2**	**23**	**27**	**26**	**25**	**24**	**27**	**23**	**2**	**3**	**3**	**2**	**2**	**3**	**2**
Additional ROW-veg clearing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Emission Total								2	3	3	2	2	3	2	23	27	26	25	24	27	23	2	3	3	2	2	3	2

Project Phase	Operation Disturbance (acres)				Operation Disturbance (ton/mo)				Operation Disturbance Emissions PM10 (tons)				Operation Disturbance PM2.5 (tons)			
Regional Alternative	**III-A**	**III-B**	**III-C**	**III-D**	**III-A**	**III-B**	**III-C**	**III-D**	**III-A**	**III-B**	**III-C**	**III-D**	**III-A**	**III-B**	**III-C**	**III-D**
Access Roads	765	671	721	638	2	2	2	1	25	22	24	21	3	2	2	2
Structures & Communication Sites-Construction	26	26	28	27	0	0	0	0	1	1	1	1	0	0	0	0
Stringing & Tensioning Sites	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETWA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Facilities Total	**791**	**697**	**749**	**665**	**2**	**2**	**2**	**2**	**26**	**23**	**25**	**22**	**3**	**2**	**2**	**2**
Additional ROW-veg clearing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Emission Total					2	2	2	2	26	23	25	22	3	2	2	2

Project Phase	Operation Disturbance (acres)			Operation Disturbance (ton/mo)			Operation Disturbance Emissions PM10 (tons)			Operation Disturbance Emissions PM2.5 (tons)		
Regional Alternative	**IV-A**	**IV-B**	**IV-C**	**III-A**	**III-B**	**III-C**	**III-A**	**III-B**	**III-C**	**III-A**	**III-B**	**III-C**
Access Roads	120	119	124	0	0	0	4	4	4	0	0	0
Structures & Communication Sites-Construction	4	4	4	0	0	0	0	0	0	0	0	0
Stringing & Tensioning Sites	0	0	0	0	0	0	0	0	0	0	0	0
ETWA	0	0	0	0	0	0	0	0	0	0	0	0
Facilities Total	**124**	**123**	**128**	**0**	**0**	**0**	**4**	**4**	**4**	**0**	**0**	**0**
Additional ROW-veg clearing	0	0	0	0	0	0	0	0	0	0	0	0
Emission Total				0	0	0	4	4	4	0	0	0

Table E-4 Calculation of Operation Impacts on Air Quality

Project Phase	Operation Disturbance (acres)			Operation Disturbance (ton/mo)			Operation Disturbance Emissions PM10 (tons)			Operation Disturbance Emissions PM2.5 (tons)		
Alternative Name	Access Roads	Structures & Comm. Sites	Facilities Total	Access Roads	Structures & Comm. Sites	Facilities Total	Access Roads	Structures & Comm. Sites	Facilities Total	Access Roads	Structures & Comm. Sites	Facilities Total
Reservation Ridge Alternative Variation	140	2	**142**	0	0	**0**	3	0	3	0	0	**0**
Reservation Ridge Alternative Variation Comparison	141	2	**143**	0	0	**0**	3	0	3	0	0	**0**
Ox Valley East Alternative Variation	106	2	**108**	0	0	**0**	2	0	2	0	0	**0**
Ox Valley East Alternative Variation Comparison	77	2	**79**	0	0	**0**	2	0	2	0	0	**0**
Ox Valley West Alternative Variation	108	2	**110**	0	0	**0**	2	0	2	0	0	**0**
Ox Valley West Alternative Variation Comparison	77	2	**79**	0	0	**0**	2	0	2	0	0	**0**
Pinto Alternative Variation	111	3	**114**	0	0	**0**	2	0	3	0	0	**0**
Pinto Alternative Variation Comparison	113	2	**115**	0	0	**0**	3	0	3	0	0	**0**
Marketplace Alternative Variation	19	1	**20**	0	0	**0**	0	0	0	0	0	**0**
Marketplace Alternative Variation Comparison	11	1	**12**	0	0	**0**	0	0	0	0	0	**0**

Project Phase	Operation Disturbance (acres)			Operation Disturbance (ton/mo)			Operation Disturbance Emissions PM10 (tons)			Operation Disturbance Emissions PM2.5 (tons)		
Alternative Name	Access Roads	Structures & Comm. Sites	Facilities Total	Access Roads	Structures & Comm. Sites	Facilities Total	Access Roads	Structures & Comm. Sites	Facilities Total	Access Roads	Structures & Comm. Sites	Facilities Total
Roan Cliffs Alternative Connector	13	0	**13**	0	0	**0**	0	0	0	0	0	**0**
Castle Dale Alternative Connector	28	1	**29**	0	0	**0**	1	0	1	0	0	**0**
Price Alternative Connector	64	2	**66**	0	0	**0**	2	0	2	0	0	**0**
Lynndyl Alternative Connector	65	2	**67**	0	0	**0**	2	0	2	0	0	**0**
IPP East Alternative Connector	8	0	**8**	0	0	**0**	0	0	0	0	0	**0**
Avon Alternative Connector	18	1	**19**	0	0	**0**	1	0	1	0	0	**0**
Arrowhead Alternative Connector	9	0	**9**	0	0	**0**	0	0	0	0	0	**0**
Moapa Alternative Connector	32	1	**33**	0	0	**0**	1	0	1	0	0	**0**
Sunrise Mountain Alternative Connector	8	0	**8**	0	0	**0**	0	0	0	0	0	**0**
Lake Las Vegas Alternative Connector	20	0	**20**	0	0	**0**	1	0	1	0	0	**0**
Three Kids Mine Alternative Connector	26	1	**27**	0	0	**0**	1	0	1	0	0	**0**
River Mountain Alternative Connector	57	1	**58**	0	0	**0**	2	0	2	0	0	**0**
Railroad Pass Alternative Connector	16	0	**16**	0	0	**0**	1	0	1	0	0	**0**

Site Alternatives	Length (miles)		Operation Disturbance (acres)				Operation Disturbance Emissions PM10 (tons)				Operation Disturbance PM10 (tons)				Operation Disturbance Emissions PM2.5 (tons)			
	34.5 kV AC Overhead Line	Access Road	Ground Electrode Sites	Overhead Lines	Access Roads	Total	Ground Electrode Sites	Overhead Lines	Access Roads	Total	Ground Electrode Sites	Overhead Lines	Access Roads	Total	Ground Electrode Sites	Overhead Lines	Access Roads	Total
Northern System Alternatives																		
Bolten Ranch (All Alts)	15	21	6	0	46	52	0	0	0	0	0	0	2	2	0	0	0	0
Separation Flat (All Alts)	12	15	6	0	30	36	0	0	0	0	0	0	1	1	0	0	0	0
Separation Creek (All Alts)	2	3	6	0	6	12	0	0	0	0	0	0	0	0	0	0	0	0
Eight Mile Basin (All Alts)	5	1	6	0	12	18	0	0	0	0	0	0	0	1	0	0	0	0
Southern System Alternatives																		
Mormon Mesa-Carp Elgin Rd (Alt. A)	6	7	11	0	13	24	0	0	0	0	0	0	0	1	0	0	0	0
Halfway Wash - Virgin River (Alt. A)	8	10	6	0	9	15	0	0	0	0	0	0	0	0	0	0	0	0
Halfway Wash East (Alt. A)	4	5	6	0	18	24	0	0	0	0	0	0	1	1	0	0	0	0
Mormon Mesa-Carp Elgin Rd (Alt. B)	6	7	6	0	19	25	0	0	0	0	0	0	1	1	0	0	0	0
Halfway Wash - Virgin River (Alt. B)	8	9	6	0	13	19	0	0	0	0	0	0	0	1	0	0	0	0
Halfway Wash East (Alt. B)	10	12	6	0	23	29	0	0	0	0	0	0	1	1	0	0	0	0
Meadow Valley 2 (Alt. C)	22	27	6	0	56	62	0	0	0	0	0	0	2	2	0	0	0	0
Delta (Design Option 2)	14	16	6	0	31	37	0	0	0	0	0	0	1	1	0	0	0	0

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO_2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-5 Area Source Equipment used for construction of Alternative A throughout Project Regions

