CALINE4 CO Emissions Calculations With Hayward Extension

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-Hayward Connection
Intersection:	Carlos Bee Blvd./Hayward Blvd
Analysis Condition:	Cumulative Plus Project
Nearest Air Monitoring Station measuring CO:	40733 Chapel Way in Fremont
Background 1-hour CO Concentration (ppm):	2.9
Background 8-hour CO Concentration (ppm):	1.8
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	Carlos Bee	AT GRADE	8	5	5
East-West Roadway:	Hayward Blvd	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

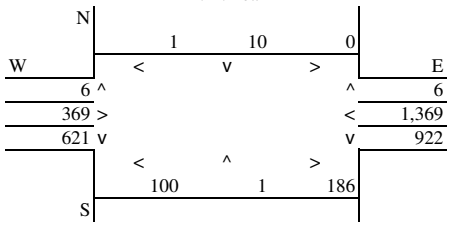
Air Basin: San Francisco Bay Ar County: All

Assumes lowest mean wintertime temperature of 40 degrees F and 30% humidity.

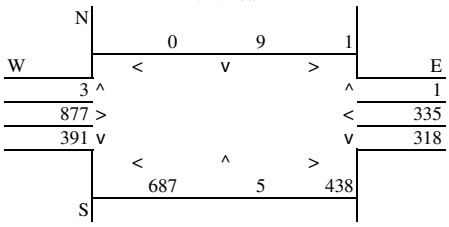
	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2007	10.404	9.093	8.058	7.231	6.563	6.024	5.588	5.23	4.936	4.7
2008	9.453	8.28	7.351	6.607	6.005	5.518	5.124	4.799	4.532	4.316
2009	8.51	7.471	6.646	5.984	5.448	5.012	4.66	4.367	4.126	3.929
2010	7.609	6.699	5.976	5.392	4.918	4.532	4.219	3.958	3.741	3.564
2011	6.831	6.032	5.393	4.877	4.456	4.113	3.833	3.599	3.404	3.243
2012	6.141	5.437	4.874	4.416	4.042	3.737	3.487	3.277	3.101	2.955
2013	5.528	4.909	4.411	4.005	3.673	3.4	3.177	2.988	2.83	2.697
2014	4.98	4.435	3.995	3.635	3.339	3.097	2.897	2.728	2.584	2.464
2015	4.502	4.021	3.63	3.311	3.047	2.829	2.65	2.497	2.368	2.258
2020	2.909	2.632	2.402	2.21	2.05	1.917	1.805	1.708	1.624	1.552
2025	2.144	1.95	1.789	1.653	1.539	1.444	1.364	1.294	1.233	1.181
2030	1.756	1.601	1.472	1.363	1.271	1.195	1.131	1.075	1.027	0.985

PEAK HOUR TURNING VOLUMES

A.M. Peak



P.M. Peak



Representative Traffic Volumes (Vehicles per Hour)

N-S Road	1,840	N-S Road	1,848

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-Hayward Connection
Intersection:	Carlos Bee Blvd./West Loop Rd
Analysis Condition:	Cumulative Plus Project
Nearest Air Monitoring Station measuring CO:	40733 Chapel Way in Fremont
Background 1-hour CO Concentration (ppm):	2.9
Background 8-hour CO Concentration (ppm):	1.8
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	West Loop Road	AT GRADE	2	5	5
East-West Roadway:	Carlos Bee	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: San Francisco Bay Ar County: All

Assumes lowest mean wintertime temperature of 40 degrees F and 30% humidity.

