Appendices

This page left intentionally blank for double sided printing.

Appendix A: Baseline Emissions Detailed Reports

Community Greenhouse Gas Emissions in 2005
Detailed Report

	Equiv CO_2 (tonnes)	Equiv CO_2 (%)	Energy (MWh)
Hayward, CA			
Residential			
Hayward Community Residential			
Electricity	54,252	4.6	242,674
Natural Gas	104,277	8.8	571,258
Subtotal Hayward Community Residential	158,528	13.4	813,932

1. The updated 2005 PG&E CO2e emission factor of 0.49 lbs/kWh of delivered electricity was verified by the California Climate Action Registry and was reported to ICLEI in January 2007 by Greg San Martin. The PG&E CO2e emissions factor of 53.05 kg/MMbtu of delivered natural gas, verified by the California Climate Action Registry and the CEC. The PG&E coefficient set does not have emissions factors for CH4 and N2O as the CO2e emissions factor includes CH4 and N2O emissions in CO2 equivalents.

2. The business-as-usual projections for 2020 assume no change in the PG & E CO_2e emissions factor.

3. Default criteria air pollutant emissions factors are based on the Region 13 - Western Systems Coordinating Council/CNV Average Grid Electricity Set.

4. Industrial consumption data is reported within the Commercial sector due to PUC confidentiality rules that prohibit the release of such data in certain cases. As a result, NOx and criteria air pollutants are underreported. Hence the commercial sector includes energy consumed in the industrial sector of the city. The commercial sector also includes energy consumed by city buildings/operations and facilities as well as the district facilities like the East Bay Municipal Utility District (EBMUD), Bay Area Rapid Transit (BART) and School Districts.

Data Sources:

1. Community electricity and natural gas data provided by Data collection coordinator byVera Dahle Lacaze, Solid Waste Manager, Hayward City, Vera.Dahle-Lacaze@hayward-ca.gov, (510) 583-4725
2. Request for electricity and natural gas data processed by Greg San Martin, Climate Protection Program Manager, PG&E, GJS8 @pge.com, (415)973-6905 and Jasmin Ansar, Manager, Environmental Policy, PG&E, JxA2@pge.com, (415)973-4570.

Data entry: Data entered on September 27, 2006 by Palak Joshi, Program Assistant, ICLEI, palak.joshi@iclei.org. ICLEI supervisor, Timothy Burroughs, timothy.burroughs@iclei.org. Last updated on July 15, 2008 by Jennifer Holzer, Program Associate, ICLEI, jennifer.holzer@iclei.org, 510-844-0699.

Subtotal Residential	158,528	13.4	813,932
Commercial			
Community Commercial/Industrial			
Electricity	151,793	12.8	678,989
Natural Gas	86,434	7.3	473,507
Subtotal Community Commercial/Industrial	238,226	20.1	1,152,497

1. The updated 2005 PG&E CO2e emission factor of 0.49 lbs/kWh of delivered electricity was verified by the California Climate Action Registry and was reported to ICLEI in January 2007 by Greg San Martin. The PG&E CO2e emissions factor of 53.05 kg/MMbtu of delivered natural gas, verified by the California Climate Action Registry and the CEC. The PG&E coefficient set does not have emissions factors for CH4 and N2O as the CO2e emissions factor includes CH4 and N2O emissions in CO2 equivalents.

This report has been generated for Hayward, CA using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.

Community Greenhouse Gas Emissions in 2005
Detailed Report

	Equiv CO_2 (tonnes)	Equiv CO_2 (%)	Energy (MWh)

2. The business-as-usual projections for 2020 assume no change in the PG & E CO_2e emissions factor.

3. Default criteria air pollutant emissions factors are based on the Region 13 - Western Systems Coordinating Council/CNV Average Grid Electricity Set.

4. Industrial consumption data is reported within the Commercial sector due to PUC confidentiality rules that prohibit the release of such data in certain cases. As a result, NOx and criteria air pollutants are underreported. Hence the commercial sector includes energy consumed in the industrial sector of the city. The commercial sector also includes energy consumed by city buildings/operations and facilities as well as the district facilities like the East Bay Municipal Utility District (EBMUD.

Data Sources:
1. Community electricity and natural gas data provided by Data collection coordinator byVera Dahle Lacaze, Solid Waste Manager, Hayward City, Vera.Dahle-Lacaze@hayward-ca.gov, (510) 583-4725
2. Request for electricity and natural gas data processed by Greg San Martin, Climate Protection Program Manager, PG&E, GJS8 @pge.com, (415)973-6905 and Jasmin Ansar, Manager, Environmental Policy, PG&E, JxA2@pge.com, (415)973-4570.

Data entry: Data entered on September 27, 2006 by Palak Joshi, Program Assistant, ICLEI, palak.joshi@iclei.org. ICLEI supervisor, Timothy Burroughs, timothy.burroughs@iclei.org. Last updated on July 15, 2008 by Jennifer Holzer, Program Associate, ICLEI, jennifer.holzer@iclei.org, 510-844-0699.

Reference file: ICLEI Hayward Summary Report

Subtotal Commercial	238,226	20.1	1,152,497
Transportation			
Community Transportation			
Gasoline	227,502	19.2	926,325
Diesel	59,429	5.0	208,359
Subtotal Community Transportation	286,931	24.2	1,134,684

Notes:
1. The VMT data provided by MTC and Caltrans is in Daily VMT (DVMT) (000); Annual VMT = DVMT x 365x1000.

2. The VMT by fuel and vehicle type is calculated using Alameda County VMT % (by vehicle type) and the CACP fleet breakdown by fuel type provided by EMFAC.

Data Sources:
1. Local Roads Vehicle Miles Traveled (VMT) 2005 data provided by Harold Brazil, Air Quality Associate, Metropolitan Transportation Commission (MTC) hbrazil@mtc.ca.gov <mailto:hbrazil@mtc.ca.gov> (510) 817-5747. Data analyzed by Micah Lang, Program Officer, ICLEI.

2. State Highways Vehicle Miles Traveled (VMT) 2005 data provided by CalTrans, analyzed by Micah Lang, ICLEI Program Officer and Theresa Krebs, ICLEI. Data source file: 2005 Public Roads Data, HPMS division of CalTrans <http://www.dot.ca.gov/hq/tsip/hpms/hpmslibrary/hpmspdf/2005PRD.pdf>

3. EMFAC data provided in November, 2007 by Amir Fanai, Principal Air Quality Engineer, Bay Area Air Quality Management District, AFanai@baaqmd.gov <mailto:AFanai@baaqmd.gov>

Data entry:

This report has been generated for Hayward, CA using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.

Community Greenhouse Gas Emissions in 2005
Detailed Report

	Equiv CO_2 (tonnes)	Equiv CO_2 (%)	Energy (MWh)

2. State Highways Vehicle Miles Traveled (VMT) 2005 data provided by CalTrans, analyzed by Micah Lang, ICLEI Program Officer and Theresa Krebs, ICLEI. Data source file: 2005 Public Roads Data, HPMS division of CalTrans <http://www.dot.ca.gov/hq/tsip/hpms/hpmslibrary/hpmspdf/2005PRD.pdf>

3. EMFAC data provided in November, 2007 by Amir Fanai, Principal Air Quality Engineer, Bay Area Air Quality Management District, AFanai@baagmd.gov <mailto:AFanai@baagmd.gov>

Data entry:
Palak Joshi, Program Assistant, ICLEI, palak.joshi@iclei.org, (510) 844-0699, on August 25, 2006. Timothy Burroughs, Supervisor, timothy.burroughs@iclei.org. Last updated by Jennifer Holzer, Program Associate, ICLEI, July 2008, jennifer.holzer@iclei.org, 510-844-0699. Reference file ICLEI Hayward Summary Report

Hawyard State Hwy VMT			
Gasoline	354,540	30.0	1,443,589
Diesel	92,615	7.8	324,707
Subtotal Hawyard State Hwy VMT	447,155	37.8	1,768,296
Subtotal Transportation	734,087	62.0	2,902,980

Waste

Hayward, CA

ADC Tonnage			*Disposal Method - Managed Landfill*
Plant Debris	119	0.0	
Subtotal ADC Tonnage	119	0.0	
Landfill Waste			*Disposal Method - Managed Landfill*
Paper Products	29,052	2.5	
Food Waste	9,094	0.8	
Plant Debris	2,276	0.2	
Wood/Textiles	11,898	1.0	
All Other Waste	0	0.0	
Subtotal Landfill Waste	52,319	4.4	

Notes:
1. Community wide disposal figures provided by the California Integrated Waste Management Board (CIWMB) via the *Jurisdiction Disposal and Alternative Daily Cover (ADC) Tons by Facility* portion of the Disposal Reporting System (DRS): <http://www.ciwmb.ca.gov/LGCentral/drs/reports/JurDspFa.asp>.

2. Alternative Daily Cover (ADC) tons by material type provided by the CIWMB via the *Alternative Daily Cover (ADC) by Jurisdiction of Origin and Material Type* portion of the DRS website: <http://www.ciwmb.ca.gov/LGCentral/drs/reports/ADC/ADCMatlType.asp>

3. Waste characterization derived from the *Alameda County Waste Characterization Study 2000*: <http://www.stopwaste.org/home/index.asp?page=590>. Waste categories in the report were bundled to fit the waste categories of the Clean Air and Climate Protection (CACP) software.

4. Methane recovery factor derived from the US EPA AP 42 Emissions Factors report (<http://www.epa.gov/ttn/chief/ap42/index.html>), which

This report has been generated for Hayward, CA using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.

Community Greenhouse Gas Emissions in 2005
Detailed Report

	Equiv CO_2 (tonnes)	Equiv CO_2 (%)	Energy (MWh)

Data entry:
Palak Joshi, Program Assistant, ICLEI, palak.joshi@iclei.org, (510) 844-0699, on August 25, 2006. Timothy Burroughs, Supervisor, timothy.burroughs@iclei.org. Last updated by Jennifer Holzer, Program Associate, ICLEI, July 2008, jennifer.holzer@iclei.org, 510-844-0699.

Subtotal Waste	52,438	4.4	
Subtotal Hayward, CA	1,183,279	100.0	4,869,409
Total	1,183,279	100.0	4,869,409

This report has been generated for Hayward, CA using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.

Government Greenhouse Gas Emissions in 2005
Detailed Report

	Equiv CO_2 (tonnes)	Equiv CO_2 (%)	Energy (MWh)	Cost ($)
Buildings				
Hayward, CA				
Hayward Centennial Hall				
Electricity	76	0.8	340	39,177
Natural Gas	64	0.7	353	14,465
Subtotal Hayward Centennial Hall	140	1.5	692	53,642

Centennial Hall will be replaced with a larger conference center in near future.

Hayward City Ctr. Bldg Parking Garage				
Electricity	34	0.4	153	17,726
Subtotal Hayward City Ctr. Bldg Parking Garage	34	0.4	153	17,726

No electricity will be consumed for the City Center Parking Garage for Hayward because it will no longer be owned by City Of Hayward after January 2007.

Hayward City Hall				
Electricity	336	3.5	1,504	202,967
Natural Gas	190	2.0	1,039	40,860
Subtotal Hayward City Hall	526	5.5	2,544	243,827
Hayward City Hall Parking Garage				
Electricity	34	0.3	151	19,404
Subtotal Hayward City Hall Parking Garage	34	0.3	151	19,404

Data for usage levels for the City Hall Parking Garage reflects partial usage in 2005 and it would increase in 2020.

Hayward Equipment Management				
Electricity	21	0.2	93	13,982
Natural Gas	15	0.2	83	2,303
Subtotal Hayward Equipment Management	36	0.4	176	16,285

This report has been generated for Hayward, CA using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.

Government Greenhouse Gas Emissions in 2005
Detailed Report

	Equiv CO_2 (tonnes)	Equiv CO_2 (%)	Energy (MWh)	Cost ($)
Hayward Facilities				
Electricity	75	0.8	334	42,269
Natural Gas	171	1.8	936	27,778
Subtotal Hayward Facilities	245	2.5	1,270	70,047
This record includes Barnes Ct., Animal Shelter, Facilities Division and Landscape Division				
Hayward Fire Stations				
Electricity	113	1.2	505	68,028
Natural Gas	147	1.5	805	33,757
Subtotal Hayward Fire Stations	260	2.7	1,310	101,785
New Fire Station #7 will utilize slightly more gas and electricity than the current station for the forecast year because the facility's square footage is expected to increase. The current data includes 10 fire stations, 9 of which are operating and Fairview (formerly #8) used as storage and requires electricity usage for alarms, phones, etc.				
Hayward Main Library				
Electricity	64	0.7	285	41,118
Natural Gas	33	0.3	180	7,492
Subtotal Hayward Main Library	96	1.0	464	48,610
By 2020, Main Library will be replaced by a larger facility.				
Hayward Police Department				
Electricity	233	2.4	1,042	12,739
Natural Gas	153	1.6	840	24,656
Subtotal Hayward Police Department	386	4.0	1,882	37,395
The square footage for the Police Department building will increase by 5% by 2020.				
Hayward Police Radio Tower				
Electricity	12	0.1	53	8,139
Subtotal Hayward Police Radio Tower	12	0.1	53	8,139

This report has been generated for Hayward, CA using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.

Government Greenhouse Gas Emissions in 2005
Detailed Report

	Equiv CO_2 (tonnes)	Equiv CO_2 (%)	Energy (MWh)	Cost ($)
Hayward Streets and Water Department Buildings				
Electricity	15	0.2	66	10,240
Natural Gas	24	0.2	130	5,375
Subtotal Hayward Streets and Water Department Buildings		0.4	195	15,615
Hayward Utilities Building				
Electricity	26	0.3	116	16,413
Natural Gas	9	0.1	50	2,164
Subtotal Hayward Utilities Building	35	0.4	166	18,577
Hayward Weekes Library				
Electricity	20	0.2	90	12,993
Natural Gas	6	0.1	33	1,516
Subtotal Hayward Weekes Library	26	0.3	123	14,509

1. The updated 2005 PG&E CO2e emission factor of 0.49 lbs/kWh of delivered electricity is verified by the California Climate Action Registry and was reported to ICLEI in January 2007 by Greg San Martin. The PG&E CO2e emissions factor of 53.05 kg/MMbtu of delivered natural gas, verified by the California Climate Action Registry and the CEC. The PG&E coefficient set does not have emissions factors for CH4 and N2O as the CO2e emissions factor includes CH4 and N2O emissions in CO2 equivalents.

2. Default criteria air pollutant emissions factors are based on the Region 13 - Western Systems Coordinating Council/CNV Average Grid Electricity Set.

3. In calculating the cost - Assumption: average cost of kwh =$.14 average cost of therm = $1.22

Data Source:
Data submitted on July, 27, 2006 by Vera Dahle Lacaze, Solid Waste Manager, Hayward City, Vera.Dahle-Lacaze@hayward-ca.gov, (510) 583-4725.