							Annual Combustion Emissions					
Region I	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	156	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	156	3,120	0.0	0.0	0.0	0.0	0.0	1.8
Compactor	0	4	300	100	156	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	156	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	156	5,460	0.0	0.1	0.0	0.0	0.0	3.1
Grader	1	4	300	300	156	780	0.0	0.0	0.0	0.0	0.0	0.4
Loader	4	4	300	250	156	3,120	0.0	0.0	0.0	0.0	0.0	1.8
Trackhoe	6	4	300	380	156	4,680	0.0	0.1	0.0	0.0	0.0	2.7
Mechanic/Fuel	6	4	300	400	156	4,680	0.0	0.1	0.0	0.0	0.0	2.7
Pickup	21	4	300	325	156	16,380	0.1	0.3	0.0	0.0	0.0	9.4
Fork Lifts	3	4	300	5	156	2,340	0.0	0.0	0.0	0.0	0.0	1.3
Dump Truck	5	4	300	325	156	3,900	0.0	0.1	0.0	0.0	0.0	2.2
Drill Trucks	7	4	300	325	156	5,460	0.0	0.1	0.0	0.0	0.0	3.1
Carry Alls	31	4	300	385	156	24,180	0.1	0.4	0.0	0.0	0.0	13.9
Motor Grader	1	4	300	250	156	780	0.0	0.0	0.0	0.0	0.0	0.4
Air Compressors	2	4	300	10	156	1,560	0.0	0.0	0.0	0.0	0.0	0.9
Aggregate/Sand Delivery	1	4	300	350	156	780	0.0	0.0	0.0	0.0	0.0	0.4
Concrete Delivery	1	4	300	400	156	780	0.0	0.0	0.0	0.0	0.0	0.4
Cement Truck	6	4	300	400	156	4,680	0.0	0.1	0.0	0.0	0.0	2.7
Tractor Trailer Delivery Truck	35	4	300	400	156	27,300	0.1	0.4	0.0	0.0	0.0	15.7
Cranes	21	4	300	300	156	16,380	0.1	0.3	0.0	0.0	0.0	9.4
Water Truck	5	4	300	300	156	3,900	0.0	0.1	0.0	0.0	0.0	2.2
Water Pump	1	4	300	20	156	780	0.0	0.0	0.0	0.0	0.0	0.4
ATV	3	4	300	20	156	2,340	0.0	0.0	0.0	0.0	0.0	1.3
					Totals	133,380	0.4	2.1	0.1	0.2	0.1	76.7

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO_2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-5 (con't)

							Annual Combustion Emissions					
Region II	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	258	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	258	5,160	0.0	0.1	0.0	0.0	0.0	3.0
Compactor	0	4	300	100	258	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	258	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	258	9,030	0.0	0.1	0.0	0.0	0.0	5.2
Grader	1	4	300	300	258	1,290	0.0	0.0	0.0	0.0	0.0	0.7
Loader	4	4	300	250	258	5,160	0.0	0.1	0.0	0.0	0.0	3.0
Trackhoe	6	4	300	380	258	7,740	0.0	0.1	0.0	0.0	0.0	4.5
Mechanic/Fuel	6	4	300	400	258	7,740	0.0	0.1	0.0	0.0	0.0	4.5
Pickup	21	4	300	325	258	27,090	0.1	0.4	0.0	0.0	0.0	15.6
Fork Lifts	3	4	300	5	258	3,870	0.0	0.1	0.0	0.0	0.0	2.2
Dump Truck	5	4	300	325	258	6,450	0.0	0.1	0.0	0.0	0.0	3.7
Drill Trucks	7	4	300	325	258	9,030	0.0	0.1	0.0	0.0	0.0	5.2
Carry Alls	31	4	300	385	258	39,990	0.1	0.6	0.0	0.0	0.0	23.0
Motor Grader	1	4	300	250	258	1,290	0.0	0.0	0.0	0.0	0.0	0.7
Air Compressors	2	4	300	10	258	2,580	0.0	0.0	0.0	0.0	0.0	1.5
Aggregate/Sand Delivery	1	4	300	350	258	1,290	0.0	0.0	0.0	0.0	0.0	0.7
Concrete Delivery	1	4	300	400	258	1,290	0.0	0.0	0.0	0.0	0.0	0.7
Cement Truck	6	4	300	400	258	7,740	0.0	0.1	0.0	0.0	0.0	4.5
Tractor Trailer Delivery Truck	35	4	300	400	258	45,150	0.2	0.7	0.0	0.1	0.0	26.0
Cranes	21	4	300	300	258	27,090	0.1	0.4	0.0	0.0	0.0	15.6
Water Truck	5	4	300	300	258	6,450	0.0	0.1	0.0	0.0	0.0	3.7
Water Pump	1	4	300	20	258	1,290	0.0	0.0	0.0	0.0	0.0	0.7
ATV	3	4	300	20	258	3,870	0.0	0.1	0.0	0.0	0.0	2.2
					Totals	220,590	0.7	3.4	0.2	0.3	0.2	126.8

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO_2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-5 (con't)

							Annual Combustion Emissions					
Region III	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	276	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	276	5,520	0.0	0.1	0.0	0.0	0.0	3.2
Compactor	0	4	300	100	276	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	276	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	276	9,660	0.0	0.1	0.0	0.0	0.0	5.6
Grader	1	4	300	300	276	1,380	0.0	0.0	0.0	0.0	0.0	0.8
Loader	4	4	300	250	276	5,520	0.0	0.1	0.0	0.0	0.0	3.2
Trackhoe	6	4	300	380	276	8,280	0.0	0.1	0.0	0.0	0.0	4.8
Mechanic/Fuel	6	4	300	400	276	8,280	0.0	0.1	0.0	0.0	0.0	4.8
Pickup	21	4	300	325	276	28,980	0.1	0.4	0.0	0.0	0.0	16.7
Fork Lifts	3	4	300	5	276	4,140	0.0	0.1	0.0	0.0	0.0	2.4
Dump Truck	5	4	300	325	276	6,900	0.0	0.1	0.0	0.0	0.0	4.0
Drill Trucks	7	4	300	325	276	9,660	0.0	0.1	0.0	0.0	0.0	5.6
Carry Alls	31	4	300	385	276	42,780	0.1	0.7	0.0	0.1	0.0	24.6
Motor Grader	1	4	300	250	276	1,380	0.0	0.0	0.0	0.0	0.0	0.8
Air Compressors	2	4	300	10	276	2,760	0.0	0.0	0.0	0.0	0.0	1.6
Aggregate/Sand Delivery	1	4	300	350	276	1,380	0.0	0.0	0.0	0.0	0.0	0.8
Concrete Delivery	1	4	300	400	276	1,380	0.0	0.0	0.0	0.0	0.0	0.8
Cement Truck	6	4	300	400	276	8,280	0.0	0.1	0.0	0.0	0.0	4.8
Tractor Trailer Delivery Truck	35	4	300	400	276	48,300	0.2	0.7	0.0	0.1	0.1	27.8
Cranes	21	4	300	300	276	28,980	0.1	0.4	0.0	0.0	0.0	16.7
Water Truck	5	4	300	300	276	6,900	0.0	0.1	0.0	0.0	0.0	4.0
Water Pump	1	4	300	20	276	1,380	0.0	0.0	0.0	0.0	0.0	0.8
ATV	3	4	300	20	276	4,140	0.0	0.1	0.0	0.0	0.0	2.4
					Totals	235,980	0.8	3.7	0.2	0.3	0.3	135.7

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO_2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-5 (con't)

							Annual Combustion Emissions					
Region IV	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	37	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	37	740	0.0	0.0	0.0	0.0	0.0	0.4
Compactor	0	4	300	100	37	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	37	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	37	1,295	0.0	0.0	0.0	0.0	0.0	0.7
Grader	1	4	300	300	37	185	0.0	0.0	0.0	0.0	0.0	0.1
Loader	4	4	300	250	37	740	0.0	0.0	0.0	0.0	0.0	0.4
Trackhoe	6	4	300	380	37	1,110	0.0	0.0	0.0	0.0	0.0	0.6
Mechanic/Fuel	6	4	300	400	37	1,110	0.0	0.0	0.0	0.0	0.0	0.6
Pickup	21	4	300	325	37	3,885	0.0	0.1	0.0	0.0	0.0	2.2
Fork Lifts	3	4	300	5	37	555	0.0	0.0	0.0	0.0	0.0	0.3
Dump Truck	5	4	300	325	37	925	0.0	0.0	0.0	0.0	0.0	0.5
Drill Trucks	7	4	300	325	37	1,295	0.0	0.0	0.0	0.0	0.0	0.7
Carry Alls	31	4	300	385	37	5,735	0.0	0.1	0.0	0.0	0.0	3.3
Motor Grader	1	4	300	250	37	185	0.0	0.0	0.0	0.0	0.0	0.1
Air Compressors	2	4	300	10	37	370	0.0	0.0	0.0	0.0	0.0	0.2
Aggregate/Sand Delivery	1	4	300	350	37	185	0.0	0.0	0.0	0.0	0.0	0.1
Concrete Delivery	1	4	300	400	37	185	0.0	0.0	0.0	0.0	0.0	0.1
Cement Truck	6	4	300	400	37	1,110	0.0	0.0	0.0	0.0	0.0	0.6
Tractor Trailer Delivery Truck	35	4	300	400	37	6,475	0.0	0.1	0.0	0.0	0.0	3.7
Cranes	21	4	300	300	37	3,885	0.0	0.1	0.0	0.0	0.0	2.2
Water Truck	5	4	300	300	37	925	0.0	0.0	0.0	0.0	0.0	0.5
Water Pump	1	4	300	20	37	185	0.0	0.0	0.0	0.0	0.0	0.1
ATV	3	4	300	20	37	555	0.0	0.0	0.0	0.0	0.0	0.3
					Totals	31,635	0.1	0.5	0.0	0.0	0.0	18.2