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2007	10.404	9.093	8.058	7.231	6.563	6.024	5.588	5.23	4.936	4.7
2008	9.453	8.28	7.351	6.607	6.005	5.518	5.124	4.799	4.532	4.316
2009	8.51	7.471	6.646	5.984	5.448	5.012	4.66	4.367	4.126	3.929
2010	7.609	6.699	5.976	5.392	4.918	4.532	4.219	3.958	3.741	3.564
2011	6.831	6.032	5.393	4.877	4.456	4.113	3.833	3.599	3.404	3.243
2012	6.141	5.437	4.874	4.416	4.042	3.737	3.487	3.277	3.101	2.955
2013	5.528	4.909	4.411	4.005	3.673	3.4	3.177	2.988	2.83	2.697
2014	4.98	4.435	3.995	3.635	3.339	3.097	2.897	2.728	2.584	2.464
2015	4.502	4.021	3.63	3.311	3.047	2.829	2.65	2.497	2.368	2.258
2020	2.909	2.632	2.402	2.21	2.05	1.917	1.805	1.708	1.624	1.552
2025	2.144	1.95	1.789	1.653	1.539	1.444	1.364	1.294	1.233	1.181
2030	1.756	1.601	1.472	1.363	1.271	1.195	1.131	1.075	1.027	0.985

PEAK HOUR TURNING VOLUMES

A.M. Peak

	N				
		53	30	0	
W		<	v	>	E
474	^			^	0
0	>			<	0
368	v			v	0
		<	^	>	
		102	140	0	
	S				

P.M. Peak

	N				
		423	142	0	
W		<	v	>	E
273	^			^	0
0	>			<	0
222	v			v	0
		<	^	>	
		405	101	0	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	697	N-S Road	939

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-Hayward Connection
Intersection:	Harder Rd./West Loop Rd
Analysis Condition:	Cumulative Plus Project
Nearest Air Monitoring Station measuring CO:	40733 Chapel Way in Fremont
Background 1-hour CO Concentration (ppm):	2.9
Background 8-hour CO Concentration (ppm):	1.8
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	West Loop Road	AT GRADE	2	5	5
East-West Roadway:	Harder Road	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

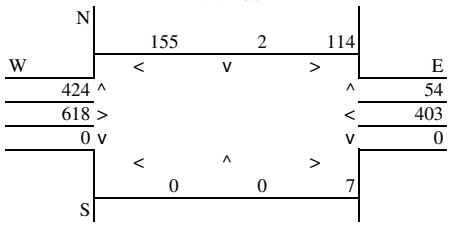
Air Basin: San Francisco Bay Ar County: All

Assumes lowest mean wintertime temperature of 40 degrees F and 30% humidity.

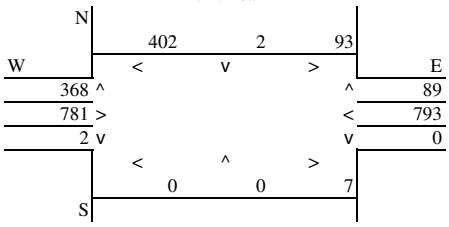
	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2007	10.404	9.093	8.058	7.231	6.563	6.024	5.588	5.23	4.936	4.7
2008	9.453	8.28	7.351	6.607	6.005	5.518	5.124	4.799	4.532	4.316
2009	8.51	7.471	6.646	5.984	5.448	5.012	4.66	4.367	4.126	3.929
2010	7.609	6.699	5.976	5.392	4.918	4.532	4.219	3.958	3.741	3.564
2011	6.831	6.032	5.393	4.877	4.456	4.113	3.833	3.599	3.404	3.243
2012	6.141	5.437	4.874	4.416	4.042	3.737	3.487	3.277	3.101	2.955
2013	5.528	4.909	4.411	4.005	3.673	3.4	3.177	2.988	2.83	2.697
2014	4.98	4.435	3.995	3.635	3.339	3.097	2.897	2.728	2.584	2.464
2015	4.502	4.021	3.63	3.311	3.047	2.829	2.65	2.497	2.368	2.258
2020	2.909	2.632	2.402	2.21	2.05	1.917	1.805	1.708	1.624	1.552
2025	2.144	1.95	1.789	1.653	1.539	1.444	1.364	1.294	1.233	1.181
2030	1.756	1.601	1.472	1.363	1.271	1.195	1.131	1.075	1.027	0.985

PEAK HOUR TURNING VOLUMES

A.M. Peak



P.M. Peak



Representative Traffic Volumes (Vehicles per Hour)