Data entered on Aug. 18, 2006 by Palak Joshi, Program Assistant, ICLEI, palak.joshi@iclei.org, (510) 844 0699. Last updated by Jennifer Holzer, Program Associate, ICLEI, July 2008, jennifer.holzer@iclei.org, 510-844-0699.

Data Source Files:
- For Municipal Operations and facilities - ICLEI_Hayward_Buildings_CY2005
- For Street Lights - ICLEI_Hayward_Streetlights_CY2005
- For Water/Sewage - ICLEI_WstWtrTrtmntPlnt_CY2005
- For Waste - ICLEI_Hayward_MunicipalSolidWaste_CY2005

This report has been generated for Hayward, CA using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.

Government Greenhouse Gas Emissions in 2005
Detailed Report

	Equiv CO_2 (tonnes)	Equiv CO_2 (%)	Energy (MWh)	Cost ($)
Subtotal Buildings	1,870	19.4	9,180	665,561
Vehicle Fleet				
Hayward, CA				
Building Inspection fleet - Hayward				
Gasoline	36	0.4	136	9,110
CNG	0	0.0	0	1,096
Subtotal Building Inspection fleet - Hayward	36	0.4	136	10,206
Community Preservation fleet - Hayward				
Gasoline	5	0.1	19	1,273
Subtotal Community Preservation fleet - Hayward	5	0.1	19	1,273
Construction Inspection fleet - Hayward				
Gasoline	35	0.4	133	9,076
CNG	0	0.0	0	2,505
Subtotal Construction Inspection fleet - Hayward	35	0.4	133	11,581
Engineering department fleet - Hayward				
Gasoline	6	0.1	22	1,525
Subtotal Engineering department fleet - Hayward	6	0.1	22	1,525
Equipment Management fleet- Hayward				
Gasoline	21	0.2	78	5,228
Subtotal Equipment Management fleet- Hayward	21	0.2	78	5,228
Facilities department fleet - Hayward				
Gasoline	40	0.4	152	10,094
Subtotal Facilities department fleet - Hayward	40	0.4	152	10,094
Fire department fleet - Hayward				
Gasoline	80	0.8	301	18,709
Diesel	49	0.5	183	11,038
Subtotal Fire department fleet - Hayward	129	1.3	484	29,747
Hayward Airport fleet				
Gasoline	60	0.6	229	14,354
Diesel	9	0.1	32	1,917
Subtotal Hayward Airport fleet	69	0.7	261	16,271

Government Greenhouse Gas Emissions in 2005
Detailed Report

	Equiv CO_2 (tonnes)	Equiv CO_2 (%)	Energy (MWh)	Cost ($)
Hayward Housing (Conservation and Inspection)				
Gasoline	9	0.1	32	2,185
Subtotal Hayward Housing (Conservation and Inspection)		0.1	32	2,185
Hayward Landscape Department				
Gasoline	173	1.8	655	43,772
Diesel	10	0.1	36	2,726
Subtotal Hayward Landscape Department	183	1.9	691	46,498
Hayward Library				
Gasoline	3	0.0	10	698
Subtotal Hayward Library	3	0.0	10	698
Hayward Mayor fleet				
Gasoline	2	0.0	6	403
Subtotal Hayward Mayor fleet	2	0.0	6	403
Hayward Police Department Fleet				
Gasoline	935	9.7	3,543	235,794
Subtotal Hayward Police Department Fleet	935	9.7	3,543	235,794
Hayward Source Control				
Gasoline	19	0.2	70	4,651
Subtotal Hayward Source Control	19	0.2	70	4,651
Hayward Streets Maintenance				
Gasoline	71	0.7	269	18,252
Diesel	50	0.5	187	13,700
Subtotal Hayward Streets Maintenance	121	1.3	456	31,952
Hayward Traffic Maintenance				
Gasoline	18	0.2	68	4,496
Subtotal Hayward Traffic Maintenance	18	0.2	68	4,496

Government Greenhouse Gas Emissions in 2005
Detailed Report

	Equiv CO_2 (tonnes)	Equiv CO_2 (%)	Energy (MWh)	Cost ($)
Hayward Trans. Services				
Gasoline	3	0.0	10	670
Subtotal Hayward Trans. Services	3	0.0	10	670
Hayward Utilities				
Gasoline	44	0.5	168	11,302
Diesel	15	0.2	58	4,075
CNG	0	0.0	0	3,300
Subtotal Hayward Utilities	60	0.6	226	18,677
Hayward Waste Management Fleet				
Gasoline	1	0.0	3	0
Diesel	2,227	23.1	8,294	0
CNG	0	0.0	0	0
Subtotal Hayward Waste Management Fleet	2,228	23.1	8,297	0

Data Sources:

1. The City of Hayward does not own or operate the Waste Management Inc. fleet. However, it is included in the emissions inventory because waste hauling is an essential municipal service. This record comprises the portion of fuel consumed by the WM fleet for all service within the city, including the commercial/industrial, residential and government sectors. This particular data entry, the "Hayward Waste Management Fleet" was provided by David Tucker at Waste Management, DTucker2@wm.com on Oct 03, 2006. The record represents the fuel consumed by vehicles of Waste Management Company that are used to manage the waste of the city.

2. Cost data provided by Waste Management, Inc. for gasoline is currently under review by Waste Management staff. ICLEI will provide updated cost data should the numbers need to be revised.

3. CNG data provided by Waste Management, Inc. is currently under review by Waste Management staff. ICLEI will provide updated CNG data should the numbers need to be revised.

Data entered on Aug, 18, 2006 by Palak Joshi, Program Assistant, ICLEI, palak.joshi@iclei.org, (510) 844 0699. Last updated by Jennifer Holzer, Program Associate, ICLEI, July 2008, jennifer.holzer@iclei.org, 510-844-0699.

Hayward Waste Water Fleet				
Gasoline	23	0.2	85	5,393
Diesel	5	0.1	19	998
Subtotal Hayward Waste Water Fleet	28	0.3	104	6,390
Hayward Water Distribution Fleet				
Gasoline	110	1.1	415	27,774
Diesel	48	0.5	179	13,116

This report has been generated for Hayward, CA using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.

Government Greenhouse Gas Emissions in 2005
Detailed Report

	Equiv CO_2 (tonnes)	Equiv CO_2 (%)	Energy (MWh)	Cost ($)
CNG	0	0.0	0	2,654
Subtotal Hayward Water Distribution Fleet	158	1.6	593	43,544

Data submitted on July, 27, 2006 by Vera Dahle Lacaze, Solid Waste Manager, Hayward City, Vera.Dahle-Lacaze@hayward-ca.gov, (510) 583-4725 with the help of Scott Estes, Equipment Manager, Scott.Estes@hayward-ca.gov <mailto:Scott.Estes@hayward-ca.gov>, (510) 881-7914

Data entered on Aug, 21, 2006 by Palak Joshi, Program Assistant, ICLEI, palak.joshi@iclei.org, (510) 844 0699.

Notes:
1. Vehicles classified into types using the www.fueleconomy.gov.

2.CNG vehicles will be phased out by 2020 and so zero fuel consumption is noted. The projections for 2020 is provided by Scott Estes, Equipment Manager, Hayward.

Subtotal Vehicle Fleet	4,105	42.6	15,391	481,884
Streetlights				
Hayward, CA				
Streetlights				
Electricity	1,122	11.6	5,017	552,000
Subtotal Streetlights	1,122	11.6	5,017	552,000

1. The updated 2005 PG&E CO2e emission factor of 0.49 lbs/kWh of delivered electricity is verified by the California Climate Action Registry and was reported to ICLEI in January 2007 by Greg San Martin. The PG&E CO2e emissions factor of 53.05 kg/MMbtu of delivered natural gas, verified by the California Climate Action Registry and the CEC. The PG&E coefficient set does not have emissions factors for CH4 and N2O as the CO2e emissions factor includes CH4 and N2O emissions in CO2 equivalents. The business-as-usual projections for 2020 assume no change in the PG & E CO_2e emissions factor.

2. Default criteria air pollutant emissions factors are based on the Region 13 - Western Systems Coordinating Council/CNV Average Grid Electricity Set.

Traffic Signals - City Owned				
Electricity	97	1.0	435	74,000
Subtotal Traffic Signals - City Owned	97	1.0	435	74,000
Untitled				
Electricity	224	2.3	1,000	0
Subtotal Untitled	224	2.3	1,000	0
Subtotal Streetlights	1,442	15.0	6,452	626,000

This report has been generated for Hayward, CA using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.

Government Greenhouse Gas Emissions in 2005
Detailed Report

	Equiv CO_2 (tonnes)	Equiv CO_2 (%)	Energy (MWh)	Cost ($)
Water/Sewage				
Hayward, CA				
Hayward Lift Stations				
Electricity	125	1.3	561	151,401
Subtotal Hayward Lift Stations	125	1.3	561	151,401

The record includes energy consumed in the Lift stations only.

1. The updated 2005 PG&E CO2e emission factor of 0.49 lbs/kWh of delivered electricity is verified by the California Climate Action Registry and was reported to ICLEI in January 2007 by Greg San Martin. The PG&E CO2e emissions factor of 53.05 kg/MMbtu of delivered natural gas, verified by the California Climate Action Registry and the CEC. The PG&E coefficient set does not have emissions factors for CH4 and N2O as the CO2e emissions factor includes CH4 and N2O emissions in CO2 equivalents. The business-as-usual projections for 2020 assume no change in the PG & E CO_2e emissions factor.

2. Default criteria air pollutant emissions factors are based on the Region 13 - Western Systems Coordinating Council/CNV Average Grid Electricity Set.

Wastewater Treatment Plant - Hayward				
Electricity	1,056	10.9	4,723	521,000
Natural Gas	156	1.6	855	34,000
Subtotal Wastewater Treatment Plant - Hayward	1212	12.6	5,578	555,000

Current inflow for the treatment plant is 13.5 MGD. The Water Pollution Control Facities (WPCF) produces and uses electricity through bio-methane generation. Hence its consumption is not covered here. Bio-methane is produced by anaerobic digestion process and burned in the co-generation equipment.

Water supply - Hayward				
Electricity	717	7.4	3,208	378,854
Subtotal Water supply - Hayward	717	7.4	3,208	378,854

This record includes energy consumed in pump stations, reservoir, wells, cathodic protection system, PR station, underpass etc.

Subtotal Water/Sewage	2,055	21.3	9,348	1,085,255

Appendix B: Estimated Emissions Reductions

Strategy 1: Transportation and Land Use: Reduce Vehicle Miles Traveled

Overall Strategy 1 Goals

1. Reduce VMT of passenger vehicles to 30 percent below business-as-usual projections by 2050.
2. Reduce VMT of heavy trucks (diesel vehicles) to 10 percent below business-as-usual projections by 2050.

Estimated Annual Emissions Reductions

Action Number	Full Description	Estimated Annual Emissions Reductions (a) (metric tons CO2e)		Percent contribution to target reductions (b)	
		2020	2050	2020	2050
Total (community-wide actions implemented and long-term Strategy goals achieved)		**32,859**	**99,174**	**6.2%**	**9.3%**
Community-wide Actions					
Increase the Use of Alternative Modes of Transportation					
Action 1.1	Assist businesses in developing and implementing commuter benefits programs. A commuter benefits program might consist of an offer to provide discounted or subsidized transit passes, emergency ride home programs, participation in commuter rideshare programs, parking cash-out or parking pricing programs, or tax credits for bike commuters.	2,286	8,106	1.5%	0.8%
Action 1.2	Assist businesses in developing and implementing car sharing programs, such as Zip Car® or City Car Share, and encourage large employers such as the colleges and Hayward Unified School District (HUSD) to implement such programs.	416	7,283	0.3%	0.7%
Action 1.3	Modify City parking ordinances to incentivize walking, biking, and public transit by employing parking strategies that include adding bicycle parking, increasing the number of parking spots with time limits, adjusting parking time limits to correspond with adjacent building uses, increasing the number of paid parking spaces, and making space location and fees consistent with demand targets.		9,471	0.0%	0.9%
Improve Effectiveness of Transportation Circulation System					
Action 1.4	Collaborate with BART and AC Transit to explore short- and long-term opportunities to expand services (for example, to extend rapid bus service from Bay Fair to the South Hayward BART Station) and pursue a hydrogen fueling station for both buses and personal vehicle use, improve transit stations by expanding amenities at stations, and improve bus stops by adding benches and shelters.	3,062	15,199	2.0%	1.4%

Action Number	Full Description	Estimated Annual Emissions Reductions (a) (metric tons CO2e)		Percent contribution to target reductions (b)	
		2020	2050	2020	2050
Action 1.5	Continue to implement and expand the City-wide bicycle master plan through aggressive pursuit of grants and other sources of funding which could be used to expand bike lanes and bike parking facilities. Assist businesses in creating or expanding bike-to-work incentive programs, including bike sharing, adequate secure bike parking, bike maps of the City, bike safety classes, and other incentives that reward bikers.	2,419	7,610	1.6%	0.7%
Action 1.6	Develop and implement a City-wide pedestrian master plan that improves the convenience, safety, and attractiveness of and access to pedestrian ways. Update the plan on a regular basis to ensure that walkability improves over time.	1,394	7,121	0.9%	0.7%
Action 1.7	Update the City's Circulation Element of the General Plan to locate, evaluate appropriate transit modes such as street car, bus rapid transit, or other modes that eventually decrease the need for personal vehicles for travel within the City. The Plan should integrate pedestrian, bicycles, and transit modes with motor and other vehicles. When proposing changes to the transportation system, the City should consider the climate impacts and give preference to solutions that reduce auto dependency and minimize GHG emissions.	emissions reductions were not quantified			
Action 1.8	Improve traffic flow and reduce vehicle idling by means of synchronized signals, transit and emergency signal priority, and other traffic flow management techniques. When developing the program, Hayward should work with the Metropolitan Transportation Commission and the Alameda County Congestion Management Agency to expand roadway and intersection performance metrics to include pedestrian, bicycle, and level of service criteria to measure quantitative and qualitative metrics such as accessibility, intersection crossing times, and other relevant data. It is recommended that Hayward use evaluation criteria that consider costs and GHG reduction benefits of biking, walking, carpooling, and public transit.	23,061	21,875	14.9%	2.0%
Utilize Zoning & Land-use Mechanisms to Minimize Need for Transportation					
Action 1.9	In order to encourage non-automotive modes of travel, continue to implement and update the General Plan Circulation and Land Use Elements pertaining to smart growth principles that support higher-density, mixed-use, and well-designed development in areas within ½ mile of transit stations and ¼ mile of major bus routes. Amend the Municipal Code Zoning, Subdivision, and Off-Street Parking Standards to incorporate smart growth principles, policies, and development standards consistent with recommendations provided in the Appendix H and I of the CAP.	emissions reductions were not quantified			
Action 1.10	Explore the development of zoning and development standards that consider both the land uses and the urban design and form of buildings and public space, where the new standards will result in reduced GHG emissions.	emissions reductions were not quantified			
Action 1.11	Explore potential strategies related to the creation of additional affordable housing to sell to buyers employed in Hayward but who currently reside in other areas and commute to work in Hayward. For example, consider implementing a community land trust to purchase and resell foreclosed properties. The program could potentially be coordinated with local businesses.	emissions reductions were not quantified			

Action Number	Full Description	Estimated Annual Emissions Reductions (a) (metric tons CO2e)		Percent contribution to target reductions (b)	
		2020	2050	2020	2050
Action 1.12	Develop an incentive plan to maximize the number of residents that work within the City, and encourage filling local jobs first with local residents, to eliminate commutes.	emissions reductions were not quantified			
Municipal Actions					
Action 1.13	Reinstate commuter benefits such as Commuter Checks to City employees, and when possible expand or develop other commuter benefits programs such as parking cash-out or parking pricing programs, or taking advantage of the new tax credit for biking to work. The City will amend Administrative Rule 2.26 to reflect current transportation demand management opportunities.	emissions reductions were not quantified			
Action 1.14	Explore options in developing a car-sharing and/or bike sharing program for City employees. If private organizations like Zip Car are not interested in managing the car sharing program, it could be administered by the City as a benefit available to City employees only. A bike share program would also be administered by the City as a benefit to City employees.	emissions reductions were not quantified			
Action 1.15	When making decisions about where to rent or build new City facilities, give preference to locations that are accessible to an existing public transit line.	emissions reductions were not quantified			

(a) Annual estimated emissions reductions assume that program goals, which are presented in Appendix C, are achieved. Assumes Scenario 2 business- as-usual projections for fleet-average fuel economy and renewable energy generation

(b) Assuming Scenario 2 business-as-usual projections, Hayward needs to reduce community-wide emissions by 154,652 and 1,070,189 metric tons annually in 2020 and 2050, respectively.