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-6 Area Source Equipment used for construction of Alternative B throughout Project Regions

							Annual Combustion Emissions					
Region I	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	158	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	158	3,160	0.0	0.0	0.0	0.0	0.0	1.8
Compactor	0	4	300	100	158	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	158	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	158	5,530	0.0	0.1	0.0	0.0	0.0	3.2
Grader	1	4	300	300	158	790	0.0	0.0	0.0	0.0	0.0	0.5
Loader	4	4	300	250	158	3,160	0.0	0.0	0.0	0.0	0.0	1.8
Trackhoe	6	4	300	380	158	4,740	0.0	0.1	0.0	0.0	0.0	2.7
Mechanic/Fuel	6	4	300	400	158	4,740	0.0	0.1	0.0	0.0	0.0	2.7
Pickup	21	4	300	325	158	16,590	0.1	0.3	0.0	0.0	0.0	9.5
Fork Lifts	3	4	300	5	158	2,370	0.0	0.0	0.0	0.0	0.0	1.4
Dump Truck	5	4	300	325	158	3,950	0.0	0.1	0.0	0.0	0.0	2.3
Drill Trucks	7	4	300	325	158	5,530	0.0	0.1	0.0	0.0	0.0	3.2
Carry Alls	31	4	300	385	158	24,490	0.1	0.4	0.0	0.0	0.0	14.1
Motor Grader	1	4	300	250	158	790	0.0	0.0	0.0	0.0	0.0	0.5
Air Compressors	2	4	300	10	158	1,580	0.0	0.0	0.0	0.0	0.0	0.9
Aggregate/Sand Delivery	1	4	300	350	158	790	0.0	0.0	0.0	0.0	0.0	0.5
Concrete Delivery	1	4	300	400	158	790	0.0	0.0	0.0	0.0	0.0	0.5
Cement Truck	6	4	300	400	158	4,740	0.0	0.1	0.0	0.0	0.0	2.7
Tractor Trailer Delivery Truck	35	4	300	400	158	27,650	0.1	0.4	0.0	0.0	0.0	15.9
Cranes	21	4	300	300	158	16,590	0.1	0.3	0.0	0.0	0.0	9.5
Water Truck	5	4	300	300	158	3,950	0.0	0.1	0.0	0.0	0.0	2.3
Water Pump	1	4	300	20	158	790	0.0	0.0	0.0	0.0	0.0	0.5
ATV	3	4	300	20	158	2,370	0.0	0.0	0.0	0.0	0.0	1.4
					Totals	135,090	0.5	2.1	0.1	0.2	0.1	77.7

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-6 (con't)

							Annual Combustion Emissions					
Region II	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	346	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	346	6,920	0.0	0.1	0.0	0.0	0.0	4.0
Compactor	0	4	300	100	346	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	346	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	346	12,110	0.0	0.2	0.0	0.0	0.0	7.0
Grader	1	4	300	300	346	1,730	0.0	0.0	0.0	0.0	0.0	1.0
Loader	4	4	300	250	346	6,920	0.0	0.1	0.0	0.0	0.0	4.0
Trackhoe	6	4	300	380	346	10,380	0.0	0.2	0.0	0.0	0.0	6.0
Mechanic/Fuel	6	4	300	400	346	10,380	0.0	0.2	0.0	0.0	0.0	6.0
Pickup	21	4	300	325	346	36,330	0.1	0.6	0.0	0.0	0.0	20.9
Fork Lifts	3	4	300	5	346	5,190	0.0	0.1	0.0	0.0	0.0	3.0
Dump Truck	5	4	300	325	346	8,650	0.0	0.1	0.0	0.0	0.0	5.0
Drill Trucks	7	4	300	325	346	12,110	0.0	0.2	0.0	0.0	0.0	7.0
Carry Alls	31	4	300	385	346	53,630	0.2	0.8	0.1	0.1	0.1	30.8
Motor Grader	1	4	300	250	346	1,730	0.0	0.0	0.0	0.0	0.0	1.0
Air Compressors	2	4	300	10	346	3,460	0.0	0.1	0.0	0.0	0.0	2.0
Aggregate/Sand Delivery	1	4	300	350	346	1,730	0.0	0.0	0.0	0.0	0.0	1.0
Concrete Delivery	1	4	300	400	346	1,730	0.0	0.0	0.0	0.0	0.0	1.0
Cement Truck	6	4	300	400	346	10,380	0.0	0.2	0.0	0.0	0.0	6.0
Tractor Trailer Delivery Truck	35	4	300	400	346	60,550	0.2	0.9	0.1	0.1	0.1	34.8
Cranes	21	4	300	300	346	36,330	0.1	0.6	0.0	0.0	0.0	20.9
Water Truck	5	4	300	300	346	8,650	0.0	0.1	0.0	0.0	0.0	5.0
Water Pump	1	4	300	20	346	1,730	0.0	0.0	0.0	0.0	0.0	1.0
ATV	3	4	300	20	346	5,190	0.0	0.1	0.0	0.0	0.0	3.0
					Totals	295,830	1.0	4.6	0.3	0.4	0.3	170.1

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-6 (con't)

							Annual Combustion Emissions					
Region III	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	284	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	284	5,680	0.0	0.1	0.0	0.0	0.0	3.3
Compactor	0	4	300	100	284	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	284	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	284	9,940	0.0	0.2	0.0	0.0	0.0	5.7
Grader	1	4	300	300	284	1,420	0.0	0.0	0.0	0.0	0.0	0.8
Loader	4	4	300	250	284	5,680	0.0	0.1	0.0	0.0	0.0	3.3
Trackhoe	6	4	300	380	284	8,520	0.0	0.1	0.0	0.0	0.0	4.9
Mechanic/Fuel	6	4	300	400	284	8,520	0.0	0.1	0.0	0.0	0.0	4.9
Pickup	21	4	300	325	284	29,820	0.1	0.5	0.0	0.0	0.0	17.1
Fork Lifts	3	4	300	5	284	4,260	0.0	0.1	0.0	0.0	0.0	2.4
Dump Truck	5	4	300	325	284	7,100	0.0	0.1	0.0	0.0	0.0	4.1
Drill Trucks	7	4	300	325	284	9,940	0.0	0.2	0.0	0.0	0.0	5.7
Carry Alls	31	4	300	385	284	44,020	0.1	0.7	0.0	0.1	0.0	25.3
Motor Grader	1	4	300	250	284	1,420	0.0	0.0	0.0	0.0	0.0	0.8
Air Compressors	2	4	300	10	284	2,840	0.0	0.0	0.0	0.0	0.0	1.6
Aggregate/Sand Delivery	1	4	300	350	284	1,420	0.0	0.0	0.0	0.0	0.0	0.8
Concrete Delivery	1	4	300	400	284	1,420	0.0	0.0	0.0	0.0	0.0	0.8
Cement Truck	6	4	300	400	284	8,520	0.0	0.1	0.0	0.0	0.0	4.9
Tractor Trailer Delivery Truck	35	4	300	400	284	49,700	0.2	0.8	0.1	0.1	0.1	28.6
Cranes	21	4	300	300	284	29,820	0.1	0.5	0.0	0.0	0.0	17.1
Water Truck	5	4	300	300	284	7,100	0.0	0.1	0.0	0.0	0.0	4.1
Water Pump	1	4	300	20	284	1,420	0.0	0.0	0.0	0.0	0.0	0.8
ATV	3	4	300	20	284	4,260	0.0	0.1	0.0	0.0	0.0	2.4
					Totals	242,820	0.8	3.8	0.2	0.3	0.3	139.6

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-6 (con't)