N-S Road	749	N-S Road	954

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-Hayward Connection
Intersection:	Foothill Blvd./Mattox Rd./Castro Valley Blvd
Analysis Condition:	Cumulative Plus Project
Nearest Air Monitoring Station measuring CO:	40733 Chapel Way in Fremont
Background 1-hour CO Concentration (ppm):	2.9
Background 8-hour CO Concentration (ppm):	1.8
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	Foothill Blvd	AT GRADE	4	5	5
East-West Roadway:	Mattox Road	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: San Francisco Bay Ar County: All

Assumes lowest mean wintertime temperature of 40 degrees F and 30% humidity.

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2007	10.404	9.093	8.058	7.231	6.563	6.024	5.588	5.23	4.936	4.7
2008	9.453	8.28	7.351	6.607	6.005	5.518	5.124	4.799	4.532	4.316
2009	8.51	7.471	6.646	5.984	5.448	5.012	4.66	4.367	4.126	3.929
2010	7.609	6.699	5.976	5.392	4.918	4.532	4.219	3.958	3.741	3.564
2011	6.831	6.032	5.393	4.877	4.456	4.113	3.833	3.599	3.404	3.243
2012	6.141	5.437	4.874	4.416	4.042	3.737	3.487	3.277	3.101	2.955
2013	5.528	4.909	4.411	4.005	3.673	3.4	3.177	2.988	2.83	2.697
2014	4.98	4.435	3.995	3.635	3.339	3.097	2.897	2.728	2.584	2.464
2015	4.502	4.021	3.63	3.311	3.047	2.829	2.65	2.497	2.368	2.258
2020	2.909	2.632	2.402	2.21	2.05	1.917	1.805	1.708	1.624	1.552
2025	2.144	1.95	1.789	1.653	1.539	1.444	1.364	1.294	1.233	1.181
2030	1.756	1.601	1.472	1.363	1.271	1.195	1.131	1.075	1.027	0.985

PEAK HOUR TURNING VOLUMES

A.M. Peak

	N			
	317	2,460	381	
W	<	v	>	E
0 ^			^	0
711 >			<	892
75 v			v	957
	<	^	>	
	245	0	742	
	S			

P.M. Peak

	N			
	154	2,394	577	
W	<	v	>	E
0 ^			^	0
1,045 >			<	544
216 v			v	983
	<	^	>	
	239	0	698	
	S			

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	4,479	N-S Road	4,530

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-Hayward Connection
Intersection:	Foothill Blvd./Grove Way
Analysis Condition:	Cumulative Plus Project
Nearest Air Monitoring Station measuring CO:	40733 Chapel Way in Fremont
Background 1-hour CO Concentration (ppm):	2.9
Background 8-hour CO Concentration (ppm):	1.8
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	Foothill Blvd	AT GRADE	6	5	5
East-West Roadway:	Grove Way	AT GRADE	2	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: San Francisco Bay Ar County: All

Assumes lowest mean wintertime temperature of 40 degrees F and 30% humidity.

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2007	10.404	9.093	8.058	7.231	6.563	6.024	5.588	5.23	4.936	4.7
2008	9.453	8.28	7.351	6.607	6.005	5.518	5.124	4.799	4.532	4.316
2009	8.51	7.471	6.646	5.984	5.448	5.012	4.66	4.367	4.126	3.929
2010	7.609	6.699	5.976	5.392	4.918	4.532	4.219	3.958	3.741	3.564
2011	6.831	6.032	5.393	4.877	4.456	4.113	3.833	3.599	3.404	3.243
2012	6.141	5.437	4.874	4.416	4.042	3.737	3.487	3.277	3.101	2.955
2013	5.528	4.909	4.411	4.005	3.673	3.4	3.177	2.988	2.83	2.697
2014	4.98	4.435	3.995	3.635	3.339	3.097	2.897	2.728	2.584	2.464
2015	4.502	4.021	3.63	3.311	3.047	2.829	2.65	2.497	2.368	2.258
2020	2.909	2.632	2.402	2.21	2.05	1.917	1.805	1.708	1.624	1.552
2025	2.144	1.95	1.789	1.653	1.539	1.444	1.364	1.294	1.233	1.181
2030	1.756	1.601	1.472	1.363	1.271	1.195	1.131	1.075	1.027	0.985

