CALINE4 CO Emissions Calculations Without Hayward Extension

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-No 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 Are 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	10	0	
W		<	v	>	E
6	^			^	6
389	>			<	1,524
676	v			v	1,019
		<	^	>	
		109	1	207	
	S				

P.M. Peak

	N				
		0	9	1	
W		<	v	>	E
3	^			^	1
944	>			<	367
431	v			v	384
		<	^	>	
		749	5	566	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	2,022	N-S Road	2,144

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-No 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				
		74	30	0	
W		<	v	>	E
591	^			^	0
0	>			<	0
391	v			v	0
		<	^	>	
		110	140	0	
	S				

P.M. Peak

	N				
		557	142	0	
W		<	v	>	E
357	^			^	0
0	>			<	0
234	v			v	0
		<	^	>	
		452	101	0	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	835	N-S Road	1,157

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-No 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 Are 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				
		155	2	128	
W		<	v	>	E
424	^			^	52
658	>			<	158
0	v			v	0
		<	^	>	
		0	0	7	
	S				

P.M. Peak

	N				
		402	2	90	
W		<	v	>	E
368	^			^	120
508	>			<	877
2	v			v	0
		<	^	>	
		2	4	4	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	761	N-S Road	986

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-No 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 Are 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	2,491	381	
W	<	v	>	E
0 ^			^	0
711 >			<	892
75 v			v	957
	<	^	>	
	245	0	742	
	S			

P.M. Peak

	N			
	154	2,357	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	4,510	N-S Road	4,493

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-No 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 Are 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	3,385	47	
W		<	v	>	E
282	^			^	186
69	>			<	228
74	v			v	180
		<	^	>	
		107	3,456	46	
	S				

P.M. Peak

	N				
		297	3,089	94	
W		<	v	>	E
386	^			^	193
252	>			<	90
147	v			v	33
		<	^	>	
		160	4,095	109	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	7,489	N-S Road	8,154

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-No 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 Are 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				
		2,693	0	0	
W		<	v	>	E
0	^			^	38
0	>			<	1,756
0	v			v	0
		<	^	>	
		386	3,262	1,143	
	S				

P.M. Peak

	N				
		2,359	0	0	
W		<	v	>	E
0	^			^	25
0	>			<	1,180
0	v			v	0
		<	^	>	
		178	3,542	1,997	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	5,993	N-S Road	5,926

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-No 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	4,637	198	
	S				

P.M. Peak

	N				
		0	0	0	
W		<	v	>	E
1,017	^			^	17
608	>			<	1,280
0	v			v	0
		<	^	>	
		0	5,712	503	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	5,136	N-S Road	6,746

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-No 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	2,806	0	
W		<	v	>	E
0	^			^	0
1,710	>			<	0
240	v			v	0
		<	^	>	
		0	0	2,651	
	S				

P.M. Peak

	N				
		1,380	3,012	0	
W		<	v	>	E
0	^			^	0
2,300	>			<	0
190	v			v	0
		<	^	>	
		0	0	3,333	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	5,697	N-S Road	6,535

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-No 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 Are 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	2,942	62	
W		<	v	>	E
98	^			^	154
6	>			<	10
7	v			v	52
		<	^	>	
		37	2,692	19	
	S				

P.M. Peak

	N				
		97	3,066	179	
W		<	v	>	E
121	^			^	73
20	>			<	5
25	v			v	51
		<	^	>	
		56	3,448	45	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	5,998	N-S Road	6,984

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	2,520	491	
W		<	v	>	E
206	^			^	325
287	>			<	717
129	v			v	767
		<	^	>	
		131	2,355	118	
	S				

P.M. Peak

	N				
		141	2,360	677	
W		<	v	>	E
157	^			^	531
590	>			<	305
240	v			v	168
		<	^	>	
		173	2,758	247	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	6,020	N-S Road	6,624

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-No 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				
		216	2,517	137	
W		<	v	>	E
215	^			^	60
434	>			<	192
308	v			v	292
		<	^	>	
		571	2,213	810	
	S				

P.M. Peak

	N				
		194	2,354	150	
W		<	v	>	E
273	^			^	152
364	>			<	376
512	v			v	658
		<	^	>	
		449	2,713	536	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	6,711	N-S Road	7,222

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-No 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 Are 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				
		605	2,539	40	
W		<	v	>	E
666	^			^	155
41	>			<	135
247	v			v	18
		<	^	>	
		571	2,277	9	
	S				

P.M. Peak

	N				
		487	2,495	208	
W		<	v	>	E
753	^			^	100
269	>			<	41
378	v			v	9
		<	^	>	
		419	3,001	19	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	6,282	N-S Road	7,044

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	CSU Hayward Campus Master Plan-No 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 Are 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
966	>			<	252
560	v			v	1,643
		<	^	>	
		230	1,650	511	
	S				

P.M. Peak

	N				
		160	1,650	220	
W		<	v	>	E
120	^			^	70
508	>			<	999
190	v			v	805
		<	^	>	
		140	2,730	1,468	
	S				

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	7,694	N-S Road	6,983