							Annual Combustion Emissions					
Region IV	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	40	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	40	800	0.0	0.0	0.0	0.0	0.0	0.5
Compactor	0	4	300	100	40	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	40	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	40	1,400	0.0	0.0	0.0	0.0	0.0	0.8
Grader	1	4	300	300	40	200	0.0	0.0	0.0	0.0	0.0	0.1
Loader	4	4	300	250	40	800	0.0	0.0	0.0	0.0	0.0	0.5
Trackhoe	6	4	300	380	40	1,200	0.0	0.0	0.0	0.0	0.0	0.7
Mechanic/Fuel	6	4	300	400	40	1,200	0.0	0.0	0.0	0.0	0.0	0.7
Pickup	21	4	300	325	40	4,200	0.0	0.1	0.0	0.0	0.0	2.4
Fork Lifts	3	4	300	5	40	600	0.0	0.0	0.0	0.0	0.0	0.3
Dump Truck	5	4	300	325	40	1,000	0.0	0.0	0.0	0.0	0.0	0.6
Drill Trucks	7	4	300	325	40	1,400	0.0	0.0	0.0	0.0	0.0	0.8
Carry Alls	31	4	300	385	40	6,200	0.0	0.1	0.0	0.0	0.0	3.6
Motor Grader	1	4	300	250	40	200	0.0	0.0	0.0	0.0	0.0	0.1
Air Compressors	2	4	300	10	40	400	0.0	0.0	0.0	0.0	0.0	0.2
Aggregate/Sand Delivery	1	4	300	350	40	200	0.0	0.0	0.0	0.0	0.0	0.1
Concrete Delivery	1	4	300	400	40	200	0.0	0.0	0.0	0.0	0.0	0.1
Cement Truck	6	4	300	400	40	1,200	0.0	0.0	0.0	0.0	0.0	0.7
Tractor Trailer Delivery Truck	35	4	300	400	40	7,000	0.0	0.1	0.0	0.0	0.0	4.0
Cranes	21	4	300	300	40	4,200	0.0	0.1	0.0	0.0	0.0	2.4
Water Truck	5	4	300	300	40	1,000	0.0	0.0	0.0	0.0	0.0	0.6
Water Pump	1	4	300	20	40	200	0.0	0.0	0.0	0.0	0.0	0.1
ATV	3	4	300	20	40	600	0.0	0.0	0.0	0.0	0.0	0.3
					Totals	34,200	0.1	0.5	0.0	0.0	0.0	19.7

Calculation Factors and Conversions

Spread	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-7 Area Source Equipment used for construction of Alternative C throughout Project Regions

							Annual Combustion Emissions					
Region I	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	186	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	186	3,720	0.0	0.1	0.0	0.0	0.0	2.1
Compactor	0	4	300	100	186	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	186	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	186	6,510	0.0	0.1	0.0	0.0	0.0	3.7
Grader	1	4	300	300	186	930	0.0	0.0	0.0	0.0	0.0	0.5
Loader	4	4	300	250	186	3,720	0.0	0.1	0.0	0.0	0.0	2.1
Trackhoe	6	4	300	380	186	5,580	0.0	0.1	0.0	0.0	0.0	3.2
Mechanic/Fuel	6	4	300	400	186	5,580	0.0	0.1	0.0	0.0	0.0	3.2
Pickup	21	4	300	325	186	19,530	0.1	0.3	0.0	0.0	0.0	11.2
Fork Lifts	3	4	300	5	186	2,790	0.0	0.0	0.0	0.0	0.0	1.6
Dump Truck	5	4	300	325	186	4,650	0.0	0.1	0.0	0.0	0.0	2.7
Drill Trucks	7	4	300	325	186	6,510	0.0	0.1	0.0	0.0	0.0	3.7
Carry Alls	31	4	300	385	186	28,830	0.1	0.4	0.0	0.0	0.0	16.6
Motor Grader	1	4	300	250	186	930	0.0	0.0	0.0	0.0	0.0	0.5
Air Compressors	2	4	300	10	186	1,860	0.0	0.0	0.0	0.0	0.0	1.1
Aggregate/Sand Delivery	1	4	300	350	186	930	0.0	0.0	0.0	0.0	0.0	0.5
Concrete Delivery	1	4	300	400	186	930	0.0	0.0	0.0	0.0	0.0	0.5
Cement Truck	6	4	300	400	186	5,580	0.0	0.1	0.0	0.0	0.0	3.2
Tractor Trailer Delivery Truck	35	4	300	400	186	32,550	0.1	0.5	0.0	0.0	0.0	18.7
Cranes	21	4	300	300	186	19,530	0.1	0.3	0.0	0.0	0.0	11.2
Water Truck	5	4	300	300	186	4,650	0.0	0.1	0.0	0.0	0.0	2.7
Water Pump	1	4	300	20	186	930	0.0	0.0	0.0	0.0	0.0	0.5
ATV	3	4	300	20	186	2,790	0.0	0.0	0.0	0.0	0.0	1.6
					Totals	159,030	0.5	2.5	0.2	0.2	0.2	91.4

Calculation Factors and Conversions

Spread	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-7 (con't)

							Annual Combustion Emissions					
Region II	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	365	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	365	7,300	0.0	0.1	0.0	0.0	0.0	4.2
Compactor	0	4	300	100	365	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	365	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	365	12,775	0.0	0.2	0.0	0.0	0.0	7.3
Grader	1	4	300	300	365	1,825	0.0	0.0	0.0	0.0	0.0	1.0
Loader	4	4	300	250	365	7,300	0.0	0.1	0.0	0.0	0.0	4.2
Trackhoe	6	4	300	380	365	10,950	0.0	0.2	0.0	0.0	0.0	6.3
Mechanic/Fuel	6	4	300	400	365	10,950	0.0	0.2	0.0	0.0	0.0	6.3
Pickup	21	4	300	325	365	38,325	0.1	0.6	0.0	0.0	0.0	22.0
Fork Lifts	3	4	300	5	365	5,475	0.0	0.1	0.0	0.0	0.0	3.1
Dump Truck	5	4	300	325	365	9,125	0.0	0.1	0.0	0.0	0.0	5.2
Drill Trucks	7	4	300	325	365	12,775	0.0	0.2	0.0	0.0	0.0	7.3
Carry Alls	31	4	300	385	365	56,575	0.2	0.9	0.1	0.1	0.1	32.5
Motor Grader	1	4	300	250	365	1,825	0.0	0.0	0.0	0.0	0.0	1.0
Air Compressors	2	4	300	10	365	3,650	0.0	0.1	0.0	0.0	0.0	2.1
Aggregate/Sand Delivery	1	4	300	350	365	1,825	0.0	0.0	0.0	0.0	0.0	1.0
Concrete Delivery	1	4	300	400	365	1,825	0.0	0.0	0.0	0.0	0.0	1.0
Cement Truck	6	4	300	400	365	10,950	0.0	0.2	0.0	0.0	0.0	6.3
Tractor Trailer Delivery Truck	35	4	300	400	365	63,875	0.2	1.0	0.1	0.1	0.1	36.7
Cranes	21	4	300	300	365	38,325	0.1	0.6	0.0	0.0	0.0	22.0
Water Truck	5	4	300	300	365	9,125	0.0	0.1	0.0	0.0	0.0	5.2
Water Pump	1	4	300	20	365	1,825	0.0	0.0	0.0	0.0	0.0	1.0
ATV	3	4	300	20	365	5,475	0.0	0.1	0.0	0.0	0.0	3.1
					Totals	312,075	1.0	4.8	0.3	0.4	0.3	179.4

Calculation Factors and Conversions

Spread	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-7 (con't)

							Annual Combustion Emissions					
Region III	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	308	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	308	6,160	0.0	0.1	0.0	0.0	0.0	3.5
Compactor	0	4	300	100	308	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	308	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	308	10,780	0.0	0.2	0.0	0.0	0.0	6.2
Grader	1	4	300	300	308	1,540	0.0	0.0	0.0	0.0	0.0	0.9
Loader	4	4	300	250	308	6,160	0.0	0.1	0.0	0.0	0.0	3.5
Trackhoe	6	4	300	380	308	9,240	0.0	0.1	0.0	0.0	0.0	5.3
Mechanic/Fuel	6	4	300	400	308	9,240	0.0	0.1	0.0	0.0	0.0	5.3
Pickup	21	4	300	325	308	32,340	0.1	0.5	0.0	0.0	0.0	18.6
Fork Lifts	3	4	300	5	308	4,620	0.0	0.1	0.0	0.0	0.0	2.7
Dump Truck	5	4	300	325	308	7,700	0.0	0.1	0.0	0.0	0.0	4.4
Drill Trucks	7	4	300	325	308	10,780	0.0	0.2	0.0	0.0	0.0	6.2
Carry Alls	31	4	300	385	308	47,740	0.2	0.7	0.0	0.1	0.1	27.5
Motor Grader	1	4	300	250	308	1,540	0.0	0.0	0.0	0.0	0.0	0.9
Air Compressors	2	4	300	10	308	3,080	0.0	0.0	0.0	0.0	0.0	1.8
Aggregate/Sand Delivery	1	4	300	350	308	1,540	0.0	0.0	0.0	0.0	0.0	0.9
Concrete Delivery	1	4	300	400	308	1,540	0.0	0.0	0.0	0.0	0.0	0.9
Cement Truck	6	4	300	400	308	9,240	0.0	0.1	0.0	0.0	0.0	5.3
Tractor Trailer Delivery Truck	35	4	300	400	308	53,900	0.2	0.8	0.1	0.1	0.1	31.0
Cranes	21	4	300	300	308	32,340	0.1	0.5	0.0	0.0	0.0	18.6
Water Truck	5	4	300	300	308	7,700	0.0	0.1	0.0	0.0	0.0	4.4
Water Pump	1	4	300	20	308	1,540	0.0	0.0	0.0	0.0	0.0	0.9
ATV	3	4	300	20	308	4,620	0.0	0.1	0.0	0.0	0.0	2.7
					Totals	263,340	0.9	4.1	0.3	0.3	0.3	151.4