PEAK HOUR TURNING VOLUMES

A.M. Peak

	N				
		133	3,354	47	
W		<	v	>	E
282	^			^	186
69	>			<	228
74	v			v	180
		<	^	>	
		107	3,476	46	
	S				

P.M. Peak

	N				
		297	3,126	94	
W		<	v	>	E
386	^			^	193
252	>			<	90
147	v			v	33
		<	^	>	
		160	4,054	109	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	7,478	N-S Road	8,150

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-Hayward Connection
Intersection:	Foothill Blvd./A St
Analysis Condition:	Cumulative Plus Project
Nearest Air Monitoring Station measuring CO:	40733 Chapel Way in Fremont
Background 1-hour CO Concentration (ppm):	2.9
Background 8-hour CO Concentration (ppm):	1.8
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	Foothill Blvd	AT GRADE	4	5	5
East-West Roadway:	A Street	AT GRADE	2	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: San Francisco Bay Ar County: All

Assumes lowest mean wintertime temperature of 40 degrees F and 30% humidity.

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2007	10.404	9.093	8.058	7.231	6.563	6.024	5.588	5.23	4.936	4.7
2008	9.453	8.28	7.351	6.607	6.005	5.518	5.124	4.799	4.532	4.316
2009	8.51	7.471	6.646	5.984	5.448	5.012	4.66	4.367	4.126	3.929
2010	7.609	6.699	5.976	5.392	4.918	4.532	4.219	3.958	3.741	3.564
2011	6.831	6.032	5.393	4.877	4.456	4.113	3.833	3.599	3.404	3.243
2012	6.141	5.437	4.874	4.416	4.042	3.737	3.487	3.277	3.101	2.955
2013	5.528	4.909	4.411	4.005	3.673	3.4	3.177	2.988	2.83	2.697
2014	4.98	4.435	3.995	3.635	3.339	3.097	2.897	2.728	2.584	2.464
2015	4.502	4.021	3.63	3.311	3.047	2.829	2.65	2.497	2.368	2.258
2020	2.909	2.632	2.402	2.21	2.05	1.917	1.805	1.708	1.624	1.552
2025	2.144	1.95	1.789	1.653	1.539	1.444	1.364	1.294	1.233	1.181
2030	1.756	1.601	1.472	1.363	1.271	1.195	1.131	1.075	1.027	0.985

PEAK HOUR TURNING VOLUMES

A.M. Peak

	N				
		2,662	0	0	
W		<	v	>	E
0	^			^	38
0	>			<	1,747
0	v			v	0
		<	^	>	
		387	3,282	1,149	
	S				

P.M. Peak

	N				
		2,396	0	0	
W		<	v	>	E
0	^			^	25
0	>			<	1,193
0	v			v	0
		<	^	>	
		179	3,501	1,982	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	5,982	N-S Road	5,922

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-Hayward Connection
Intersection:	Foothill Blvd./D St
Analysis Condition:	Cumulative Plus Project
Nearest Air Monitoring Station measuring CO:	40733 Chapel Way in Fremont
Background 1-hour CO Concentration (ppm):	2.9
Background 8-hour CO Concentration (ppm):	1.8
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	Foothill Blvd	AT GRADE	6	5	5
East-West Roadway:	D Street	AT GRADE	2	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: San Francisco Bay Ar County: All

Assumes lowest mean wintertime temperature of 40 degrees F and 30% humidity.