Strategy 2: Transportation: Decrease the Carbon-Intensity of Vehicles

Overall Strategy 2 Goals

1. Increase fleet average fuel economy of passenger vehicles to 75 mpg by 2050, or achieve equivalent per mile emissions reductions using alternative vehicle technologies.
2. Increase fleet average fuel economy of heavy trucks to 11.5 mpg by 2050, or achieve equivalent per mile emissions reductions using alternative vehicle technologies.

Estimated Annual Emissions Reductions

Action Number	Full Description	Estimated Annual Emissions Reductions (a) (metric tons CO2e)		Percent contribution to target reductions (b)	
		2020	2050	2020	2050
Total (community-wide actions implemented and long-term Strategy goals achieved)		**129,060**	**532,735**	**83.5%**	**49.8%**
Community-wide Actions					
Action 2.1	Play an active role in collaborating with regional, state, and federal efforts to provide financial and non-financial incentives for residents to purchase low-carbon vehicles. For example, the City could host work sessions with regional transportation planners and policy makers, or the City may support pending legislation. They City could consider granting designated vehicles access to preferred parking spaces.	129,060	532,735	83.5%	49.8%
Action 2.2	Plan an active role in collaborating with regional, state, and federal entities to promote the use of alternative fuels and increased vehicle fuel efficiency standards. For example, Hayward may advocate for higher fuel-economy standards, or contribute to regional and state marketing and outreach efforts.	129,060	532,735	83.5%	49.8%
Municipal Actions					
Action 2.3	Continue to procure fuel-efficient and alternative fuel vehicles for municipal vehicle fleet.	54.28	108.23	5.3%	1.2%
Action 2.4	Continue to, whenever possible, negotiate an alternative fuel requirement into new services provided by the City's franchisee.	54.28	108.23	5.3%	1.2%

(a) Annual estimated emissions reductions assume that program goals, which are presented in Appendix C, are achieved. Assumes Scenario 2 business-as-usual projections for fleet-average fuel economy and renewable energy generation

(b) Assuming Scenario 2 business-as-usual projections, Hayward needs to reduce community-wide emissions by 154,652 and 1,070,189 metric tons annually in 2020 and 2050, respectively.

Strategy 3: Energy: Improve Energy Performance of Existing Buildings

Overall Strategy 3 Goals

1. Reduce electricity consumption in buildings constructed before the Green Building Ordinance took effect to 65 percent below business-as-usual projects by 2050.
2. Reduce natural gas consumption in buildings constructed before the Green Building Ordinance took effect to 50 percent below business-as-usual projects by 2050.

Estimated Annual Emissions Reductions

Action Number	Full Description	Estimated Annual Emissions Reductions (a) (metric tons CO2e)		Percent contribution to target reductions (b)	
		2020	2050	2020	2050
Total (community-wide actions implemented and long-term Strategy goals achieved)		**8,723**	**205,890**	**5.6%**	**19.2%**
Community-wide Actions					
Action 3.1	Develop and implement a Residential Energy Conservation Ordinance (RECO) for detached single-family homes which would require improved energy efficiency and energy conservation in residential buildings. Update the RECO on a regular basis to ensure buildings become more energy efficient over time. Typical energy efficiency improvements may include updates to the lighting, heating, ventilation, and air conditioning systems and improvements that lead to water conservation.	639	39,304	0.4%	3.7%
Action 3.2	Develop and implement a Residential Energy Conservation Ordinance (RECO) for multiple-unit homes which would require improved energy efficiency and energy conservation in residential buildings. Update the RECO on a regular basis to ensure buildings become more energy efficient over time. Typical energy efficiency improvements may include updates to the lighting, heating, ventilation, and air conditioning systems and improvements that lead to water conservation.	983	33,033	0.6%	3.1%
Action 3.3	Develop a Commercial Energy Conservation Ordinance (CECO) which would require improved energy efficiency and energy conservation in commercial buildings. Continuously update the CECO to ensure buildings become more energy efficient over time. Typical energy efficiency improvements may include updates to the lighting, heating, ventilation, and air conditioning systems and improvements that lead to water conservation.	5,164	105,152	3.3%	9.8%
Action 3.4	Actively participate in local low-income weatherization initiatives with the goal of weatherizing all qualifying low-income homes in Hayward.	emissions reductions were not quantified			
Action 3.5	Develop public information and education campaign to encourage every household and every business to reduce their energy consumption by 10 percent over ten years.	emissions reductions were not quantified			
Action 3.6	Develop a program to encourage or require installation of Home Energy Monitors in existing residences. Home Energy Monitors monitor energy use and provide building occupants with feedback on their real-time and long-term average energy consumption. This may be done in conjunction with Actions 3.1, 3.2, or 3.4 or 3.5.	emissions reductions were not quantified			

Action 3.7	Develop a residential energy efficiency retrofit financing program for single unit homes.	181	40,248	0.1%	3.8%
Action 3.8	Develop a residential energy efficiency retrofit financing program for multiple unit homes.	126	33,617	0.1%	3.1%
Action 3.9	Develop a commercial energy efficiency retrofit financing program.	1,630	132,025	1.1%	12.3%
Municipal Actions					
Action 3.10	Take advantage of California Energy Commission's low interest loans for efficiency retrofits and LED street lighting (http://www.energy.ca.gov/efficiency/financing)	969	1054	93.7%	11.3%
Action 3.11	Continue to implement energy conservation practices in City-owned buildings. Prepare an energy conservation plan and update it on a regular basis.	330	1542	31.9%	16.5%
Action 3.12	Improve energy performance of City buildings. Begin by auditing city buildings to identify opportunities for efficiency improvements from both operations and equipment upgrades.	330	1542	31.9%	16.5%

(a) Annual estimated emissions reductions assume that program goals, which are presented in Appendix C, are achieved. Assumes Scenario 2 business-as-usual projections for fleet-average fuel economy and renewable energy generation

(b) Assuming Scenario 2 business-as-usual projections, Hayward needs to reduce community-wide emissions by 154,652 and 1,070,189 metric tons annually in 2020 and 2050, respectively.

Strategy 4: Energy: Improve Energy Performance of New Buildings

Overall Strategy 4 Goal

1. Buildings constructed after 2030 will be carbon-neutral.

Estimated Annual Emissions Reductions

Action Number	Full Description	Estimated Annual Emissions Reductions (a) (metric tons CO2e)		Percent contribution to target reductions (b)	
		2020	2050	2020	2050
Total (community-wide actions implemented and long-term Strategy goals achieved)		**5,472**	**96,761**	**3.5%**	**9.0%**
Community-wide Actions					
Action 4.1	Continue to implement the Private Development Green Building Ordinance for residential buildings. Evaluate the program on a regular basis to ensure new buildings are getting more efficient over time.	979	18,836	0.6%	1.8%
Action 4.2	Continue to implement the Private Development Green Building Ordinance for commercial and industrial buildings. Evaluate the program on a regular basis to ensure new buildings are getting more efficient over time.	4,493	77,925	2.9%	7.3%
Municipal Actions					
Action 4.3	Continue to implement the Municipal Green Building Ordinance. Evaluate the program every 5 years to ensure buildings are becoming more efficient over time.	46.59	328.37	4.5%	3.5%

(a) Annual estimated emissions reductions assume that program goals, which are presented in Appendix C, are achieved. Assumes Scenario 2 business-as-usual projections for fleet-average fuel economy and renewable energy generation
(b) Assuming Scenario 2 business-as-usual projections, Hayward needs to reduce community-wide emissions by 154,652 and 1,070,189 metric tons annually in 2020 and 2050, respectively.

Strategy 5: Energy: Use Renewable Energy

Overall Strategy 5 Goal

1. 100 percent renewable electricity generation by 2050

Estimated Annual Emissions Reductions

Action Number	Full Description	Estimated Annual Emissions Reductions (a) (metric tons CO2e)		Percent contribution to target reductions (b)	
		2020	2050	2020	2050
Total (community-wide actions implemented and long-term Strategy goals achieved)		**14,598**	**80,409**	**9.4%**	**7.5%**
Community-wide Actions					
Action 5.1	Develop a program for the financing and installation of photovoltaic renewable energy systems on residential building including single and multiple family residential buildings and mobile homes. Set a target for total MW to be installed.	850	2,149	0.5%	0.2%
Action 5.2	Develop a program for the financing and installation of photovoltaic renewable energy systems on commercial buildings. Set a target for total MW to be installed.	10,768	22,822	7.0%	2.1%
Action 5.3	Incorporate a renewable energy requirement into Private Development Green Building Ordinance.	2,980	24,660	1.9%	2.3%
Action 5.4	Increase the renewable portion of utility electricity generation by advocating for increased state-wide renewable portfolio standards; and consider participating in community choice aggregation, or other means.		30,779	0.0%	2.9%
Municipal Actions					
Action 5.5	Conduct a city-wide renewable energy assessment to estimate the total renewable energy potential and costs and benefits of developing that potential within City bounds. Develop a plan for capturing all cost-effective opportunities.	76.4	2,226	7.4%	23.8%
Action 5.6	Ensure that all new City owned facilities are built with PV and/or solar hot water systems as appropriate to their functions.	76.4	2,226	7.4%	23.8%

(a) Annual estimated emissions reductions assume that program goals, which are presented in Appendix C, are achieved. Assumes Scenario 2 business-as-usual projections for fleet-average fuel economy and renewable energy generation

(b) Assuming Scenario 2 business-as-usual projections, Hayward needs to reduce community-wide emissions by 154,652 and 1,070,189 metric tons annually in 2020 and 2050, respectively.

Strategy 6: Solid Waste: Increase Waste Reduction and Recycling

Overall Strategy 6 Goal

1. Eliminate emissions associated with methane emissions from solid-waste management by 2050.

Estimated Annual Emissions Reductions

Action Number	Full Description	Estimated Annual Emissions Reductions (a) (metric tons CO2e)		Percent contribution to target reductions (b)	
		2020	2050	2020	2050
Total (community-wide actions implemented and long-term Strategy goals achieved)		**21,851**	**68,798**	**14.1%**	**6.4%**
Community-wide Actions					
Action 6.1	Increase participation in existing commercial recycling services by hiring a consultant to contact businesses to offer assistance in implementing waste reduction and recycling programs or expanding current programs.	15,916	38,216	10.3%	3.6%
Action 6.2	Continue to implement and promote food scraps collection for single-family homes. Over time, expand food-scraps collection programs with the goal of minimizing organic waste in the landfill.	1,495	11,963	1.0%	1.1%
Action 6.3	Improve the City's construction and demolition debris recycling ordinance by evaluating other jurisdictions' provisions, as well as the processing capabilities of the various transfer stations and facilities in Alameda County and adjacent counties.	1,953	15,634	1.3%	1.5%
Action 6.4	Evaluate the viability of implementing a ban on certain materials from landfill, e.g., yard trimmings, untreated wood, cardboard, plastic bags, or polystyrene.	2,487	2,986	1.6%	0.3%
Action 6.5	Evaluate the viability of requiring that residents and/or businesses participate in the recycling programs offered through the City's franchisee.	emissions reductions were not quantified			
Action 6.6	Develop program that encourages overall reduction of waste in residential and commercial sectors. This would include increasing participation in recycling services at multi-family properties and to eventually make recycling by commercial businesses mandatory.	253	304	0.2%	0.0%
Action 6.7	Advocate for waste management strategies that aim to maximize the useful value of solid waste by, for example, utilizing landfill gas to create electricity.	emissions reductions were not quantified			
Municipal Actions					
Action 6.8	Continue to implement recycling programs in City-occupied buildings.	31.86	70.94	3.1%	0.8%
Action 6.9	Implement organics collection programs in City-occupied buildings.	73.34	163.3	7.1%	1.7%
Action 6.10	Develop an Environmentally Friendly Purchasing Policy.	emissions reductions were not quantified			

(a) Annual estimated emissions reductions assume that program goals, which are presented in Appendix C, are achieved. Assumes Scenario 2 business-as-usual projections for fleet-average fuel economy and renewable energy generation
(b) Assuming Scenario 2 business-as-usual projections, Hayward needs to reduce community-wide emissions by 154,652 and 1,070,189 metric tons annually in 2020 and 2050, respectively.

Strategy 7: Sequester Carbon

Overall Strategy 7 Goal

1. Plant 10,500 trees by 2030

Estimated Annual Emissions Reductions

Action Number	Full Description	Estimated Annual Emissions Reductions (a) (metric tons CO2e)		Percent contribution to target reductions (b)	
		2020	2050	2020	2050
Total (community-wide actions implemented and long-term Strategy goals achieved)			**284**	**0.0%**	**0.0%**
Community-wide Actions					
Action 7.1	Develop and implement a program to maximize carbon sequestration activities occurring within Hayward. Activities may include planting trees or managing wetlands.	0	284	0.0%	0.0%
Municipal Actions					
Action 7.2	Develop a protocol for maximizing carbon sequestration on municipal property by way of planning trees or other methods.	5.4	32.4	0.5%	0.3%

(a) Annual estimated emissions reductions assume that program goals, which are presented in Appendix C, are achieved. Assumes Scenario 2 business-as-usual projections for fleet-average fuel economy and renewable energy generation
(b) Assuming Scenario 2 business-as-usual projections, Hayward needs to reduce community-wide emissions by 154,652 and 1,070,189 metric tons annually in 2020 and 2050, respectively.