Calculation Factors and Conversions

Spread	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-7 (con't)

							Annual Combustion Emissions					
Region IV	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	44	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	44	880	0.0	0.0	0.0	0.0	0.0	0.5
Compactor	0	4	300	100	44	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	44	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	44	1,540	0.0	0.0	0.0	0.0	0.0	0.9
Grader	1	4	300	300	44	220	0.0	0.0	0.0	0.0	0.0	0.1
Loader	4	4	300	250	44	880	0.0	0.0	0.0	0.0	0.0	0.5
Trackhoe	6	4	300	380	44	1,320	0.0	0.0	0.0	0.0	0.0	0.8
Mechanic/Fuel	6	4	300	400	44	1,320	0.0	0.0	0.0	0.0	0.0	0.8
Pickup	21	4	300	325	44	4,620	0.0	0.1	0.0	0.0	0.0	2.7
Fork Lifts	3	4	300	5	44	660	0.0	0.0	0.0	0.0	0.0	0.4
Dump Truck	5	4	300	325	44	1,100	0.0	0.0	0.0	0.0	0.0	0.6
Drill Trucks	7	4	300	325	44	1,540	0.0	0.0	0.0	0.0	0.0	0.9
Carry Alls	31	4	300	385	44	6,820	0.0	0.1	0.0	0.0	0.0	3.9
Motor Grader	1	4	300	250	44	220	0.0	0.0	0.0	0.0	0.0	0.1
Air Compressors	2	4	300	10	44	440	0.0	0.0	0.0	0.0	0.0	0.3
Aggregate/Sand Delivery	1	4	300	350	44	220	0.0	0.0	0.0	0.0	0.0	0.1
Concrete Delivery	1	4	300	400	44	220	0.0	0.0	0.0	0.0	0.0	0.1
Cement Truck	6	4	300	400	44	1,320	0.0	0.0	0.0	0.0	0.0	0.8
Tractor Trailer Delivery Truck	35	4	300	400	44	7,700	0.0	0.1	0.0	0.0	0.0	4.4
Cranes	21	4	300	300	44	4,620	0.0	0.1	0.0	0.0	0.0	2.7
Water Truck	5	4	300	300	44	1,100	0.0	0.0	0.0	0.0	0.0	0.6
Water Pump	1	4	300	20	44	220	0.0	0.0	0.0	0.0	0.0	0.1
ATV	3	4	300	20	44	660	0.0	0.0	0.0	0.0	0.0	0.4
					Totals	37,620	0.1	0.6	0.0	0.0	0.0	21.6

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO_2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-8 Area Source Equipment used for construction of Alternative D throughout Project Regions

							Annual Combustion Emissions					
Region I	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	168	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	168	3,360	0.0	0.1	0.0	0.0	0.0	1.9
Compactor	0	4	300	100	168	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	168	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	168	5,880	0.0	0.1	0.0	0.0	0.0	3.4
Grader	1	4	300	300	168	840	0.0	0.0	0.0	0.0	0.0	0.5
Loader	4	4	300	250	168	3,360	0.0	0.1	0.0	0.0	0.0	1.9
Trackhoe	6	4	300	380	168	5,040	0.0	0.1	0.0	0.0	0.0	2.9
Mechanic/Fuel	6	4	300	400	168	5,040	0.0	0.1	0.0	0.0	0.0	2.9
Pickup	21	4	300	325	168	17,640	0.1	0.3	0.0	0.0	0.0	10.1
Fork Lifts	3	4	300	5	168	2,520	0.0	0.0	0.0	0.0	0.0	1.4
Dump Truck	5	4	300	325	168	4,200	0.0	0.1	0.0	0.0	0.0	2.4
Drill Trucks	7	4	300	325	168	5,880	0.0	0.1	0.0	0.0	0.0	3.4
Carry Alls	31	4	300	385	168	26,040	0.1	0.4	0.0	0.0	0.0	15.0
Motor Grader	1	4	300	250	168	840	0.0	0.0	0.0	0.0	0.0	0.5
Air Compressors	2	4	300	10	168	1,680	0.0	0.0	0.0	0.0	0.0	1.0
Aggregate/Sand Delivery	1	4	300	350	168	840	0.0	0.0	0.0	0.0	0.0	0.5
Concrete Delivery	1	4	300	400	168	840	0.0	0.0	0.0	0.0	0.0	0.5
Cement Truck	6	4	300	400	168	5,040	0.0	0.1	0.0	0.0	0.0	2.9
Tractor Trailer Delivery Truck	35	4	300	400	168	29,400	0.1	0.5	0.0	0.0	0.0	16.9
Cranes	21	4	300	300	168	17,640	0.1	0.3	0.0	0.0	0.0	10.1
Water Truck	5	4	300	300	168	4,200	0.0	0.1	0.0	0.0	0.0	2.4
Water Pump	1	4	300	20	168	840	0.0	0.0	0.0	0.0	0.0	0.5
ATV	3	4	300	20	168	2,520	0.0	0.0	0.0	0.0	0.0	1.4
					Totals	143,640	0.5	2.2	0.1	0.2	0.2	82.6

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO_2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-8 (con't)

							Annual Combustion Emissions					
Region II	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	259	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	259	5,180	0.0	0.1	0.0	0.0	0.0	3.0
Compactor	0	4	300	100	259	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	259	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	259	9,065	0.0	0.1	0.0	0.0	0.0	5.2
Grader	1	4	300	300	259	1,295	0.0	0.0	0.0	0.0	0.0	0.7
Loader	4	4	300	250	259	5,180	0.0	0.1	0.0	0.0	0.0	3.0
Trackhoe	6	4	300	380	259	7,770	0.0	0.1	0.0	0.0	0.0	4.5
Mechanic/Fuel	6	4	300	400	259	7,770	0.0	0.1	0.0	0.0	0.0	4.5
Pickup	21	4	300	325	259	27,195	0.1	0.4	0.0	0.0	0.0	15.6
Fork Lifts	3	4	300	5	259	3,885	0.0	0.1	0.0	0.0	0.0	2.2
Dump Truck	5	4	300	325	259	6,475	0.0	0.1	0.0	0.0	0.0	3.7
Drill Trucks	7	4	300	325	259	9,065	0.0	0.1	0.0	0.0	0.0	5.2
Carry Alls	31	4	300	385	259	40,145	0.1	0.6	0.0	0.0	0.0	23.1
Motor Grader	1	4	300	250	259	1,295	0.0	0.0	0.0	0.0	0.0	0.7
Air Compressors	2	4	300	10	259	2,590	0.0	0.0	0.0	0.0	0.0	1.5
Aggregate/Sand Delivery	1	4	300	350	259	1,295	0.0	0.0	0.0	0.0	0.0	0.7
Concrete Delivery	1	4	300	400	259	1,295	0.0	0.0	0.0	0.0	0.0	0.7
Cement Truck	6	4	300	400	259	7,770	0.0	0.1	0.0	0.0	0.0	4.5
Tractor Trailer Delivery Truck	35	4	300	400	259	45,325	0.2	0.7	0.0	0.1	0.0	26.1
Cranes	21	4	300	300	259	27,195	0.1	0.4	0.0	0.0	0.0	15.6
Water Truck	5	4	300	300	259	6,475	0.0	0.1	0.0	0.0	0.0	3.7
Water Pump	1	4	300	20	259	1,295	0.0	0.0	0.0	0.0	0.0	0.7
ATV	3	4	300	20	259	3,885	0.0	0.1	0.0	0.0	0.0	2.2
					Totals	221,445	0.7	3.4	0.2	0.3	0.2	127.3

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO_2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-8 (con't)