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2007	10.404	9.093	8.058	7.231	6.563	6.024	5.588	5.23	4.936	4.7
2008	9.453	8.28	7.351	6.607	6.005	5.518	5.124	4.799	4.532	4.316
2009	8.51	7.471	6.646	5.984	5.448	5.012	4.66	4.367	4.126	3.929
2010	7.609	6.699	5.976	5.392	4.918	4.532	4.219	3.958	3.741	3.564
2011	6.831	6.032	5.393	4.877	4.456	4.113	3.833	3.599	3.404	3.243
2012	6.141	5.437	4.874	4.416	4.042	3.737	3.487	3.277	3.101	2.955
2013	5.528	4.909	4.411	4.005	3.673	3.4	3.177	2.988	2.83	2.697
2014	4.98	4.435	3.995	3.635	3.339	3.097	2.897	2.728	2.584	2.464
2015	4.502	4.021	3.63	3.311	3.047	2.829	2.65	2.497	2.368	2.258
2020	2.909	2.632	2.402	2.21	2.05	1.917	1.805	1.708	1.624	1.552
2025	2.144	1.95	1.789	1.653	1.539	1.444	1.364	1.294	1.233	1.181
2030	1.756	1.601	1.472	1.363	1.271	1.195	1.131	1.075	1.027	0.985

PEAK HOUR TURNING VOLUMES

A.M. Peak

	N				
		0	0	0	
W		<	v	>	E
493	^			^	6
258	>			<	1,995
0	v			v	0
		<	^	>	
		0	4,665	198	
	S				

P.M. Peak

	N				
		0	0	0	
W		<	v	>	E
1,017	^			^	17
608	>			<	1,280
0	v			v	0
		<	^	>	
		0	5,657	503	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	5,164	N-S Road	6,691

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-Hayward Connection
Intersection:	Foothill Blvd./Mission Blvd./Jackson St./E St
Analysis Condition:	Cumulative Plus Project
Nearest Air Monitoring Station measuring CO:	40733 Chapel Way in Fremont
Background 1-hour CO Concentration (ppm):	2.9
Background 8-hour CO Concentration (ppm):	1.8
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	Mission Blvd	AT GRADE	4	5	5
East-West Roadway:	Jackson/Foothill	AT GRADE	2	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: San Francisco Bay Ar County: All

Assumes lowest mean wintertime temperature of 40 degrees F and 30% humidity.

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2007	10.404	9.093	8.058	7.231	6.563	6.024	5.588	5.23	4.936	4.7
2008	9.453	8.28	7.351	6.607	6.005	5.518	5.124	4.799	4.532	4.316
2009	8.51	7.471	6.646	5.984	5.448	5.012	4.66	4.367	4.126	3.929
2010	7.609	6.699	5.976	5.392	4.918	4.532	4.219	3.958	3.741	3.564
2011	6.831	6.032	5.393	4.877	4.456	4.113	3.833	3.599	3.404	3.243
2012	6.141	5.437	4.874	4.416	4.042	3.737	3.487	3.277	3.101	2.955
2013	5.528	4.909	4.411	4.005	3.673	3.4	3.177	2.988	2.83	2.697
2014	4.98	4.435	3.995	3.635	3.339	3.097	2.897	2.728	2.584	2.464
2015	4.502	4.021	3.63	3.311	3.047	2.829	2.65	2.497	2.368	2.258
2020	2.909	2.632	2.402	2.21	2.05	1.917	1.805	1.708	1.624	1.552
2025	2.144	1.95	1.789	1.653	1.539	1.444	1.364	1.294	1.233	1.181
2030	1.756	1.601	1.472	1.363	1.271	1.195	1.131	1.075	1.027	0.985

PEAK HOUR TURNING VOLUMES

A.M. Peak

	N				
		1,910	2,762	0	
W		<	v	>	E
0	^			^	0
1,710	>			<	0
240	v			v	0
		<	^	>	
		0	0	2,679	
	S				

P.M. Peak

	N				
		1,380	3,062	0	
W		<	v	>	E
0	^			^	0
2,300	>			<	0
190	v			v	0
		<	^	>	
		0	0	3,278	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	5,681	N-S Road	6,530