Strategy 8: Climate Change Adaptation

Overall Strategy 8 Goal

1. No goals established

Estimated Annual Emissions Reductions

Action Number	Full Description	Estimated Annual Emissions Reductions (a) (metric tons CO2e)		Percent contribution to target reductions (b)	
		2020	2050	2020	2050
Total (community-wide actions implemented and long-term Strategy goals achieved)		**N/A**	**N/A**	**N/A**	**N/A**
Community-wide Actions					
Action 8.1	PLACE HOLDER - ACTIONS NOT DEFINED				
Municipal Actions					
Action 8.2	PLACE HOLDER - ACTIONS NOT DEFINED				

(a) Annual estimated emissions reductions assume that program goals, which are presented in Appendix C, are achieved. Assumes Scenario 2 business-as-usual projections for fleet-average fuel economy and renewable energy generation

(b) Assuming Scenario 2 business-as-usual projections, Hayward needs to reduce community-wide emissions by 154,652 and 1,070,189 metric tons annually in 2020 and 2050, respectively.

Strategy 9: Engage and Educate Community

Overall Strategy 9 Goal

1. No specific goals defined

Estimated Annual Emissions Reductions

Action Number	Full Description	Estimated Annual Emissions Reductions (a) (metric tons CO2e)		Percent contribution to target reductions (b)	
		2020	2050	2020	2050
Total (community-wide actions implemented and long-term Strategy goals achieved)		**emissions reductions were not quantified**			
Community-wide Actions					
Action 9.1	Create a stand-alone Green Portal, or website, that would serve as the City's hub for all things green. The site would contain a dedicated area for green building, all programs related to the climate action plan, and information about local green jobs and training. The portal will ensure that all residents and businesses have access to information on the City's climate-related initiatives.	emissions reductions were not quantified			
Action 9.2	Develop and implement a plan that aims to engage residents in the City-wide effort to reduce emissions. The plan will be designed to reach residents of all ages, races, and classes on how to reduce GHG emissions and will introduce residents to City climate action programs. This plan will incorporate a long-term plan to involve K-12 schools and universities and utilize the most effective means of engaging the broader community.	emissions reductions were not quantified			
Action 9.3	Develop and implement an outreach plan to engage local businesses in climate-related programs. This program should provide a benefit for both local government and businesses: the City, will aim to provide businesses with information on local, state, and federal programs, and businesses should be given the opportunity to provide input on ways local government could help streamline their efforts to reduce emissions. In developing this plan, the City will explore options for engaging the Chamber of Commerce, the Keep Hayward Clean and Green Taskforce, the Alameda County Green Business Program, and other business councils.	emissions reductions were not quantified			
Municipal Actions					
Action 9.4	Offer a GHG reductions education program in which employees will learn about programs the City already offers or will offer in the future to residents and businesses.	emissions reductions were not quantified			
Action 9.5	Show leadership by setting targets to reduce municipal emissions and work diligently to meet targets.	emissions reductions were not quantified			

Action 9.6	When awarding contracts, professional service agreements, grants, etc. to businesses or non-profit agencies, the City will request proposals or applications to include information about the sustainability practices of the organization.	emissions reductions were not quantified
(a) Annual estimated emissions reductions assume that program goals, which are presented in Appendix C, are achieved. Assumes Scenario 2 business-as-usual projections for fleet-average fuel economy and renewable energy generation (b) Assuming Scenario 2 business-as-usual projections, Hayward needs to reduce community-wide emissions by 154,652 and 1,070,189 metric tons annually in 2020 and 2050, respectively.		

This page left intentionally blank for double sided printing.

Appendix C: Methodology Report: Calculation of Estimated Emissions Reductions

This appendix explains methodology used to determine estimated emissions reductions from strategies and actions proposed in the Climate Action Plan. Strategy specific definitions are included when necessary in order to ensure accurate description and interpretation. The Climate Action Plan includes many actions which will collectively allow the City to achieve its overall emissions reduction target.

The Climate Action Plan covers a range of 40 years, which is a very long planning horizon. Therefore, calculations and forecasts are subject to error due to potential unforeseen factors which may arise in the future. However, every effort has been made to create realistic recommendations based on data which is currently available.

It is essential to recognize that each action has associated program goals.. The CAP includes recommended program goals that HDR believes are reasonable to achieve., Some examples of program goals include targeted percentage reduction in number of single occupancy vehicles, or goals for percentage of citizens participating in a program. When designing programs, City staff should keep program goals in mind and work to design programs so that program goals are achieved or exceeded.

Most actions include multiple phases. A phased-in approach is used to calculate emission reductions in order to account for potential legislative or technological changes which may take place in the future and due to the assumption that the goals of a program may change in the future.

Hayward opted to adopt state-wide emissions reductions goals. State-wide emission targets are based on a 1990 baseline but Hayward's inventory uses a 2005 baseline. To address the difference in the state and City baseline years, the City calculated what the state goals would be if they were calculated from a 2005 baseline and found that the targets would to reduce emissions to be 12.5 percent below the 2005 level by 2020 and 83 percent below the 2005 level by 2050 (as compared to matching 1990 levels by 2020 and 80 percent below 1990 levels by 2050). Phrasing the target based on 2005 emissions levels does not change the targeted quantity of emissions; specifically California's goal is for emissions to be no more than 85.3 million metric tons CO_2e in 2050. This is equivalent to 80 percent below the 1990 emissions (427 million metric tons CO_2e) or 82.5 percent below the 2005 emissions (480 million metric tons CO_2e).

Strategy 1

Overall Strategy 1 Goals

1. Reduce VMT of passenger vehicles to 30 percent below business-as-usual projections by 2050.
2. Reduce VMT of heavy trucks (diesel vehicles) to 10 percent below business-as-usual projections by 2050.

Strategy 1 Definitions

- Commuter – based on definition used by MTC, a commuter is quantified by counting any person entering or leaving Hayward. The calculation does not include through traffic. The source of commuter data was the Census Transportation Planning Package; Complete data is available at: ftp://ftp.abag.ca.gov/pub/mtc/census2000/CTPP/flowdata/CTPP2000_California_PlaceFlow_SelVars.zip For more information about the Census Transportation Planning Package go to: http://www.mtc.ca.gov/datamart/census/ctpp2000/

- New Commuter – is calculated based on growth in total number of commuters by using demographic projections of population growth from ABAG. Growth factors are presented in Section 2 of the Plan.
- SOV – single occupancy vehicle; individual traveling alone in vehicle without other passengers.
- "Commuters switching from SOV" - implies that a given number of single occupancy vehicles have been removed from the road completely. Data from MTC, fuel economy and a fuel emissions factor were used to calculated emissions reductions achieved by taking one SOV off the road.

Assumptions Applicable to Every Action within Strategy 1

- The CAP only attempts to quantify the emissions impacts of commuter mode shifts. It does not attempt to quantify emissions impacts of reduced personal travel.
- The Emissions reductions quantified in the analyses below do not result in enough savings to achieve the overall goal of reducing VMT in passenger vehicles to 30 percent below BAU projections.
- The CAP does not identify opportunities to reduce VMT of heavy trucks.
- The business-as-usual assumption is that the average fuel economy of all gasoline-powered vehicles traveling on Hayward's roadways will increase to 25 mpg by 2020 and 45 mpg by 2050. This assumption takes into account pending increases in CAFE standards and assumes that over time, as individuals replace older cars with newer more full-efficient cars, the average fuel economy for the entire fleet of cars driving on Hayward's roadways will increase (see Section 2 of the CAP)
- Unless noted otherwise, it is assumed that the round-trip commute distance is 27 miles per day. This value was calculated using MTC's commuter census data from the 2000 census year. Based on the assumption that the average commuter travels 250 days per year (50 weeks/yr x 5 days/week = 250 days/year) then the average commuter traveled 6083 miles/year (27 miles/day x 250 days/year = 6083 miles/ear).
- An emissions factor of 9.04 metric tons of CO_2e per 1000 gallons of gasoline burned in gasoline-powered vehicles. This emissions factor takes into account the mix of gasoline-powered vehicles that travel on Hayward's roadways and was calculated by ICLEI. . Emissions factors are used to calculate total emissions and reductions.
- An emissions factor of 9.88 metric tons of CO_2e per 1000 gallons of diesel burned in diesel-powered vehicles. This emissions factor takes into account the mix of gasoline-powered vehicles that travel on Hayward's roadways and was calculated by ICLEI. . Emissions factors are used to calculate total emissions and reductions.
- Program goals are assumed to be achieved by the end of each phase.
- Emissions savings from diesel-powered vehicles are not include in estimated emissions savings that result in a reduction in the number of commuters traveling in single occupancy vehicles (SOVs). This assumption is justified by the fact that a vast majority of vehicles used for commuting purposes are gasoline-powered vehicles, not diesel-powered vehicles. So any reduction in diesel consumption from reducing number of SOV commuters is minimal and statistically insignificant. It is assumed that a reduction in SOV travel leads to a reduction in gasoline consumption due to the fact that most personal vehicles are gasoline powered.
- The emissions impacts of expanded transit to accommodate increased ridership were not evaluated.

Action 1.1 – Assist businesses in providing commuter benefits programs

Action-specific Assumptions

No action-specific assumptions

Program Goals

- **Phase 1** (2012 – 2017) – The goal of the first phase of this program is to switch 5% of new commuters from SOV to alternative forms of transit.
- **Phase 2** (2018 – 2050) – The goal of the second phase of this program is to switch 8% of new commuters from SOV to alternative forms of transit.

Program Impacts

- By the end of phase 1, the total number of commuters is expected to increase from 110,291 to 118,864, which represents an addition of 8,600 new commuters. Phase 1 of the program is expected to switch 5% of these 8,574 new commuters to alternative forms of transit which will result in 429 SOV commuters switching to a different mode of transit and lead to an estimated annual emissions savings of 1,121 metric tons of CO_2e by the end of the first phase.
- By the end of phase 2, the total number of commuters is expected to increase from 118,864 to 194,819, which represents an addition of 75,955 new commuters. By the end of phase 2, the goal is to get 8% of these new commuters to use alternative forms of transit which will result in 5,500 SOV commuters switching to a different mode of transit and lead to an estimated annual emissions savings of 7,520 metric tons of CO_2e by the end of the second phase.

Action 1.2 – Establish car share / bike share program

Action-specific Assumptions

No action-specific assumptions

Program Goals

- **Phase 1** – (2015 – 2020) The goal is to switch 2% of new commuters from SOV to alternative forms of transit by the end of the phase.
- **Phase 2** – (2021 – 2050) The goal is to switch 8% of new commuters from SOV to alternative forms of transit by the end of the phase.

Program Impacts

- By the end of phase 1, the total number of commuters is expected to increase from 115,358 to 124,325, which represents an addition of 8,967 new commuters. If program goals are achieved, 2% of these new commuters to alternative forms of transit which will result in removing 179 SOVs from the road and lead to an estimated annual emissions savings of 416 metric tons of CO_2e by the end of the first phase (in 2020). It is assumed that by the end of phase 1, there will be 9 car-share vehicles will be available and the average fuel economy of the car-share vehicle would be 40 mpg
- By the end of phase 2, the total number of commuters is expected to increase from 126,200 to 194,819, which represents an addition of 68,619 new commuters. Phase 2 of the program is expected to switch 8% of new commuters to alternative forms of transit which will result in removing 6,218 SOVs from the road and leads to an estimated annual emissions savings of 7,062metric tons of CO_2e by the end of the second phase. It is assumed that during phase 274 car share vehicles will be available and the average fuel economy of the car-share vehicle would be 65 mpg.

Action 1.3 – Update parking policies to encourage reduction in vehicle travel

It is assumed that residents will use transit, walk, ride bikes, or carpool to locations within Hayward therefore the program will only reduce fuel consumption on local roads. It is also assumed that a reduction in VMT is from gasoline-powered vehicles since most personal vehicles are gasoline-powered.

Action-specific Assumptions

No action-specific assumptions

Program Goals

- **Phase 1** (2025 – 2030) – The goal of the first phase of this program is a reduction of 1% of vehicle miles traveled on local roads.
- **Phase 2** (2031 – 2050) – The goal of the second phase of this program is a reduction of 5% of vehicle miles traveled on local roads.

Program Impacts

- Without a program, the projected business-as-usual VMT on local roads for the year Phase 1 ends is 699,023,072. Phase 1 of the program is expected to reduce 1% of local VMT which occur during this phase and which lead to an estimated annual emissions savings of 1,995 metric tons of CO_2e by the end of the first phase.
- Without a program, the projected business-as-usual VMT on local roads for the year Phase 2 ends is 943,062,433. Phase 2 of the program is expected to reduce 5% of local VMT which occur during this phase and which lead to an estimated annual emissions savings of 8,067 metric tons of CO_2e by the end of the second phase.

Action 1.4 – Expand transit services to encourage reduction in vehicle travel

Action-specific Assumptions

It is assumed that that there will be coordination and cooperation at the county and regional level.

Program Goals

- **Phase 1** (2012 – 2017) – The goal of the first phase of this program is to switch 3% of new commuters from SOV to alternative forms of transit.
- **Phase 2** (2018 – 2050) – The goal of the second phase of this program is to switch 15% of new commuters from SOV to alternative forms of transit.

Program Impacts

- By the end of phase 1, the total number of commuters is expected to increase from 110,291 to 118,864, which represents an addition of 8,574 new commuters. Phase 1 of the program is expected to switch 3% of new commuters to alternative forms of transit which will result in removing 257 SOVs from the road and will lead to an estimated annual emissions savings of 672 metric tons of CO_2e by the end of the first phase.
- By the end of phase 2, the total number of commuters is expected to increase from 120,657 to 194,819, which represents an addition of 74,162 new commuters. Phase 2 of the program is expected to switch 15% of new commuters to alternative forms of transit which will result in removing 11,124 SOVs from the road and will lead to an estimated annual emissions savings of 14,848 metric tons of CO_2e by the end of the second phase.

Action 1.5 – Continue to implement bike master-plan

Action-specific Assumptions

Average trip length for a walking commuter is 6.5 miles. This was estimated using MTC commute census data. So the annual reduction in VMT from commuters switching from SOV to walking is equal to 1625 miles (6.5 miles per trip x 2 trips per day x 250 days per year = 3,250 miles per commuter per year).

Program Goals

- **Phase 1** (2008 – 2015) – The goal of the first phase of this program is to switch 4% of new commuters from SOV to alternative forms of transit.
- **Phase 2** (2016 – 2050) – The goal of the second phase of this program is to switch 15% of new commuters from SOV to alternative forms of transit.