							Annual Combustion Emissions					
Region III	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	281	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	281	5,620	0.0	0.1	0.0	0.0	0.0	3.2
Compactor	0	4	300	100	281	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	281	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	281	9,835	0.0	0.2	0.0	0.0	0.0	5.7
Grader	1	4	300	300	281	1,405	0.0	0.0	0.0	0.0	0.0	0.8
Loader	4	4	300	250	281	5,620	0.0	0.1	0.0	0.0	0.0	3.2
Trackhoe	6	4	300	380	281	8,430	0.0	0.1	0.0	0.0	0.0	4.8
Mechanic/Fuel	6	4	300	400	281	8,430	0.0	0.1	0.0	0.0	0.0	4.8
Pickup	21	4	300	325	281	29,505	0.1	0.5	0.0	0.0	0.0	17.0
Fork Lifts	3	4	300	5	281	4,215	0.0	0.1	0.0	0.0	0.0	2.4
Dump Truck	5	4	300	325	281	7,025	0.0	0.1	0.0	0.0	0.0	4.0
Drill Trucks	7	4	300	325	281	9,835	0.0	0.2	0.0	0.0	0.0	5.7
Carry Alls	31	4	300	385	281	43,555	0.1	0.7	0.0	0.1	0.0	25.0
Motor Grader	1	4	300	250	281	1,405	0.0	0.0	0.0	0.0	0.0	0.8
Air Compressors	2	4	300	10	281	2,810	0.0	0.0	0.0	0.0	0.0	1.6
Aggregate/Sand Delivery	1	4	300	350	281	1,405	0.0	0.0	0.0	0.0	0.0	0.8
Concrete Delivery	1	4	300	400	281	1,405	0.0	0.0	0.0	0.0	0.0	0.8
Cement Truck	6	4	300	400	281	8,430	0.0	0.1	0.0	0.0	0.0	4.8
Tractor Trailer Delivery Truck	35	4	300	400	281	49,175	0.2	0.8	0.1	0.1	0.1	28.3
Cranes	21	4	300	300	281	29,505	0.1	0.5	0.0	0.0	0.0	17.0
Water Truck	5	4	300	300	281	7,025	0.0	0.1	0.0	0.0	0.0	4.0
Water Pump	1	4	300	20	281	1,405	0.0	0.0	0.0	0.0	0.0	0.8
ATV	3	4	300	20	281	4,215	0.0	0.1	0.0	0.0	0.0	2.4
					Totals	240,255	0.8	3.7	0.2	0.3	0.3	138.1

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO_2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-9 Area Source Equipment used for construction of Alternative E throughout Project Regions

							Annual Combustion Emissions					
Region II	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	268	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	268	5,360	0.0	0.1	0.0	0.0	0.0	3.1
Compactor	0	4	300	100	268	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	268	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	268	9,380	0.0	0.1	0.0	0.0	0.0	5.4
Grader	1	4	300	300	268	1,340	0.0	0.0	0.0	0.0	0.0	0.8
Loader	4	4	300	250	268	5,360	0.0	0.1	0.0	0.0	0.0	3.1
Trackhoe	6	4	300	380	268	8,040	0.0	0.1	0.0	0.0	0.0	4.6
Mechanic/Fuel	6	4	300	400	268	8,040	0.0	0.1	0.0	0.0	0.0	4.6
Pickup	21	4	300	325	268	28,140	0.1	0.4	0.0	0.0	0.0	16.2
Fork Lifts	3	4	300	5	268	4,020	0.0	0.1	0.0	0.0	0.0	2.3
Dump Truck	5	4	300	325	268	6,700	0.0	0.1	0.0	0.0	0.0	3.9
Drill Trucks	7	4	300	325	268	9,380	0.0	0.1	0.0	0.0	0.0	5.4
Carry Alls	31	4	300	385	268	41,540	0.1	0.6	0.0	0.1	0.0	23.9
Motor Grader	1	4	300	250	268	1,340	0.0	0.0	0.0	0.0	0.0	0.8
Air Compressors	2	4	300	10	268	2,680	0.0	0.0	0.0	0.0	0.0	1.5
Aggregate/Sand Delivery	1	4	300	350	268	1,340	0.0	0.0	0.0	0.0	0.0	0.8
Concrete Delivery	1	4	300	400	268	1,340	0.0	0.0	0.0	0.0	0.0	0.8
Cement Truck	6	4	300	400	268	8,040	0.0	0.1	0.0	0.0	0.0	4.6
Tractor Trailer Delivery Truck	35	4	300	400	268	46,900	0.2	0.7	0.0	0.1	0.1	27.0
Cranes	21	4	300	300	268	28,140	0.1	0.4	0.0	0.0	0.0	16.2
Water Truck	5	4	300	300	268	6,700	0.0	0.1	0.0	0.0	0.0	3.9
Water Pump	1	4	300	20	268	1,340	0.0	0.0	0.0	0.0	0.0	0.8
ATV	3	4	300	20	268	4,020	0.0	0.1	0.0	0.0	0.0	2.3
					Totals	229,140	0.8	3.6	0.2	0.3	0.3	131.8

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO_2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-10 Area Source Equipment used for construction of Alternative F throughout Project Regions

							Annual Combustion Emissions					
Region II	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	265	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	265	5,300	0.0	0.1	0.0	0.0	0.0	3.0
Compactor	0	4	300	100	265	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	265	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	265	9,275	0.0	0.1	0.0	0.0	0.0	5.3
Grader	1	4	300	300	265	1,325	0.0	0.0	0.0	0.0	0.0	0.8
Loader	4	4	300	250	265	5,300	0.0	0.1	0.0	0.0	0.0	3.0
Trackhoe	6	4	300	380	265	7,950	0.0	0.1	0.0	0.0	0.0	4.6
Mechanic/Fuel	6	4	300	400	265	7,950	0.0	0.1	0.0	0.0	0.0	4.6
Pickup	21	4	300	325	265	27,825	0.1	0.4	0.0	0.0	0.0	16.0
Fork Lifts	3	4	300	5	265	3,975	0.0	0.1	0.0	0.0	0.0	2.3
Dump Truck	5	4	300	325	265	6,625	0.0	0.1	0.0	0.0	0.0	3.8
Drill Trucks	7	4	300	325	265	9,275	0.0	0.1	0.0	0.0	0.0	5.3
Carry Alls	31	4	300	385	265	41,075	0.1	0.6	0.0	0.1	0.0	23.6
Motor Grader	1	4	300	250	265	1,325	0.0	0.0	0.0	0.0	0.0	0.8
Air Compressors	2	4	300	10	265	2,650	0.0	0.0	0.0	0.0	0.0	1.5
Aggregate/Sand Delivery	1	4	300	350	265	1,325	0.0	0.0	0.0	0.0	0.0	0.8
Concrete Delivery	1	4	300	400	265	1,325	0.0	0.0	0.0	0.0	0.0	0.8
Cement Truck	6	4	300	400	265	7,950	0.0	0.1	0.0	0.0	0.0	4.6
Tractor Trailer Delivery Truck	35	4	300	400	265	46,375	0.2	0.7	0.0	0.1	0.1	26.7
Cranes	21	4	300	300	265	27,825	0.1	0.4	0.0	0.0	0.0	16.0
Water Truck	5	4	300	300	265	6,625	0.0	0.1	0.0	0.0	0.0	3.8
Water Pump	1	4	300	20	265	1,325	0.0	0.0	0.0	0.0	0.0	0.8
ATV	3	4	300	20	265	3,975	0.0	0.1	0.0	0.0	0.0	2.3
					Totals	226,575	0.8	3.5	0.2	0.3	0.2	130.3

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO_2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-11 Area Source Equipment used for construction of Alternative G throughout Project Regions

							Annual Combustion Emissions					
Region I	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	156	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	156	3,120	0.0	0.0	0.0	0.0	0.0	1.8
Compactor	0	4	300	100	156	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	156	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	156	5,460	0.0	0.1	0.0	0.0	0.0	3.1
Grader	1	4	300	300	156	780	0.0	0.0	0.0	0.0	0.0	0.4
Loader	4	4	300	250	156	3,120	0.0	0.0	0.0	0.0	0.0	1.8
Trackhoe	6	4	300	380	156	4,680	0.0	0.1	0.0	0.0	0.0	2.7
Mechanic/Fuel	6	4	300	400	156	4,680	0.0	0.1	0.0	0.0	0.0	2.7
Pickup	21	4	300	325	156	16,380	0.1	0.3	0.0	0.0	0.0	9.4
Fork Lifts	3	4	300	5	156	2,340	0.0	0.0	0.0	0.0	0.0	1.3
Dump Truck	5	4	300	325	156	3,900	0.0	0.1	0.0	0.0	0.0	2.2
Drill Trucks	7	4	300	325	156	5,460	0.0	0.1	0.0	0.0	0.0	3.1
Carry Alls	31	4	300	385	156	24,180	0.1	0.4	0.0	0.0	0.0	13.9
Motor Grader	1	4	300	250	156	780	0.0	0.0	0.0	0.0	0.0	0.4
Air Compressors	2	4	300	10	156	1,560	0.0	0.0	0.0	0.0	0.0	0.9
Aggregate/Sand Delivery	1	4	300	350	156	780	0.0	0.0	0.0	0.0	0.0	0.4
Concrete Delivery	1	4	300	400	156	780	0.0	0.0	0.0	0.0	0.0	0.4
Cement Truck	6	4	300	400	156	4,680	0.0	0.1	0.0	0.0	0.0	2.7
Tractor Trailer Delivery Truck	35	4	300	400	156	27,300	0.1	0.4	0.0	0.0	0.0	15.7
Cranes	21	4	300	300	156	16,380	0.1	0.3	0.0	0.0	0.0	9.4
Water Truck	5	4	300	300	156	3,900	0.0	0.1	0.0	0.0	0.0	2.2
Water Pump	1	4	300	20	156	780	0.0	0.0	0.0	0.0	0.0	0.4
ATV	3	4	300	20	156	2,340	0.0	0.0	0.0	0.0	0.0	1.3
					Totals	133,380	0.4	2.1	0.1	0.2	0.1	76.7