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-Hayward Connection
Intersection:	Mission Blvd./Highland Blvd
Analysis Condition:	Cumulative Plus Project
Nearest Air Monitoring Station measuring CO:	40733 Chapel Way in Fremont
Background 1-hour CO Concentration (ppm):	2.9
Background 8-hour CO Concentration (ppm):	1.8
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	Mission Blvd	AT GRADE	4	5	5
East-West Roadway:	Highland Blvd	AT GRADE	2	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

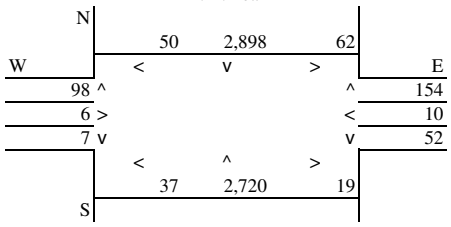
Air Basin: San Francisco Bay Ar County: All

Assumes lowest mean wintertime temperature of 40 degrees F and 30% humidity.

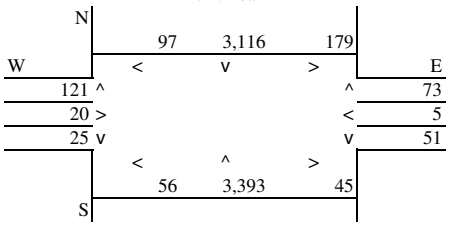
	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2007	10.404	9.093	8.058	7.231	6.563	6.024	5.588	5.23	4.936	4.7
2008	9.453	8.28	7.351	6.607	6.005	5.518	5.124	4.799	4.532	4.316
2009	8.51	7.471	6.646	5.984	5.448	5.012	4.66	4.367	4.126	3.929
2010	7.609	6.699	5.976	5.392	4.918	4.532	4.219	3.958	3.741	3.564
2011	6.831	6.032	5.393	4.877	4.456	4.113	3.833	3.599	3.404	3.243
2012	6.141	5.437	4.874	4.416	4.042	3.737	3.487	3.277	3.101	2.955
2013	5.528	4.909	4.411	4.005	3.673	3.4	3.177	2.988	2.83	2.697
2014	4.98	4.435	3.995	3.635	3.339	3.097	2.897	2.728	2.584	2.464
2015	4.502	4.021	3.63	3.311	3.047	2.829	2.65	2.497	2.368	2.258
2020	2.909	2.632	2.402	2.21	2.05	1.917	1.805	1.708	1.624	1.552
2025	2.144	1.95	1.789	1.653	1.539	1.444	1.364	1.294	1.233	1.181
2030	1.756	1.601	1.472	1.363	1.271	1.195	1.131	1.075	1.027	0.985

PEAK HOUR TURNING VOLUMES

A.M. Peak



P.M. Peak



Representative Traffic Volumes (Vehicles per Hour)

N-S Road	5,982	N-S Road	6,979

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-No Hayward Connection
Intersection:	Mission Blvd./Carlos Bee Blvd./Orchard Ave
Analysis Condition:	Cumulative Plus Project
Nearest Air Monitoring Station measuring CO:	40733 Chapel Way in Fremont
Background 1-hour CO Concentration (ppm):	2.9
Background 8-hour CO Concentration (ppm):	1.8
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	Mission Blvd	AT GRADE	6	5	5
East-West Roadway:	Highland Blvd	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: San Francisco Bay Ar County: All

Assumes lowest mean wintertime temperature of 40 degrees F and 30% humidity.

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2007	10.404	9.093	8.058	7.231	6.563	6.024	5.588	5.23	4.936	4.7
2008	9.453	8.28	7.351	6.607	6.005	5.518	5.124	4.799	4.532	4.316
2009	8.51	7.471	6.646	5.984	5.448	5.012	4.66	4.367	4.126	3.929
2010	7.609	6.699	5.976	5.392	4.918	4.532	4.219	3.958	3.741	3.564
2011	6.831	6.032	5.393	4.877	4.456	4.113	3.833	3.599	3.404	3.243
2012	6.141	5.437	4.874	4.416	4.042	3.737	3.487	3.277	3.101	2.955
2013	5.528	4.909	4.411	4.005	3.673	3.4	3.177	2.988	2.83	2.697
2014	4.98	4.435	3.995	3.635	3.339	3.097	2.897	2.728	2.584	2.464
2015	4.502	4.021	3.63	3.311	3.047	2.829	2.65	2.497	2.368	2.258
2020	2.909	2.632	2.402	2.21	2.05	1.917	1.805	1.708	1.624	1.552
2025	2.144	1.95	1.789	1.653	1.539	1.444	1.364	1.294	1.233	1.181
2030	1.756	1.601	1.472	1.363	1.271	1.195	1.131	1.075	1.027	0.985