Program Impacts

- By the end of phase 1, the total number of commuters is expected to increase from 103,875 to 115,358, which represents an addition of 11,478 new commuters. Phase 1 of the program is expected to switch 4% of new commuters to alternative forms of transit which will result in removing 459 SOVs from the road and will lead to an estimated annual emissions savings of 598 metric tons of CO_2e by the end of the first phase.
- By the end of phase 2, the total number of commuters is expected to increase from 117,098 to 194,819, which represents an addition of 77,721 new commuters. Phase 2 of t_he program is expected to switch 15% of new commuters to alternative forms of transit which will result in removing 11,658 SOVs from the road and will lead to an estimated annual emissions savings of 7,310 metric tons of CO_2e by the end of the second phase.

Action 1.6 – Develop and implement pedestrian master-plan

Action-specific Assumptions

Average trip length for a walking commuter is 3.25 miles. This was estimated using MTC commute census data. So the annual reduction in VMT from commuters switching from SOV to walking is equal to 1625 miles (3.25 miles per trip x 2 trips per day x 250 days per year = 1,625 miles per commuter per year).

Program Goals

- **Phase 1** (2012 – 2017) – The goal of the first phase of this program is to switch 5% of new commuters from SOV to alternative forms of transit.
- **Phase 2** (2018 – 2050) – The goal of the second phase of this program is to switch 15% of new commuters from SOV to alternative forms of transit.

Program Impacts

- By the end of phase 1, the total number of commuters is expected to increase from 110,291 to 118,864, which represents an addition of 8,574 new commuters. Phase 1 of the program is expected to switch 5% of new commuters to alternative forms of transit which will result in removing 429 SOVs from the road and will lead to an estimated annual emissions savings of 268 metric tons of CO_2e by the end of the first phase.
- By the end of phase 2, the total number of commuters is expected to increase from 120,657 to 194,819, which represents an addition of 74,162 new commuters. Phase 2 of the program is expected to switch 15% of new commuters to alternative forms of transit which will result in removing 11,124 SOVs from the road and will lead to an estimated annual emissions savings of 6,981 metric tons of CO_2e by the end of the second phase.

Action 1.7 – Evaluate expansions of appropriate modes of transit

Direct emissions savings are not accounted for in Action 7 in order to avoid double counting since emissions savings will be captured in other Strategy 1 actions.

Action 1.8 – Prioritize traffic-flow management practices to reduce idling time

Action-specific Assumptions

There is only one phase of this project due to the fact that it relies upon a one-time installation of equipment. The program results in the reduction of idling which leads to a decrease in fuel consumption. Both diesel and gasoline powered vehicle emissions are included in this calculation because all projected gasoline consumption is based on MTC forecasted growth.

Program Goal

- **Phase 1** (2015 – 2018) – The goal of this program is to reduce gasoline and fuel consumption by 1%.

Program Impacts

- After implementing this program total gasoline and diesel consumption is expected to decrease by about 1%. The annual reduction in gasoline and diesel consumption in 2018 is estimated to be 24.1 million gallons and 67,600 gallons, respectively. Preventing this fuel from being combusted is expected to reduce GHG emissions by 23,152 metric tons CO_2e in 2018.

Actions 1.9 – Require high-density, mixed-use, smart-growth development

GHG savings from these actions are not calculated or evaluated due to lack of sufficient data.

Actions 1.10 – Increase availability of affordable employee housing

GHG savings from these actions are not calculated or evaluated due to lack of sufficient data.

Action 1.11 – Increase availability of affordable employee housing

Action-specific Assumptions

No action-specific assumptions

Program Goals

- **Phase 1** (2015 – 2020) – The goal of the first phase of this program is to switch 1% of new commuters from SOV to alternative forms of transit.
- **Phase 2** (2021 – 2050) – The goal of the second phase of this program is to switch 4% of new commuters from SOV to alternative forms of transit.

Program Impacts

- By the end of phase 1, the total number of commuters is expected to increase from 115,358 to 124,325, which represents an addition of 8,967 new commuters. Phase 1 of the program is expected to switch 1% of new commuters to alternative forms of transit which will result in removing 90 SOVs from the road and will lead to an estimated emissions annual savings of 221 metric tons of CO_2e by the end of the first phase.
- By the end of phase 2, the total number of commuters is expected to increase from 126,200to 194,819, which represents an addition of 68,619 new commuters. Phase 2 of the program is expected to switch 4% of new commuters to alternative forms of transit which will result in removing 2,655 SOVs from the road and will lead to an estimated emissions annual savings of 3,628 metric tons of CO_2e by the end of the second phase.

Strategy 2

Overall Strategy 2 Goals

1. Increase fleet average fuel economy of passenger vehicles to 75 mpg by 2050, or achieve equivalent per mile emissions reductions using alternative vehicle technologies.
2. Increase fleet average fuel economy of heavy trucks to 11.5 mpg by 2050, or achieve equivalent per mile emissions reductions using alternative vehicle technologies.

Strategy 2 Definitions

Definitions for Strategy 1 are applicable to Strategy 2.

Assumptions Applicable to Every Action within Strategy 2

It is assumed that fuel economy in Hayward is going to be higher than the national average because programs in this strategy incentivize Hayward residents to purchase fuel efficient vehicles which will result in Hayward's average fuel economy to raise above the overall average fuel economy. Emissions savings are calculated for the entire strategy rather than individual actions.

Actions 2.1 – Provide incentives for low-carbon vehicles and low-carbon fuels

Action 2.2 – Collaborate the state and federal government on policies that promote low-carbon vehicles and low-carbon fuels.

Action-specific Assumptions

The impacts of actions 1 and 2 were calculated together.

Program Goals

- **Phase 1** – (2010 – 2020) The goal of the first phase of this program is to increase the average fuel economy of Hayward's local fleet to 30 mpg for gasoline powered vehicles and 7 mpg for diesel powered vehicles.
- **Phase 2** – (2021 – 2050) The goal of the second phase of this program is to increase the average fuel economy of Hayward's local fleet to 60 mpg for gasoline powered vehicles and 9.5 mpg for diesel powered vehicles.

Program Impacts

- Without implementing any programs in this strategy, at the end of phase 1 Hayward's average fuel economy is expected to be 25 MPG and 6.8 MPG for gasoline and diesel vehicles, respectively. In 2020, projected gasoline consumption (using the BAU fuel economy of 25 MPG) is expected to be about 61.6 million gallons per year. Implementing programs in this area will allow for a reduction in gasoline consumption to 51.3 million gallons which is a savings of about 10.3 million gallons. Reduced gasoline and diesel use is estimated to result in 97,734 metric tons of CO_2e savings in 2020.
- Without implementing any programs in this strategy at the end of phase 2, Hayward's average fuel economy is expected to be 40 MPG and 9.0 MPG for gasoline and diesel vehicles, respectively. In 2050, projected gasoline consumption (using the BAU fuel economy of 40 MPG) is expected to be 53.6 million gallons per year. Implementing programs in this area will allow for a reduction in gasoline consumption to 48.3 million gallons which is a savings of 5.4 million gallons. Reduced gasoline and diesel use is estimated to result in 70,744 metric tons of CO_2e savings in 2050.

Strategy 3

Overall Strategy 3 Goals

1. Reduce electricity consumption in buildings constructed before the Green Building Ordinance took effect to 65 percent below business-as-usual projections by 2050.
2. Reduce natural gas consumption in buildings constructed before the Green Building Ordinance took effect to 50 percent below business-as-usual projections by 2050.

Strategy 3 Definitions

Renewable energy – energy derived from natural resources that are naturally replenished. Such resources include, sun, wind, tidal currents, and geothermal heat.

Assumptions Applicable to Every Action within Strategy 3

- For all actions within Strategy 3, the data source for electricity consumption is PG&E.
- Emissions factor of electricity supplied from the local utility changes over time because the sources of electricity generation change over time. It is assumed that in 33 percent of the electricity supplied from the local utility in 2020 will be generated using renewable sources, and that 40 percent of the electricity supplied from the local utility in 2050 will be generated using renewable source (see Section 2 of the CAP).
- It is assume that electricity generated from renewable sources does not emit any GHG emissions (emission factor = 0 tons CO_2e/MWh)
- This action only quantifies reductions for existing building stock since any new construction will be subject to the new green building ordinance.

Action 3.1 – Develop and implement residential energy conservation ordinance (RECO) for single-family homes

Action-specific Assumptions

It was estimated that there were 27,801 single-unit residential buildings in Hayward before the Green Building Ordinance took effect. This value was estimated using ABAG projections. Mobile homes are not included in the calculation.

Potential natural gas and electricity savings were estimated based on outcomes from Lawrence Berkley National Laboratory's Home Energy Saver calculator.[117] The model estimates that it is possible to achieve 19.5% energy savings and 56% natural gas savings in a building constructed in Hayward in 1960. For this calculation, it is assumed that these savings would not be achieved, but these savings were used for guidance in developing the program goals.

Program Goals

- **Phase 1** (2012 – 2017) – The goal of the first phase is to reduce electricity use by 1% and reduce natural gas use by 2.5% in participating single-unit homes. The goal is to get 12.5 % of residential units that were constructed before the City's Green Building Ordinance took effect to participate in the program by the end of the phase.
- **Phase 2** (2018 – 2030) – The goal of the second phase of this program is to reduce electricity and natural gas use by 20% in participating single-unit homes. The goal is to get 45 % of residential units that were

[117] http://hes3.lbl.gov/hes/ZipCarbon.taf?f=ZipCarbon&session_id=1252964

constructed before the City's Green Building Ordinance took effect to participate in the program by the end of the phase.

- **Phase 3** (2031 – 2050) – The goal of the third phase of this program is to reduce electricity use by 100% and reduce natural gas use by 75% in participating single-unit homes. The goal is to get 100 % of residential units that were constructed before the City's Green Building Ordinance took effect to participate in the program by the end of the phase.

Program Impacts

- During Phase 1, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 17.27 MMBTU per unit. Projected electricity savings are 606 MMBTU. The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 40.03 MMBTU per unit. Projected natural gas savings are 3,567 MMBTU. The estimated annual emissions savings is 223 metric tons of CO_2e by the end of the first phase.
- During Phase 2, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 13.95 MMBTU per unit. Projected electricity savings are 12,728 MMBTU. The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 32.84 MMBTU per unit. Projected natural gas savings are 32,101 MMBTU. The estimated annual emissions savings is 2,330 metric tons of CO_2e by the end of the second phase.
- During Phase 3, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 0.0 MMBTU per unit. Projected electricity savings are 279,405 MMBTU. The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 10.26 MMBTU per unit. Projected natural gas savings are 502,922MMBTU. The estimated annual emissions savings is 39,377 metric tons of CO_2e by the end of the third phase.

Action 3.2 – Develop and implement residential energy conservation ordinance (RECO) for multiple-family homes

Action-specific Assumptions

It was estimated that there were 18,171 multiple-unit residential buildings in Hayward in 2008. This value was estimated using ABAG projections. Mobile homes are not included in the calculation.

Potential natural gas and electricity savings were estimated based on outcomes from Lawrence Berkley National Laboratory's Home Energy Saver calculator.[118] The model estimates that it is possible to achieve 19.5% energy savings and 56% natural gas savings in a building constructed in Hayward in 1960. For this calculation, it is assumed that these savings would not be achieved, but these savings were used for guidance in developing the program goals.

[118] http://hes3.lbl.gov/hes/ZipCarbon.taf?f=ZipCarbon&session_id=1252964

Program Goals

- **Phase 1** (2012 – 2017) – The goal of the first phase is to reduce electricity use by 1% and reduce natural gas use by 2.5% in participating multiple-unit homes. The goal is to get 12.5 % of residential units that were constructed before the City's Green Building Ordinance took effect to participate in the program by the end of the phase.
- **Phase 2** (2018 – 2030) – The goal of the second phase of this program is to reduce electricity use by 20% and reduce natural gas use by 20% in participating multiple-unit homes. The goal is to get 45 % of residential units that were constructed before the City's Green Building Ordinance took effect to participate in the program by the end of the phase.
- **Phase 3** (2031 – 2050) – The goal of the third phase of this program is to reduce electricity use by 100% and reduce natural gas use by 75% in participating multiple-unit homes. The goal is to get 100 % of residential units that were constructed before the City's Green Building Ordinance took effect to participate in the program by the end of the phase.

Program Impacts

- During Phase 1, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 17.27 MMBTU per unit. Projected electricity savings are 404 MMBTU. The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 40.03 MMBTU per unit. Projected natural gas savings are 2,378 MMBTU. The estimated annual emissions savings is 149 metric tons of CO_2e by the end of the first phase.
- During Phase 2, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 13.95 MMBTU per unit. Projected electricity savings are 20,599 MMBTU. The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 32.84 MMBTU per unit. Projected natural gas savings are 50,869 MMBTU. The annual emissions savings of 3,712 metric tons of CO_2e by the end of the second phase.
- During Phase 3, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 0.0 MMBTU per unit. Projected electricity savings are 213,917 MMBTU The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 10.26 MMBTU per unit. Projected natural gas savings are 428,542 MMBTU. The annual emissions savings is 32,474 metric tons of CO_2e by the end of the third phase.

Action 3.3 – Develop and implement commercial energy conservation ordinance

Action-specific Assumptions

This action only quantifies reductions for existing building stock since any new construction will be subject to the new green building ordinance. Only square footage data was available therefore calculation was made using total square footage. The total square footage of commercial space in Hayward in 2008 was 48,317,391 square feet. Emissions reductions are reported per square foot. Other applicable calculations and assumptions are the same as previous action.

Program Goals

- **Phase 1** (2012 – 2017) – The goal of the first phase of this program is to reduce electricity use by 1% and reduce natural gas use by 2% in participating commercial buildings. The goal is to get 12.5 % of commercial units that were constructed before the City's Green Building Ordinance took effect to participate in the program by the end of the phase.

- **Phase 2** (2018 – 2025) – The goal of the second phase of this program is to reduce electricity use by 20% and reduce natural gas use by 20% in participating commercial buildings. The goal is to get 45 % of commercial units that were constructed before the City's Green Building Ordinance took effect to participate in the program by the end of the phase.
- **Phase 3** (2026 – 2050) – The goal of the third phase of this program is to reduce electricity use by 100% and reduce natural gas use by 75% in participating commercial units. The goal is to get 100 % of commercial units that were constructed before the City's Green Building Ordinance took effect to participate in the program by the end of the phase.

Program Impacts

- During Phase 1, the projected electricity consumption without the program is 0.04796 MMBTU per square foot. With a program, the projected electricity consumption is 0.04748 MMBTU per square foot. Projected electricity savings are 2,897 MMBTU. The projected natural gas consumption without the program is 0.0334MMBTU per square foot. With a program, the projected natural gas consumption is 0.0328MMBTU per square foot. Projected natural gas savings are 4,040 MMBTU. The estimated annual emissions savings is 370 metric tons of CO_2e by the end of the first phase.
- During Phase 2, the projected electricity consumption without the program is 0.04796 MMBTU per square foot. With a program, the projected electricity consumption is 0.03837 MMBTU per square foot. Projected electricity savings are 150,629 MMBTU. The projected natural gas consumption without the program is 0.0334 MMBTU per square foot. With a program, the projected natural gas consumption is 0.0268 MMBTU per square foot. Projected natural gas savings are 109,084 MMBTU. The estimated annual emissions savings is 13,216 metric tons of CO_2e by the end of the second phase.
- During Phase 3, the projected electricity consumption without the program is 0.04796 MMBTU per square foot. With a program, the projected electricity consumption is 0.0 MMBTU per square foot. Projected electricity savings are 1,274,554 MMBTU. The projected natural gas consumption without the program is 0.0334MMBTU per square foot. With a program, the projected natural gas consumption is 0.0084MMBTU per square foot. Projected natural gas savings are 775,712 MMBTU. The estimated annual emissions savings is98,411metric tons of CO_2e by the end of the third phase.