Calculation Factors and Conversions

Spread (miles)	Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
			CO	NO_x	SO_2	VOC	PM_{10}	CO_2
240	454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-11 (con't)

							Annual Combustion Emissions					
Region II	**Activities**	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	0	4	300	500	252	0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	4	4	300	285	252	5,040	0.0	0.1	0.0	0.0	0.0	2.9
Compactor	0	4	300	100	252	0	0.0	0.0	0.0	0.0	0.0	0.0
Foot Roller	0	4	300	150	252	0	0.0	0.0	0.0	0.0	0.0	0.0
Dozer	7	4	300	580	252	8,820	0.0	0.1	0.0	0.0	0.0	5.1
Grader	1	4	300	300	252	1,260	0.0	0.0	0.0	0.0	0.0	0.7
Loader	4	4	300	250	252	5,040	0.0	0.1	0.0	0.0	0.0	2.9
Trackhoe	6	4	300	380	252	7,560	0.0	0.1	0.0	0.0	0.0	4.3
Mechanic/Fuel	6	4	300	400	252	7,560	0.0	0.1	0.0	0.0	0.0	4.3
Pickup	21	4	300	325	252	26,460	0.1	0.4	0.0	0.0	0.0	15.2
Fork Lifts	3	4	300	5	252	3,780	0.0	0.1	0.0	0.0	0.0	2.2
Dump Truck	5	4	300	325	252	6,300	0.0	0.1	0.0	0.0	0.0	3.6
Drill Trucks	7	4	300	325	252	8,820	0.0	0.1	0.0	0.0	0.0	5.1
Carry Alls	31	4	300	385	252	39,060	0.1	0.6	0.0	0.0	0.0	22.5
Motor Grader	1	4	300	250	252	1,260	0.0	0.0	0.0	0.0	0.0	0.7
Air Compressors	2	4	300	10	252	2,520	0.0	0.0	0.0	0.0	0.0	1.4
Aggregate/Sand Delivery	1	4	300	350	252	1,260	0.0	0.0	0.0	0.0	0.0	0.7
Concrete Delivery	1	4	300	400	252	1,260	0.0	0.0	0.0	0.0	0.0	0.7
Cement Truck	6	4	300	400	252	7,560	0.0	0.1	0.0	0.0	0.0	4.3
Tractor Trailer Delivery Truck	35	4	300	400	252	44,100	0.1	0.7	0.0	0.1	0.0	25.4
Cranes	21	4	300	300	252	26,460	0.1	0.4	0.0	0.0	0.0	15.2
Water Truck	5	4	300	300	252	6,300	0.0	0.1	0.0	0.0	0.0	3.6
Water Pump	1	4	300	20	252	1,260	0.0	0.0	0.0	0.0	0.0	0.7
ATV	3	4	300	20	252	3,780	0.0	0.1	0.0	0.0	0.0	2.2
					Totals	215,460	0.7	3.3	0.2	0.3	0.2	123.9

Calculation Factors and Conversions

Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
		CO	NO_x	SO_2	VOC	PM_{10}	CO2
454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-12 Area Source Equipment used for construction of Southern Terminal

							Annual Combustion Emissions					
	Activities	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	4	4	300	500		4,800	0.0	0.1	0.0	0.0	0.0	2.8
Water Truck	4	4	300	285		4,800	0.0	0.1	0.0	0.0	0.0	2.8
Compactor	5	4	300	100		6,000	0.0	0.1	0.0	0.0	0.0	3.5
Foot Roller	6	4	300	150		7,200	0.0	0.1	0.0	0.0	0.0	4.1
Dozer	4	4	300	580		4,800	0.0	0.1	0.0	0.0	0.0	2.8
Grader	2	4	300	300		2,400	0.0	0.0	0.0	0.0	0.0	1.4
Loader	4	4	300	250		4,800	0.0	0.1	0.0	0.0	0.0	2.8
Track hoe	3	4	300	380		3,600	0.0	0.1	0.0	0.0	0.0	2.1
Mechanic/Fuel	7	4	300	400		8,400	0.0	0.1	0.0	0.0	0.0	4.8
Pickup	23	4	300	325		27,600	0.1	0.4	0.0	0.0	0.0	15.9
Fork Lifts	10	4	300	5		12,000	0.0	0.2	0.0	0.0	0.0	6.9
Dump Truck	6	4	300	325		7,200	0.0	0.1	0.0	0.0	0.0	4.1
Drill Trucks	2	4	300	325		2,400	0.0	0.0	0.0	0.0	0.0	1.4
Carry Alls	20	4	300	385		24,000	0.1	0.4	0.0	0.0	0.0	13.8
Motor Grader	2	4	300	250		2,400	0.0	0.0	0.0	0.0	0.0	1.4
Air Compressors	3	4	300	10		3,600	0.0	0.1	0.0	0.0	0.0	2.1
Aggregate/Sand Delivery	2	4	300	350		2,400	0.0	0.0	0.0	0.0	0.0	1.4
Concrete Delivery	2	4	300	400		2,400	0.0	0.0	0.0	0.0	0.0	1.4
Cement Truck	6	4	300	400		7,200	0.0	0.1	0.0	0.0	0.0	4.1
Tractor Trailer Delivery Truck	10	4	300	400		12,000	0.0	0.2	0.0	0.0	0.0	6.9
Cranes	21	4	300	300		25,200	0.1	0.4	0.0	0.0	0.0	14.5
Water Truck	5	4	300	300		6,000	0.0	0.1	0.0	0.0	0.0	3.5
Water Pump	1	4	300	20		1,200	0.0	0.0	0.0	0.0	0.0	0.7
Bobcat loader	6	4	300	20		7,200	0.0	0.1	0.0	0.0	0.0	4.1
					Totals	189,600	0.63	2.94	0.19	0.23	0.21	109.02

Calculation Factors and Conversions

Conversions		Pollutant Emission Factor[2] (lb/hp-hr)					
		CO	NO_x	SO_2	VOC	PM_{10}	CO2
454 g/lb	2000 lb/ton	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00

Table E-13 Area Source Equipment used for construction of Northern Terminal

							Annual Combustion Emissions					
	Activities	**hrs/ act/ day**	**days/ yr**	**HP**	**Region (mi)**	**Annual hp-hrs**	**CO (tpy)**	**NO_x (tpy)**	**SO_2 (tpy)**	**VOC (tpy)**	**PM_{10} (tpy)**	**CO_2 (tpy)**
Scraper	4	4	300	500		4,800	0.0	0.1	0.0	0.0	0.0	2.8
Water Truck	4	4	300	285		4,800	0.0	0.1	0.0	0.0	0.0	2.8
Compactor	5	4	300	100		6,000	0.0	0.1	0.0	0.0	0.0	3.5
Foot Roller	6	4	300	150		7,200	0.0	0.1	0.0	0.0	0.0	4.1
Dozer	4	4	300	580		4,800	0.0	0.1	0.0	0.0	0.0	2.8
Grader	2	4	300	300		2,400	0.0	0.0	0.0	0.0	0.0	1.4
Loader	4	4	300	250		4,800	0.0	0.1	0.0	0.0	0.0	2.8
Track hoe	3	4	300	380		3,600	0.0	0.1	0.0	0.0	0.0	2.1
Mechanic/Fuel	7	4	300	400		8,400	0.0	0.1	0.0	0.0	0.0	4.8
Pickup	23	4	300	325		27,600	0.1	0.4	0.0	0.0	0.0	15.9
Fork Lifts	10	4	300	5		12,000	0.0	0.2	0.0	0.0	0.0	6.9
Dump Truck	6	4	300	325		7,200	0.0	0.1	0.0	0.0	0.0	4.1
Drill Trucks	2	4	300	325		2,400	0.0	0.0	0.0	0.0	0.0	1.4
Carry Alls	20	4	300	385		24,000	0.1	0.4	0.0	0.0	0.0	13.8
Motor Grader	2	4	300	250		2,400	0.0	0.0	0.0	0.0	0.0	1.4
Air Compressors	3	4	300	10		3,600	0.0	0.1	0.0	0.0	0.0	2.1
Aggregate/Sand Delivery	2	4	300	350		2,400	0.0	0.0	0.0	0.0	0.0	1.4
Concrete Delivery	2	4	300	400		2,400	0.0	0.0	0.0	0.0	0.0	1.4
Cement Truck	6	4	300	400		7,200	0.0	0.1	0.0	0.0	0.0	4.1
Tractor Trailer Delivery Truck	10	4	300	400		12,000	0.0	0.2	0.0	0.0	0.0	6.9
Cranes	21	4	300	300		25,200	0.1	0.4	0.0	0.0	0.0	14.5
Water Truck	5	4	300	300		6,000	0.0	0.1	0.0	0.0	0.0	3.5
Water Pump	1	4	300	20		1,200	0.0	0.0	0.0	0.0	0.0	0.7
Bobcat loader	6	4	300	20		7,200	0.0	0.1	0.0	0.0	0.0	4.1
					Totals	189,600	0.63	2.94	0.19	0.23	0.21	109.02