PEAK HOUR TURNING VOLUMES

A.M. Peak

	N				
		44	2,498	470	
W		<	v	>	E
206	^			^	331
280	>			<	717
129	v			v	603
		<	^	>	
		131	2,378	57	
	S				

P.M. Peak

	N				
		141	2,417	670	
W		<	v	>	E
157	^			^	536
586	>			<	306
240	v			v	74
		<	^	>	
		131	2,378	146	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	5,927	N-S Road	6,299

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-Hayward Connection
Intersection:	Mission Blvd./Harder Rd
Analysis Condition:	Cumulative Plus Project
Nearest Air Monitoring Station measuring CO:	40733 Chapel Way in Fremont
Background 1-hour CO Concentration (ppm):	2.9
Background 8-hour CO Concentration (ppm):	1.8
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	Mission Blvd	AT GRADE	4	5	5
East-West Roadway:	Highland Blvd	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: San Francisco Bay Ar County: All

Assumes lowest mean wintertime temperature of 40 degrees F and 30% humidity.

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2007	10.404	9.093	8.058	7.231	6.563	6.024	5.588	5.23	4.936	4.7
2008	9.453	8.28	7.351	6.607	6.005	5.518	5.124	4.799	4.532	4.316
2009	8.51	7.471	6.646	5.984	5.448	5.012	4.66	4.367	4.126	3.929
2010	7.609	6.699	5.976	5.392	4.918	4.532	4.219	3.958	3.741	3.564
2011	6.831	6.032	5.393	4.877	4.456	4.113	3.833	3.599	3.404	3.243
2012	6.141	5.437	4.874	4.416	4.042	3.737	3.487	3.277	3.101	2.955
2013	5.528	4.909	4.411	4.005	3.673	3.4	3.177	2.988	2.83	2.697
2014	4.98	4.435	3.995	3.635	3.339	3.097	2.897	2.728	2.584	2.464
2015	4.502	4.021	3.63	3.311	3.047	2.829	2.65	2.497	2.368	2.258
2020	2.909	2.632	2.402	2.21	2.05	1.917	1.805	1.708	1.624	1.552
2025	2.144	1.95	1.789	1.653	1.539	1.444	1.364	1.294	1.233	1.181
2030	1.756	1.601	1.472	1.363	1.271	1.195	1.131	1.075	1.027	0.985

PEAK HOUR TURNING VOLUMES

A.M. Peak

	N				
		175	2,394	115	
W		<	v	>	E
202	^			^	83
423	>			<	255
308	v			v	451
		<	^	>	
		571	2,165	804	
	S				

P.M. Peak

	N				
		170	2,283	207	
W		<	v	>	E
249	^			^	93
436	>			<	351
512	v			v	657
		<	^	>	
		449	2,635	679	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	6,693	N-S Road	7,215

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-Hayward Connection
Intersection:	Mission Blvd./Tennyson Rd
Analysis Condition:	Cumulative Plus Project
Nearest Air Monitoring Station measuring CO:	40733 Chapel Way in Fremont
Background 1-hour CO Concentration (ppm):	2.9
Background 8-hour CO Concentration (ppm):	1.8
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	Mission Blvd	AT GRADE	4	5	5
East-West Roadway:	Highland Blvd	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: San Francisco Bay Ar County: All

Assumes lowest mean wintertime temperature of 40 degrees F and 30% humidity.