Actions 3.4 – promote residents and businesses to voluntary commit to reducing energy consumption

GHG savings from these actions are not calculated or evaluated due to lack of sufficient data.

Action 3.5 – promote use of home energy monitors

GHG savings from these actions are not calculated or evaluated due to lack of sufficient data.

Action 3.6 – provide energy efficiency financing for single-family homes

Action-specific Assumptions

This program is vital to the success of the Residential Energy Conservation Ordinances, actions 3.1 and 3.2. Because the two programs will work in synergy, the emissions savings that are achieved because of the RECO should also be attributed to the financing program. To avoid double counting emissions reductions, the emissions reductions that can also be attributed to the RECO are not included in saving reported for this action.

Program Goals

- **Phase 1** (2011- 2015) – The goal of the first phase of this program is to reduce electricity use by 8% and reduce natural gas use by 8% in participating residential buildings (including single-unit, multiple-unit,

and mobile home units). The goal is to get 1.5 % of residential units that were constructed before the City's Green Building Ordinance took effect will participate in the program during this phase.

- **Phase 2** (2016- 2025) – The goal of the second phase of this program is to reduce electricity use by 20% and reduce natural gas use by 20% in participating residential buildings (including single-unit, multiple-unit, and mobile home units). The goal is to get 0.75 % of residential units that were constructed before the City's Green Building Ordinance took effect to participate in the program by the end of the phase.
- **Phase 3** (2026- 2050) – The goal of the third phase of this program is to reduce electricity use by 100% and reduce natural gas use by 75% in participating homes. The goal is to get 0.75 % of residential units that were constructed before the City's Green Building Ordinance took effect to participate in the program by the end of the phase.

Program Impacts

- During Phase 1, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 16.05 MMBTU per unit. Projected electricity savings are 614 MMBTU. The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 37.77 MMBTU per unit. Projected natural gas savings are 1,445 MMBTU. The estimated annual emissions savings is 111 metric tons of CO_2e by the end of the first phase.
- During Phase 2, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 13.95 MMBTU per unit. Projected electricity savings are 1,442 MMBTU. The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 32.84 MMBTU per unit. Projected natural gas savings are 3,395 MMBTU. The estimated annual emissions savings is 252 metric tons of CO_2e by the end of the second phase.
- During Phase 3, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 0.0 MMBTU per unit. Projected electricity savings are 5,631 MMBTU. The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 10.26 MMBTU per unit. Projected natural gas savings are 12,252 MMBTU. The estimated annual emissions savings is 907 metric tons of CO_2e by the end of the third phase.

Action 3.7 - provide energy efficiency financing for multiple-family homes

Action-specific Assumptions

This program is vital to the success of the Residential Energy Conservation Ordinances, actions 3.1 and 3.2. Because the two programs will work in synergy, the emissions savings that are achieved because of the RECO should also be attributed to the financing program. To avoid double counting emissions reductions, the emissions reductions that can also be attributed to the RECO are not included in saving reported for this action.

Program Goals

- **Phase 1** (2011- 2015) – It is assumed that 1.5 % of residential units will participate in the program during this phase. The goal of the first phase of this program is to reduce electricity use by 8% and reduce natural gas use by 8% in participating homes.
- **Phase 2** (2016- 2025) – It is assumed that 0.75 % of residential units will participate in the program during this phase. The goal of the first phase of this program is to reduce electricity use by 20% and reduce natural gas use by 20% in participating homes.

- **Phase 3** (2026- 2050) – It is assumed that 0.75 % of residential units will participate in the program during this phase. The goal of the first phase of this program is to reduce electricity use by 100% and reduce natural gas use by 75% in participating homes.

Program Impacts

- During Phase 1, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 16.05 MMBTU per unit. Projected electricity savings are 394 MMBTU. The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 37.77 MMBTU per unit. Projected natural gas savings are 927 MMBTU. The estimated annual emissions savings of 71 metric tons is CO_2e by the end of the first phase.
- During Phase 2, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 13.95 MMBTU per unit. Projected electricity savings are 1,040 MMBTU. The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 32.84 MMBTU per unit. Projected natural gas savings are 2,448 MMBTU. The estimated annual emissions savings of 182 metric tons is CO_2e by the end of the second phase.
- During Phase 3, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 0.0 MMBTU per unit. Projected electricity savings are 3,318 MMBTU The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 10.26 MMBTU per unit. Projected natural gas savings are 7,610 MMBTU. The estimated annual emissions savings is 555 metric tons of CO_2e by the end of the third phase.

Action 3.8 - provide energy efficiency financing for commercial buildings

Action-specific Assumptions

This program is vital to the success of the Commercial Energy Conservation Ordinances, actions 3.3. Because the two programs will work in synergy, the emissions savings that are achieved because of the CECO should also be attributed to the financing program. To avoid double counting emissions reductions, the emissions reductions that can also be attributed to the CECO are not included in saving reported for this action.

Program Goals

- **Phase 1** (2010-2015) – It is assumed that 5 % of commercial units will participate in the program during this phase. The goal of the first phase of this program is to reduce electricity use by 8% and reduce natural gas use by 8% in participating commercial units.
- **Phase 2** (2016-2025) – It is assumed that 3% of commercial units will participate in the program during this phase. The goal of the first phase of this program is to reduce electricity use by 20% and reduce natural gas use by 20% in participating commercial units.
- **Phase 3** (2026- 2050) – It is assumed that 20 % of commercial units will participate in the program during this phase. The goal of the first phase of this program is to reduce electricity use by 20% and reduce natural gas use by 100% in participating commercial units.

Program Impacts

- During Phase 1, the projected electricity consumption without the program is .04796 MMBTU per square foot. With a program, the projected electricity consumption is .04412 MMBTU per square foot. Projected electricity savings are 10,112 MMBTU. The projected natural gas consumption without the program is 0.0334 MMBTU per square foot. With a program, the projected natural gas consumption is 0.0328 MMBTU per square foot. Projected natural gas savings are 7,052 MMBTU. The estimated annual emissions savings is 934 metric tons of CO_2e by the end of the first phase.

- During Phase 2, the projected electricity consumption without the program is .04796 MMBTU per square foot. With a program, the projected electricity consumption is 0.03837 MMBTU per square foot. Projected electricity savings are 27,285 MMBTU. The projected natural gas consumption without the program is 0.0334 MMBTU per square foot. With a program, the projected natural gas consumption is 0.0268 MMBTU per square foot. Projected natural gas savings are 19,028 MMBTU. The estimated annual emissions savings is 2,355 metric tons of CO_2e by the end of the second phase.
- During Phase 3, the projected electricity consumption without the program is .04796 MMBTU per square foot. With a program, the projected electricity consumption is 0.0 MMBTU per square foot. Projected electricity savings are 89,760 MMBTU. The projected natural gas consumption without the program is 0.0334MMBTU per square foot. With a program, the projected natural gas consumption is 0.0084 MMBTU per square foot. Projected natural gas savings are 427,481 MMBTU. The estimated annual emissions savings is 26,872 metric tons of CO_2e by the end of the third phase.

Strategy 4

Overall Strategy 4 Goal

1. Buildings constructed after 2030 will be carbon-neutral.

Strategy 4 Definitions

Renewable energy – energy derived from natural resources that are naturally replenished. Such resources include, sun, wind, tidal currents, and geothermal heat.

Assumptions Applicable to Every Action within Strategy 4

- For all actions within Strategy 4, the data source for electricity consumption is PG&E.
- Emissions factor of electricity supplied from the local utility changes over time because the sources of electricity generation change over time. It is assumed that in 25 percent of the electricity supplied from the local utility in 2020 will be generated using renewable sources, and that 35 percent of the electricity supplied from the local utility in 2050 will be generated using renewable source (see Section 2 of the CAP).
- It is assume that electricity generated from renewable sources does not emit any GHG emissions (emission factor = 0 tons CO_2e/MWh)
- This action only quantifies reductions from buildings that are constructed after 2008. Strategy 3 accounts for reductions from buildings constructed before the City's Green Building Ordinance took effect.

Action 4.1 – Continue to implement private development green building ordinance for residential buildings

Action-specific Assumptions

No action-specific assumptions

Program Goals

- **Phase 1** (2009 – 2018) – The goal of the first phase of this program is to reduce electricity use by 2% and reduce natural gas use by 2% in participating homes. The goal is to get 100 % of newly constructed residential buildings to participate in the program.
- **Phase 2** (2019 – 2029) – The goal of the second phase of this program is to reduce electricity use by 75% and reduce natural gas use by 30% in participating homes. The goal is to get 100 % of newly constructed residential buildings to participate in the program.

- **Phase 3** (2030 – 2050) – The goal of the third phase of this program is to reduce electricity use by 100% and reduce natural gas use by 75% in participating homes. The goal is to get 100 % of newly constructed residential buildings to participate in the program.

Program Impacts

- During Phase 1, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 17.09 MMBTU per unit. Projected electricity savings are 1085 MMBTU. The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 40.23 MMBTU per unit. Projected natural gas savings are 2,554 MMBTU. The estimated annual emissions savings is 193 metric tons of CO_2e by the end of the first phase.
- During Phase 2, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 13.08 MMBTU per unit. Projected electricity savings are 48,868 MMBTU. The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 28.75 MMBTU per unit. Projected natural gas savings are 47,546 MMBTU. The estimated annual emissions savings is 4,904 metric tons of CO_2e by the end of the second phase.
- During Phase 3, the projected per unit electricity consumption without the program is 17.44 MMBTU per unit. With a program, the projected per unit electricity consumption is 0.00 MMBTU per unit. Projected electricity savings are 183,370 MMBTU The projected per unit natural gas consumption without the program is 41.06 MMBTU per unit. With a program, the projected per unit natural gas consumption is 10.26 MMBTU per unit. Projected natural gas savings are 221,662 MMBTU. The estimated annual emissions savings is 23,433 metric tons of CO_2e by the end of the third phase.

Action 4.2 - Continue to implement private development green building ordinance for commercial buildings

Action-specific Assumptions

No action-specific assumptions

Program Goals

- **Phase 1** – (2009 – 2018) The goal of the first phase of this program is to reduce electricity use by 3% and reduce natural gas use by 3% in participating commercial buildings. The goal is to get 100 % of newly constructed buildings to participate in the program.
- **Phase 2** – (2019 – 2028) The goal of the second phase of this program is to reduce electricity use by 75% and reduce natural gas use by 30% in participating commercial buildings. The goal is to get 100 % of newly constructed commercial buildings to participate in the program.
- **Phase 3** – (2029 – 2050) The goal of the third phase of this program is to reduce electricity use by 100% and reduce natural gas use by 75% in participating commercial buildings. The goal is to get 100 % of newly constructed commercial buildings to participate in the program.

Program Impacts

- During Phase 1, the projected electricity consumption without the program is 0.04796 MMBTU per square foot. With a program, the projected electricity consumption is 0.04317 MMBTU per square foot. Projected electricity savings are 30,652 MMBTU. The projected natural gas consumption without the program is 0.0334 MMBTU per square foot. With a program, the projected natural gas consumption is 0.0324 MMBTU per square foot. Projected natural gas savings are 6,413 MMBTU. The estimated annual emissions savings is 1,936 metric tons of CO_2e by the end of the first phase.

- During Phase 2, the projected electricity consumption without the program is 0.04796 MMBTU per square foot. With a program, the projected electricity consumption is 0.01199 MMBTU per square foot. Projected electricity savings are 318,803 MMBTU. The projected natural gas consumption without the program is 0.0334MMBTU per square foot. With a program, the projected natural gas consumption is 0.0234 MMBTU per square foot. Projected natural gas savings are 86,792 MMBTU. The estimated annual emissions savings is 20,043 metric tons of CO_2e by the end of the second phase.
- During Phase 3, the projected electricity consumption without the program is 0.04796 MMBTU per square foot. With a program, the projected electricity consumption is 0.0 MMBTU per square foot. Projected electricity savings are 1,215,403 MMBTU. The projected natural gas consumption without the program is 0.0334 MMBTU per square foot. With a program, the projected natural gas consumption is 0.0084 MMBTU per square foot. Projected natural gas savings are 555,739 MMBTU. The estimated annual emissions savings is 84,004 metric tons of CO_2e by the end of the third phase.

Strategy 5

Overall Strategy 5 Goal

1. 100 percent renewable electricity generation by 2050

Assumptions Applicable to Every Action within Strategy 5

- It is assumed that Hayward receives 2103.5 hours of full sun per year.[119]
- It is assumed that the solar de-rating factor is 33 percent.[120] The de-rating factor accounts for losses due to temperature, dirt and dust, wiring losses and mismatch, and DC to AC conversion.
- It is assumed that the size of the average photovoltaic system installed will gradually increase due to the future potential for consumers to sell electricity back into the grid.

Action 5.1 – Offer renewable energy financing program for residential buildings

Action-specific Assumptions

No action-specific assumptions

Program Goals

- **Phase 1** (2010 – 2015) – The goal of the first phase of this program is to have an average capacity of 3 kW per system installed. The goal is to get 0.4 % of new residential units constructed during the phase to participate in the program.
- **Phase 2** (2016 – 2020) – The goal of the second phase of this program is to have an average capacity of 3.5 kW per system installed. The goal is to get 2 % of new residential units constructed during the phase to participate in the program.
- **Phase 3** (2021 – 2035) – The goal of the third phase of this program is to have an average capacity of 4 kW per system installed. The goal is to get 5 % of new residential units will participate in the program during this phase.

Program Impacts

- During Phase 1, the projected total capacity installed will be 605 kW and the percent of electricity demand offset by PV systems will be 0.1%. The estimated annual emissions savings is 160 metric tons of CO_2e by the end of the first phase.

[119] Source: National Renewable Energy Laboratory. Solar Radiation Data Manual for Flat Plate and Concentrating Collectors.
[120] California Energy Commission. Guide to Photovoltaic System Design and Installation. June 2001

- During Phase 2, the projected total capacity installed will be 2,936 kW and the percent of electricity demand offset by PV systems will be 0.5%. The estimated annual emissions savings is 850 metric tons of CO_2e by the end of the second phase.
- During Phase 3, the projected total capacity installed will be 6,458 kW and the percent of electricity demand offset by PV systems will be 1.1%. The estimated annual emissions savings is 2,274 metric tons of CO_2e by the end of the third phase.