Appendix E Table E-14

0.140 is conversion factor to convert from emissions per ton of cement and cement supplement to emissions per yard of concrete.

								Pollutant Emission Factor[1] (lb/hp-hr)					
								CO	NO_x	SO_2	VOC	PM_{10}	CO_2
0.14	0	0	0	PM10	lbs	0.278	Reference AP-42 Table 11.12-5 uncontrolled Total PM10	6.68E-03	3.10E-02	2.05E-03	2.47E-03	2.20E-03	1.15E+00
	0	0	0	PM2.5	lbs	0.05							

lbs/cy	PM10		
lbs/cy	PM2.5	22426	2.24E+06

Pollutant Emission Factor[1] (lb/hp-hr)					
Benzene	Toluene	Xylenes	Acetaldehyde	Formaldehyde	Propylene
6.53E-06	2.86E-06	2.00E-06	5.37E-06	8.26E-06	1.81E-05

Assumptions:
Total production is shown for each alternative above
Batch plant located every 15 miles of 750 mile route = 50 batch plants
Each plant has the capacity to produce 140 cy/hr
Concrete production is divided equally over 2 years (Construction schedule of 111 weeks).
Cubic yards for each alternative are calculated (tabs)

Calculations of Concrete Batch production — Alt A

Region	cy/hour	cy/region	hours/region	PM10 (t/y)	PM2.5(t/y)	HP	Engine Emissions (tpy) CO	NOx	SO2	VOC	PM10	CO2	HAPS (lbs/yr) Benzene	Toluene	Xylenes	Acetaldehyde	Formaldehyde	Propylene
1	140	41,452	296	0.81	0.15	200	0.20	0.92	0.06	0.07	0.07	34.05	0.39	0.17	0.12	0.32	0.49	1.07
2	140	68,551	490	1.33	0.24	200	0.33	1.52	0.10	0.12	0.11	56.31	0.64	0.28	0.20	0.53	0.81	1.77
3	140	73,287	523	1.43	0.26	200	0.35	1.62	0.11	0.13	0.12	60.20	0.68	0.30	0.21	0.56	0.86	1.89
4	140	9,902	71	0.19	0.03	200	0.05	0.22	0.01	0.02	0.02	8.13	0.09	0.04	0.03	0.08	0.12	0.26

Calculations of Concrete Batch production — Alt B

Region	cy/hour	cy/region	hours/region	PM10 (t/y)	PM25(t/y)	HP	Engine Emissions (tpy) CO	NOx	SO2	VOC	PM10	CO2	HAPS (lbs/yr) Benzene	Toluene	Xylenes	Acetaldehyde	Formaldehyde	Propylene
1	140	42,022	300	0.82	0.15	200	0.20	0.93	0.06	0.07	0.07	34.52	0.39	0.17	0.12	0.32	0.50	1.08
2	140	91,857	656	1.79	0.32	200	0.44	2.03	0.13	0.16	0.14	75.45	0.86	0.38	0.26	0.70	1.08	2.37
3	140	75,468	539	1.47	0.26	200	0.36	1.67	0.11	0.13	0.12	61.99	0.70	0.31	0.22	0.58	0.89	1.95
4	140	10,612	76	0.21	0.04	200	0.05	0.23	0.02	0.02	0.02	8.72	0.10	0.04	0.03	0.08	0.13	0.27

Calculations of Concrete Batch production — Alt C

Region	cy/hour	cy/region	hours/region	PM10 (t/y)	PM25(t/y)	HP	Engine Emissions (tpy) CO	NOx	SO2	VOC	PM10	CO2	HAPS (lbs/yr) Benzene	Toluene	Xylenes	Acetaldehyde	Formaldehyde	Propylene
1	140	49,410	353	0.96	0.17	200	0.24	1.09	0.07	0.09	0.08	40.59	0.46	0.20	0.14	0.38	0.58	1.27
2	140	96,831	692	1.88	0.34	200	0.46	2.14	0.14	0.17	0.15	79.54	0.90	0.40	0.28	0.74	1.14	2.50
3	140	81,815	584	1.59	0.29	200	0.39	1.81	0.12	0.14	0.13	67.21	0.76	0.33	0.23	0.63	0.97	2.11
4	140	11,798	84	0.23	0.04	200	0.06	0.26	0.02	0.02	0.02	9.69	0.11	0.05	0.03	0.09	0.14	0.30

Calculations of Concrete Batch production — Alt D

Region	cy/hour	cy/region	hours/region	PM10 (t/y)	PM25(t/y)	HP	Engine Emissions (tpy) CO	NOx	SO2	VOC	PM10	CO2	HAPS (lbs/yr) Benzene	Toluene	Xylenes	Acetaldehyde	Formaldehyde	Propylene
1	140	44,675	319	0.87	0.16	200	0.21	0.99	0.07	0.08	0.07	36.70	0.42	0.18	0.13	0.34	0.53	1.15
2	140	68,836	492	1.34	0.24	200	0.33	1.52	0.10	0.12	0.11	56.54	0.64	0.28	0.20	0.53	0.81	1.78
3	140	74,613	533	1.45	0.26	200	0.36	1.65	0.11	0.13	0.12	61.29	0.70	0.31	0.21	0.57	0.88	1.93
4	140	0	0	0.00	0.00	200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Calculations of Concrete Batch production — Alt E

Region	cy/hour	cy/region	hours/region	PM10 (t/y)	PM25(t/y)	HP	Engine Emissions (tpy) CO	NOx	SO2	VOC	PM10	CO2	HAPS (lbs/yr) Benzene	Toluene	Xylenes	Acetaldehyde	Formaldehyde	Propylene
1	140	0	0	0.00	0.00	200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	140	71,204	509	1.39	0.25	200	0.34	1.58	0.10	0.13	0.11	58.49	0.66	0.29	0.20	0.55	0.84	1.84
3	140	0	0	0.00	0.00	200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	140	0	0	0.00	0.00	200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Calculations of Concrete Batch production — Alt F

Region	cy/hour	cy/region	hours/region	PM10 (t/y)	PM25(t/y)	HP	Engine Emissions (tpy) CO	NOx	SO2	VOC	PM10	CO2	HAPS (lbs/yr) Benzene	Toluene	Xylenes	Acetaldehyde	Formaldehyde	Propylene
1	140	0	0	0.00	0.00	200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	140	70,302	502	1.37	0.25	200	0.34	1.56	0.10	0.12	0.11	57.75	0.66	0.29	0.20	0.54	0.83	1.81
3	140	0	0	0.00	0.00	200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	140	0	0	0.00	0.00	200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Maximum Emissions by Region

						Engine Emissions (tpy) CO	NOx	SO2	VOC	PM10	CO2	HAPS (lbs/yr) Benzene	Toluene	Xylenes	Acetaldehyde	Formaldehyde	Propylene
1	49,410	353	0.96	0.17	200	0.24	1.09	0.07	0.09	0.08	40.59	0.46	0.20	0.14	0.38	0.58	1.27
2	96,831	692	1.88	0.34	200	0.46	2.14	0.14	0.17	0.15	79.54	0.90	0.40	0.28	0.74	1.14	2.50
3	81,815	584	1.59	0.29	200	0.39	1.81	0.12	0.14	0.13	67.21	0.76	0.33	0.23	0.63	0.97	2.11
4	11,798	84	0.23	0.04	200	0.06	0.26	0.02	0.02	0.02	9.69	0.11	0.05	0.03	0.09	0.14	0.30