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2007	10.404	9.093	8.058	7.231	6.563	6.024	5.588	5.23	4.936	4.7
2008	9.453	8.28	7.351	6.607	6.005	5.518	5.124	4.799	4.532	4.316
2009	8.51	7.471	6.646	5.984	5.448	5.012	4.66	4.367	4.126	3.929
2010	7.609	6.699	5.976	5.392	4.918	4.532	4.219	3.958	3.741	3.564
2011	6.831	6.032	5.393	4.877	4.456	4.113	3.833	3.599	3.404	3.243
2012	6.141	5.437	4.874	4.416	4.042	3.737	3.487	3.277	3.101	2.955
2013	5.528	4.909	4.411	4.005	3.673	3.4	3.177	2.988	2.83	2.697
2014	4.98	4.435	3.995	3.635	3.339	3.097	2.897	2.728	2.584	2.464
2015	4.502	4.021	3.63	3.311	3.047	2.829	2.65	2.497	2.368	2.258
2020	2.909	2.632	2.402	2.21	2.05	1.917	1.805	1.708	1.624	1.552
2025	2.144	1.95	1.789	1.653	1.539	1.444	1.364	1.294	1.233	1.181
2030	1.756	1.601	1.472	1.363	1.271	1.195	1.131	1.075	1.027	0.985

PEAK HOUR TURNING VOLUMES

A.M. Peak

	N				
		610	2,570	40	
W		<	v	>	E
658	^			^	155
41	>			<	135
247	v			v	18
		<	^	>	
		571	2,231	9	
	S				

P.M. Peak

	N				
		476	2,433	208	
W		<	v	>	E
763	^			^	100
269	>			<	41
378	v			v	9
		<	^	>	
		419	3,058	19	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	6,264	N-S Road	7,038

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-Hayward Connection
Intersection:	Jackson St./Santa Clara St./Harder Rd
Analysis Condition:	Cumulative Plus Project
Nearest Air Monitoring Station measuring CO:	40733 Chapel Way in Fremont
Background 1-hour CO Concentration (ppm):	2.9
Background 8-hour CO Concentration (ppm):	1.8
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	Jackson Street	AT GRADE	6	5	5
East-West Roadway:	Harder Road	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: San Francisco Bay Ar County: All

Assumes lowest mean wintertime temperature of 40 degrees F and 30% humidity.

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2007	10.404	9.093	8.058	7.231	6.563	6.024	5.588	5.23	4.936	4.7
2008	9.453	8.28	7.351	6.607	6.005	5.518	5.124	4.799	4.532	4.316
2009	8.51	7.471	6.646	5.984	5.448	5.012	4.66	4.367	4.126	3.929
2010	7.609	6.699	5.976	5.392	4.918	4.532	4.219	3.958	3.741	3.564
2011	6.831	6.032	5.393	4.877	4.456	4.113	3.833	3.599	3.404	3.243
2012	6.141	5.437	4.874	4.416	4.042	3.737	3.487	3.277	3.101	2.955
2013	5.528	4.909	4.411	4.005	3.673	3.4	3.177	2.988	2.83	2.697
2014	4.98	4.435	3.995	3.635	3.339	3.097	2.897	2.728	2.584	2.464
2015	4.502	4.021	3.63	3.311	3.047	2.829	2.65	2.497	2.368	2.258
2020	2.909	2.632	2.402	2.21	2.05	1.917	1.805	1.708	1.624	1.552
2025	2.144	1.95	1.789	1.653	1.539	1.444	1.364	1.294	1.233	1.181
2030	1.756	1.601	1.472	1.363	1.271	1.195	1.131	1.075	1.027	0.985

PEAK HOUR TURNING VOLUMES

A.M. Peak

	N				
		50	3,100	70	
W		<	v	>	E
60	^			^	20
962	>			<	256
560	v			v	1,652
		<	^	>	
		230	1,650	499	
	S				

P.M. Peak

	N				
		160	1,650	220	
W		<	v	>	E
120	^			^	70
518	>			<	988
190	v			v	789
		<	^	>	
		140	2,730	1,483	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	7,691	N-S Road	6,982