Action 5.2 - Offer renewable energy financing program for commercial buildings

Action-specific Assumptions

Hayward data on commercial space was used in calculation. It includes floor space used for offices, warehouses, retail, research and development, and manufacturing. Assumption made that 10% of commercial space is appropriate for solar installation. One caveat is that the estimated roof space is a very rough approximation. It may be necessary to conduct a City-wide survey in order to obtain more accurate percentage of usable space. Potential emissions reductions are subject to change based on further analysis. Analyses assumes average system size will be 1 kW/100 square feet roof space for Phase 1 and Phase 2 and 1kW/80 square feet roof space for Phase 3. This assumes that system efficiency will improve over time.

Program Goals

- **Phase 1** (2010 – 2015) – 5 % percent of commercial square footage that has roof top available is participating in program during this phase.
- **Phase 2** (2016 – 2020) – 8 % percent of commercial square footage that has roof top available is participating in program during this phase.
- **Phase 3** (2021 – 2035) – 10 % percent of commercial square footage that has roof top available is participating in program during this phase.

Program Impacts

- During Phase 1, the projected total capacity installed will be 26,35 4kW and the percent of electricity demand offset by PV systems will be 3.6%. The estimated annual emissions savings is 6,985 metric tons of CO_2e by the end of the first phase.
- During Phase 2, the projected total capacity installed will be 18,514 kW and the percent of electricity demand offset by PV systems will be 5.8%. The estimated annual emissions savings is 10,768 metric tons of CO_2e by the end of the second phase.
- During Phase 3, the projected total capacity installed will be 61,323 kW and the percent of electricity demand offset by PV systems will be 11.7%. The estimated annual emissions savings is 24,153 metric tons of CO_2e by the end of the third phase.

Action 5.3 – Add renewable energy requirement into private development green building ordinance

Action-specific Assumptions

It is assumed that a higher percentage of energy will be provided from renewable sources which will lead to a lower electricity emission factor. It is also assumed that a mandatory program will not start until 2013 and only assumes 80% adoption rate due to the fact that not all buildings will be appropriate for solar, s.ome may fall under specified thresholds, etc.

Program Goals

- **Phase 1** (2013 – 2025) – 75 percent of newly constructed buildings will be constructed with PV. The average PV size is 3 kW for residential buildings and 1kW/100 square feet roof space for commercial buildings.
- **Phase 2** (2026 – 2050) – 75 percent of newly constructed buildings will be constructed with PV. The average PV size is 5 kW for residential buildings and 1kW/80 square feet roof space for commercial buildings.

Program Impacts

- By the end of Phase 1, the projected total capacity installed will be 68,229 kW. The estimated annual emissions savings is 15,877 metric tons of CO_2e by the end of the first phase. (This calculation is based on a start date of 2018. As directed by the Planning Commission and City Council, the City's goal will be to start this program in 2013, which will result in additional annual emissions savings in both Phases.)
- By the end of Phase 2, the projected total capacity installed will be 114,745 kW. The estimated annual emissions savings is 25,859 metric tons of CO_2e by the end of the first phase.

Action 5.4 – Increase portion of electricity provided by renewable energy

Program Goals

- **Phase 1** (2015 – 2020) – to have 33 percent of electricity supplied from renewable sources by the end of the phase.
- **Phase 2** (2021 – 2050) – to have 100 percent of electricity supplied from renewable sources by the end of the phase.

Program Impacts

- By the end of Phase 1, the projected total the estimated annual emissions savings is 32,026 metric tons of CO_2e.
- By the end of Phase 1, the projected total the estimated annual emissions savings is 77,414 metric tons of CO_2e.

Strategy 6

Overall Strategy 6 Goal

1. Eliminate emissions associated with methane emissions from solid-waste management by 2050.

It is assumed that the mix of recycled material is the same mix as that which was reported for 2007. Hayward's Baseline Greenhouse Gas Emissions Inventory only included organic waste material which would produce methane in a landfill.

Action 6.1 – Increase participation in recycling programs

Action-specific Assumptions

The business-as- usual case assumes that Hayward maintains the same level of recycling and organics collection as it achieved in 2005. This means that emissions savings reported in this action are from additional recycling that takes place above the 2005 recycling level.

Program Goals

- **Phase 1** (2009 – 2020) – by the end of the phase, divert 50% of mixed paper from the landfill.
- **Phase 2** (2021 – 2050) – by the end of the phase, Hayward recycles 100% of mixed paper from the landfill.

Program Impacts

- By the end of the first phase, the projected mass of paper diverted from the landfill annually because of program is projected to be 20,512 short tons which will result in an estimated annual emissions savings of 15,916 metric tons of CO_2e.
- By then end of Phase 2, the projected mass of paper diverted from the landfill annually because of program is projected to be 49,252 short tons which will result in an estimated annual emissions savings of 38,216 metric tons of CO_2e.

Action 6.2 – Increase participation in food-scraps collection programs

Action-specific Assumptions

No action-specific assumptions

Program Goals

- **Phase 1** (2009 – 2020) – 15 % percent of food scraps diverted from landfill by end of phase.
- **Phase 2** (2021 – 2050) – 100 % percent of food scraps diverted from landfill by end of phase

Program Impacts

- By the end of the first phase, the projected mass of food scraps diverted from the landfill annually because of program is projected to be 3,403 short tons which will result in an estimated annual emissions savings of 3,403 metric tons of CO_2e.
- By then end of Phase 2, the projected mass of food scraps diverted from the landfill annually because of program is projected to be 11,963 short tons which will result in an estimated annual emissions savings of 27,236 metric tons of CO_2e.

Action 6.3 – Improve construction and demolition debris recycling program

Action-specific Assumptions

No action-specific assumptions

Program Goals

- **Phase 1** (2010 – 2020) – 15 % percent of commercial and demolition (wood / textiles) waste that is diverted from the landfill.
- **Phase 2** (2021 – 2050) – 100 % percent of commercial and demolition (wood / textiles) waste that is diverted from the landfill.

Program Impacts

- During Phase 1, the projected mass of commercial and demolition waste diverted from the landfill annually because of program is projected to be 8,895 short tons. By then end of the first phase, the estimated annual emissions savings is 1.953 metric tons of CO_2e.
- During Phase 2, the projected mass of commercial and demolition waste diverted from the landfill annually because of program is projected to be 71,191 short tons. By then end of the second phase, the estimated annual emissions savings is 15,634 metric tons of CO_2e.

Action 6.4 – Ban certain materials from the landfill

Action-specific Assumptions

No action-specific assumptions

Program Goals

- **Phase 1** (2009 – 2020) – divert 100 % of plant debris from the landfill by the end of the phase.

Program Impacts

- By then end of the phase, the projected mass of plant debris diverted from the landfill annually is projected to be 9,993 short tons which will result in an estimated annual emissions savings of 2,487 metric tons of CO_2e.

Action 6.5 – require residents and businesses to participate in recycling programs

This action will help the City meet the recycling goals In order to meet recycling goals as specified in Action 1. Emissions savings are accounted for in Action 1.

Action 6.6 – Encourage waste reduction

Action-specific Assumptions

- It is assumed that the mass of waste decreases over time. It is also assumed that emissions are directly proportional to mass (this means all types of materials are reduced in the same portions).

Program Goals

- **Phase 1** (2009-2050) – Divert 15 % percent of waste from landfill.

Program Impacts

- By then end of the Phase 1, the estimated annual emissions savings is 304 metric tons of CO_2e.

Action 6.7 – prefer waste management strategies that maximize the useful value of waste streams

Action-specific Assumptions

No action-specific assumptions

Program Goals

- **Phase 1** – (2009-2020) increase the landfill gas capture rate to 75% percent.

Program Impacts

- By then end of the Phase 1, the estimated annual emissions savings is 21,498 metric tons of CO_2e.

Strategy 7

Overall Strategy 7 Goal

1. Plant 10,500 trees by 2030

Action 7.1 – Increase participation in recycling programs

Action-specific Assumptions

Program Goals

- **Phase 1** – (2025-2030) plant 10,500 trees over five years

Program Impacts

- By then end of the Phase 1, the estimated annual emissions savings is 284 metric tons of CO_2e.

This page left intentionally blank for double sided printing.

Appendix D: Action Prioritization

One of the tools the City plans on using to determine the priority in which to implement actions is the prioritization score. Appendix D describes the scoring methodology then presents the results of the scoring process.

Scoring Methodology

Step 1:

The City established four evaluation criteria: (1) ease of implementation, (2) time to full implementation, (3) potential emissions reductions, and (4) cost. These criteria were based on evaluation criteria Sonoma County's used in its climate action plan. When considering the relative importance of the for criteria, the City determined that potential emissions reduction was the most important factor to consider, followed by cost, then ease of implementation, then time to full implementation. The four criteria were assigned a weighting factor to reflect the City's preference in the relative importance. The weighting factors are presented step 4.

Evaluation criteria are discussed in Section 6 of the CAP. Potential emissions reductions are also discussed in Appendix C.

Step 2:

The City wrote questions to guide its evaluation of proposed actions and their performance under each of the four main criteria. Answers were assigned a numerical value: higher scores translate to higher preference. The questions the City used to guide the evaluation process, and the numerical values assigned to the answers, are presented below:

Ease of Implementation

The City used the following questions to guide its evaluation of the how easy the proposed actions will be to implement.

1. What amount of human resources is required to develop and implement the program?
   (required resources are average or below average = 2, required resources are high = 1)

   –
   - Does Hayward have direct control over developing and implementing a program? Hayward does not have direct control over implementing the program if:
   - Hayward will have to collaborate with other local governments, state government, or federal government in order for the program to be implemented.
   - Existing state or federal policy or programs preempt local policy.
   - Local policy alone is enough to fully implement the action.
   - *(Hayward does have direct control = 2, Hayward does not have direct control = 1)*

   –
2. Does the program have stakeholder (political, resident, business) support or opposition
   (stakeholder support program or have a neutral stance= 2, stakeholders oppose program= 1)

3. How much voluntary community participation needed for program to successfully reduce emissions (note that actions that would call for mandatory participation would not require any voluntary participation)?
   (no or low level of voluntary participation required = 2, high level of voluntary participation required = 1)

4. Are there additional benefits (improved human health, reduced commute time, improved pedestrian safety, more affordable housing) that might help the program gain stakeholder support?
   (*yes = 2, no = 1)*

Time to Full Implementation

The City used the following questions to guide its evaluation of the time would take to implement the proposed actions.

1. Does the City expect that stakeholder opposition will delay the design and implementation of the program?
   (*yes = 1, no = 2)*

2. How long will it take reach maximum emissions savings?
   (five years or less= 3, five to ten years = 2, over ten years = 1)

3. Can the program be developed and approved within a year?
   (*yes = 2, no = 1)*

Potential Emissions Reductions

The City used the following questions to guide its evaluation of the potential emissions reductions from the proposed actions.

1. What are the estimated annual emissions savings (as compared to BAU projections) if the program is designed according to program goals identified in the CAP?
   (*over 5,000 metric tons CO_2e = 3, 1,000 – 5,000 metric tons CO_2e = 2, less than 1,000 metric tons CO_2e)*

Costs

The City used the following questions to guide its evaluation of the relative costs of the proposed actions.

1. Is there long-term funding in place to develop and implement the program?
   (*yes = 2, no = 1)*

2. Are there investment costs associated with the program such as construction costs (for bike lanes, safe pedestrian corridors, expanded rail services), or establishing seed funding (for loan programs)?
   (*no = 2, yes = 1)*

3. Are the administrative, or operation and maintenance, costs of the program expected to be exceedingly large as compared to other City programs?
   (*no = 2, yes = 1)*

4. Will the program result in cost savings to residents or businesses within a reasonable timeframe?
   (*yes = 2, no = 1)*

Step 3:

City evaluated each action by answering the questions presented in step 2. City recorded the numerical value that corresponded to the answer. Results are presented in the tables at the end of the appendix.

Step 4:

Scores were calculated to reflect the relative importance of each of the four criteria. This was achieved using the following calculation method:

1. The maximum possible score for each criteria was set to be 10 points, or levelized to 10 points. If the maximum score is not established then criteria with more questions would be unintentionally

weighted more heavily than criteria with fewer questions. The equation used to levelize the maximum score in each category follows:

Levelized score = (points received from answering questions in criteria) x (levelizing factor)

Where: levelizing factor = 10 ÷ maximum possible points from questions

The levelizing factor for each criteria are presented in the table below:

Criteria	Maximum Possible Points (from answering questions)	Levelizing Factor
Ease of implementation	**10**	**10/10 = 1.0**
Time to full implementation	**7**	**10/7 = 1.43**
Potential emissions reductions	**3**	**10/3 = 3.33**
Cost	**8**	**10/8 = 1.25**

2. The levelized scores from each criteria were then weighted based on the criteria's relative level importance, as assigned during Step 1. The weighting factors for each criteria are presented below:

Criteria	Weighting Factor
Ease of implementation	**2**
Time to full implementation	**1**
Potential emissions reductions	**4**
Cost	**3**

The equation for determining the levelized & weighed score is:

Levelized & weighed score = (levelized score) x (weighting factor)

3. Actions were prioritized based on the levelized and weighted score. The highest scoring actions were given highest priority. If two actions received the same score, the action with the highest potential annual emissions savings was given higher priority.

Scoring Results

Results from the scoring process are presented in the tables on the following pages.

This page left intentionally blank for double sided printing.

Community-wide Actions

Action Number	Short Description	ease of implementation (weighing factor = 2)								time to full implementation (weighing factor = 1)						potential emissions reductions (weighing factor = 4)				cost (weighing factor = 3)								Priority
		1. Human resources required to develop and implement program	2. Does Hayward have direct control over program?	3. Does the program have stakeholder support or opposition	4. How much voluntary community participation is needed?	5. Are there additional benefits that might help the program gain stakeholder support?	**unweighted & unlevelized score** *(maximum score = 10)*	**unweighted levelized score** *(levelizing factor = 1.0) (maximum score = 10)*	**weighted score** *(weighting factor = 2) (maximum score = 20)*	1. Does the city expect that stakeholder opposition will delay the design and implementation of the program?	2. How long will it take reach maximum annual emissions savings?	3. Can the program be developed and initiated within a year?	**unweighted & unlevelized score** *(maximum score = 7)*	**unweighted levelized score** *(levelizing factor = 1.43) (maximum score = 10)*	**weighted score** *(weighting factor = 2) (maximum score = 10)*	**Community-wide Actions** What are the estimated emissions reductions in 2050?	**unweighted & unlevelized score** *(maximum score = 3)*	**unweighted levelized score** *(levelizing factor = 3.33) (maximum score = 10)*	**weighted score** *(weighting factor = 4) (maximum score = 40)*	1. Is long-term funding in place ?	2. Are there additional investment costs?	3. Are administrative costs expected to be relatively large in relation to other actions?	4. Will the program result in cost savings to residents, businesses, or the City?	**unweighted & unlevelized score** *(maximum score = 8)*	**unweighted levelized score** *(levelizing factor = 1.25) (maximum score = 10)*	**weighted score** *(weighting factor = 3) (maximum score = 30)*	**weighted score Community-wide Actions**	
		1= more than average 2 = average or less than average	*1= doesn't have direct control 2 = has direct control*	*1 = stakeholder opposition 2 = stakeholder support or neutrality*	*1 = high level 2 = no or low level*	*1 = no 2 = yes*				*1 = yes 2 = no*	*1 = over ten years 2 = five to ten years 3 = five years or less*	*1 = no 2 = yes*				*1 = less than 1,000 MTCO2e 2 = 10,000 – 100,000 MTCO2e 3 = over 100,000 MTCO2e*				*1 = no 2 = yes*	*1 = yes 2 = no*	*1= yes 2 = no*	*1 = no 2 = yes*					
Action 1.1	assist businesses in providing commuter benefits programs	2	2	2	1	2	9	9	**18**	2	1	2	5	7.1	**7.1**	1	1	3.3	**13.3**	1	1	1	2	5	6.3	**18.8**	57.2	**36**
Action 1.2	assist businesses in establishing car share / bike-share programs	2	1	1	1	2	7	7	**14**	1	1	2	4	5.7	**5.7**	1	1	3.3	**13.3**	1	2	2	2	7	8.8	**26.3**	59.3	**33**
Action 1.3	update parking policies to encourage reduction in vehicle travel	1	2	1	2	1	7	7	**14**	1	1	2	4	5.7	**5.7**	1	1	3.3	**13.3**	1	2	2	1	6	7.5	**22.5**	55.5	**38**
Action 1.4	expand transit services to encourage reductions in vehicle travel	1	1	2	2	2	8	8	**16**	2	1	1	4	5.7	**5.7**	2	1	6.7	**26.7**	1	1	1	1	4	5.0	**15.0**	63.4	**30**
Action 1.5	continue to implement bike master-plan	2	2	2	1	2	9	9	**18**	2	1	2	5	7.1	**7.1**	1	1	3.3	**13.3**	1	1	2	1	5	6.3	**18.8**	57.2	**37**
Action 1.6	develop and implement pedestrian master-plan	1	2	2	1	2	8	8	**16**	2	1	2	5	7.1	**7.1**	1	1	3.3	**13.3**	1	1	2	1	5	6.3	**18.8**	55.2	**39**
Action 1.7	update the Circulation Element of the General Plan to evaluate expansions of appropriate modes of transit	2	2	2	1	2	9	9	**18**	2	1	2	5	7.1	**7.1**	2	2	6.7	**26.7**	1	1	2	1	5	6.3	**18.8**	70.6	**25**
Action 1.8	prioritize traffic-flow management practices to reduce idling time	1	1	2	2	2	8	8	**16**	2	3	2	7	10.0	**10.0**	2	1	6.7	**26.7**	1	1	2	1	5	6.3	**18.8**	71.4	**22**
Action 1.9	encourage high density, mixed-use, smart-growth development in areas near public transit stations	2	1	2	1	2	8	8	**16**	2	1	2	5	7.1	**7.1**	2	2	6.7	**26.7**	1	1	2	1	5	6.3	**18.8**	68.6	**27**
Action 1.10	align zoning policies to minimize vehicle travel	2	2	2	2	2	10	10	**20**	2	1	2	5	7.1	**7.1**	2	2	6.7	**26.7**	1	2	2	1	6	7.5	**22.5**	76.3	**9**
Action 1.11	increase availability of affordable housing for people employed in Hayward	2	2	2	2	2	10	10	**20**	2	3	1	6	8.6	**8.6**	2	2	6.7	**26.7**	1	1	2	1	5	6.3	**18.8**	74.0	**13**
Action 1.12	incentivize filling local jobs with local residents	1	1	2	2	2	8	8	**16**	2	1	1	4	5.7	**5.7**	2	2	6.7	**26.7**	1	1	1	1	4	5.0	**15.0**	63.4	**31**
Action 2.1	provide incentives for low-carbon vehicles and low-carbon fuels	2	2	1	2	2	9	9	**18**	1	1	2	4	5.7	**5.7**	3	1	10.0	**40.0**	1	1	1	2	5	6.3	**18.8**	82.5	**5**
Action 2.2	collaborate the state and federal government on policies that promote low-carbon vehicles and low-carbon fuels	2	1	2	2	2	9	9	**18**	2	2	1	5	7.1	**7.1**	3	1	10.0	**40.0**	1	2	1	1	5	6.3	**18.8**	83.9	**4**
Action 3.1	develop and implement Residential Energy Conservation Ordinance for single-family homes	1	2	1	2	2	8	8	**16**	1	1	2	4	5.7	**5.7**	2	2	6.7	**26.7**	1	2	1	2	6	7.5	**22.5**	70.9	**23**
Action 3.2	develop and implement Residential Energy Conservation Ordinance for multiple-family homes	1	2	1	2	2	8	8	**16**	1	1	2	4	5.7	**5.7**	2	2	6.7	**26.7**	1	2	1	2	6	7.5	**22.5**	70.9	**24**
Action 3.3	develop and implement Commercial Energy Conservation Ordinance	1	2	1	2	2	8	8	**16**	1	1	2	4	5.7	**5.7**	3	3	10.0	**40.0**	1	2	1	2	6	7.5	**22.5**	84.2	**3**
Action 3.4	actively participate in low-income weatherization programs	3	1	2	2	2	10	10	**20**	2	2	2	6	8.6	**8.6**	2	2	6.7	**26.7**	2	2	2	2	8	10.0	**30.0**	85.2	**2**
Action 3.5	promote a voluntary commitment for businesses and residents to reduce energy consumption	2	2	2	1	1	8	8	**16**	2	1	2	5	7.1	**7.1**	2	2	6.7	**26.7**	1	2	2	2	7	8.8	**26.3**	76.1	**10**
Action 3.6	promote use of home energy monitors	1	2	2	1	1	7	7	**14**	2	2	2	6	8.6	**8.6**	2	2	6.7	**26.7**	1	1	2	2	6	7.5	**22.5**	71.7	**21**
Action 3.7	energy efficiency financing program for single-family homes	2	2	2	1	2	9	9	**18**	2	1	2	5	7.1	**7.1**	2	2	6.7	**26.7**	2	1	2	2	7	8.8	**26.3**	78.1	**6**
Action 3.8	offer energy efficiency financing program for	2	2	2	1	2	9	9	**18**	2	1	2	5	7.1	**7.1**	2	2	6.7	**26.7**	2	1	2	2	7	8.8	**26.3**	78.1	**7**

Action Number	Short Description	ease of implementation (weighing factor = 2)								time to full implementation (weighing factor = 1)						potential emissions reductions (weighing factor = 4)				cost (weighing factor = 3)								Priority
		1. Human resources required to develop and implement program	2. Does Hayward have direct control over program?	3. Does the program have stakeholder support or opposition	4. How much voluntary community participation is needed?	5. Are there additional benefits that might help the program gain stakeholder support?	**unweighted & unlevelized score** *(maximum score = 10)*	**unweighted levelized score** *(levelizing factor = 1.0)* *(maximum score = 10)*	**weighted score** *(weighting factor = 2)* *(maximum score = 20)*	1. Does the city expect that stakeholder opposition will delay the design and implementation of the program?	2. How long will it take reach maximum annual emissions savings?	3. Can the program be developed and initiated within a year?	**unweighted & unlevelized score** *(maximum score = 7)*	**unweighted levelized score** *(levelizing factor = 1.43)* *(maximum score = 10)*	**weighted score** *(weighting factor = 2)* *(maximum score = 10)*	**Community-wide Actions** What are the estimated emissions reductions in 2050?	**unweighted & unlevelized score** *(maximum score = 3)*	**unweighted levelized score** *(levelizing factor = 3.33)* *(maximum score = 10)*	**weighted score** *(weighting factor = 4)* *(maximum score = 40)*	1. Is long-term funding in place ?	2. Are there additional investment costs?	3. Are administrative costs expected to be relatively large in relation to other actions?	4. Will the program result in cost savings to residents, businesses, or the City?	**unweighted & unlevelized score** *(maximum score = 8)*	**unweighted levelized score** *(levelizing factor = 1.25)* *(maximum score = 10)*	**weighted score** *(weighting factor = 3)* *(maximum score = 30)*	**weighted score Community-wide Actions**	
		1= more than average 2 = average or less than average	*1= doesn't have direct control 2 = has direct control*	*1 = stakeholder opposition 2 = stakeholder support or neutrality*	*1 = high level 2 = no or low level*	*1 = no 2 = yes*				*1 = yes 2 = no*	*1 = over ten years 2 = five to ten years 3 = five years or less*	*1 = no 2 = yes*				*1 = less than 1,000 MTCO2e 2 = 10,000 – 100,000 MTCO2e 3 = over 100,000 MTCO2e*				*1 = no 2 = yes*	*1 = yes 2 = no*	*1= yes 2 = no*	*1 = no 2 = yes*					
	multiple-family homes																											
Action 3.9	offer energy efficiency financing program for commercial buildings	2	2	**18**	2	2	9	9			1	2	5	7.1	**7.1**	3	3	10.0	**40.0**	2	1	2	2	7	8.8	**26.3**	91.4	**1**
Action 4.1	continue to implement private development green building ordinance for residential buildings	2	2	1	2	2	9	9	**18**	1	1	2	4	5.7	**5.7**	2	2	6.7	**26.7**	1	1	2	2	6	7.5	**22.5**	72.9	**20**
Action 4.2	continue to implement private development green building ordinance for commercial buildings	2	2	1	2	2	9	9	**18**	1	1	2	4	5.7	**5.7**	2	2	6.7	**26.7**	1	1	2	2	6	7.5	**22.5**	72.9	**18**
Action 5.1	offer renewable energy financing program for residential buildings	2	2	2	1	2	9	9	**18**	2	1	2	5	7.1	**7.1**	1	1	3.3	**13.3**	1	2	2	2	7	8.8	**26.3**	64.7	**29**
Action 5.2	offer renewable energy financing program for commercial buildings	2	2	2	1	2	9	9	**18**	2	1	2	5	7.1	**7.1**	2	2	6.7	**26.7**	1	2	2	2	7	8.8	**26.3**	78.1	**8**
Action 5.3	add renewable energy requirement into private development green building ordinance, RECO, and CECO	2	2	1	2	2	9	9	**18**	1	1	2	4	5.7	**5.7**	2	2	6.7	**26.7**	1	1	2	2	6	7.5	**22.5**	72.9	**19**
Action 5.4	increase portion of electricity provided by renewable energy	1	1	1	1	2	6	6	**12**	1	2	1	4	5.7	**5.7**	2	2	6.7	**26.7**	1	1	1	1	4	5.0	**15.0**	59.4	**32**
Action 6.1	increase participation in recycling programs	2	1	2	1	1	7	7	**14**	2	2	2	6	8.6	**8.6**	2	2	6.7	**26.7**	2	1	1	1	5	6.3	**18.8**	68.0	**28**
Action 6.2	increase participation in food-scraps collection programs	1	1	2	1	1	6	6	**12**	2	2	2	6	8.6	**8.6**	2	2	6.7	**26.7**	2	2	1	1	6	7.5	**22.5**	69.7	**26**
Action 6.3	improve construction and demolition debris program	2	2	2	1	1	8	8	**16**	2	2	2	6	8.6	**8.6**	2	2	6.7	**26.7**	2	2	1	1	6	7.5	**22.5**	73.7	**14**
Action 6.4	ban certain materials from landfills	1	2	1	1	1	6	6	**12**	1	2	2	5	7.1	**7.1**	1	1	3.3	**13.3**	2	2	1	1	6	7.5	**22.5**	55.0	**40**
Action 6.5	require residents / businesses to participate in recycling programs	2	2	2	1	1	8	8	**16**	2	3	2	7	10.0	**10.0**	2	2	6.7	**26.7**	2	2	1	1	6	7.5	**22.5**	75.2	**12**
Action 6.6	encourage waste reduction and promote recycling participation at multi-family properties	1	2	2	1	1	7	7	**14**	2	2	2	6	8.6	**8.6**	1	1	3.3	**13.3**	2	2	1	1	6	7.5	**22.5**	58.4	**34**
Action 6.7	prefer waste management strategies that maximize the useful value of waste streams	2	2	2	1	1	8	8	**16**	2	3	2	7	10.0	**10.0**	2	2	6.7	**26.7**	2	2	1	1	6	7.5	**22.5**	75.2	**11**
Action 7.1	maximize carbon sequestration within City	2	2	2	2	2	10	10	**20**	2	3	2	7	10.0	**10.0**	1	1	3.3	**13.3**	1	1	1	1	4	5.0	**15.0**	58.3	**35**
Action 8.1	PLACE HOLDER - ACTIONS NOT DEFINED	---	---	---	---	---	---	---	**---**	---	---	---	---	---	**---**	---	---	---	**---**	---	---	---	---	---	---	**---**	---	**---**
Action 9.1	create green-portal website	2	2	2	1	2	9	9.0	**18.0**	2	3	2	7	10.0	**10.0**	2	2	6.7	**26.7**	1	1	1	2	5	6.3	**18.8**	73.4	**15**
Action 9.2	develop and implement plan to engage residents in emissions reductions activities	2	2	2	1	2	9	9.0	**18.0**	2	3	2	7	10.0	**10.0**	2	2	6.7	**26.7**	1	1	1	2	5	6.3	**18.8**	73.4	**16**
Action 9.3	develop and implement plan to engage businesses in emissions reductions activities	2	2	2	1	2	9	9.0	**18.0**	2	3	2	7	10.0	**10.0**	2	2	6.7	**26.7**	1	1	1	2	5	6.3	**18.8**	73.4	**17**

Municipal Operations Actions

Action Number	Short Description	ease of implementation (weighing factor = 2)								time to full implementation (weighing factor = 1)						potential emissions reductions (weighing factor = 4)				cost (weighing factor = 3)								Priority
		1. Human resources required to develop and implement program	2. Does Hayward have direct control over program?	3. Does the program have stakeholder support or opposition	4. How much voluntary community participation is needed?	5. Are there additional benefits that might help the program gain stakeholder support?	**unweighted & unlevelized score** *(maximum score = 10)*	**unweighted levelized score** *(levelizing factor = 1.0)* *(maximum score = 10)*	**weighted score** *(weighting factor = 2)* *(maximum score = 20)*	1. Does the city expect that stakeholder opposition will delay the design and implementation of the program?	2. How long will it take reach maximum annual emissions savings?	3. Can the program be developed and initiated within a year?	**unweighted & unlevelized score** *(maximum score = 7)*	**unweighted levelized score** *(levelizing factor = 1.43)* *(maximum score = 10)*	**weighted score** *(weighting factor = 2)* *(maximum score = 10)*	**Municipal Actions** What are the estimated emissions reductions when fully implemented ?	**unweighted & unlevelized score** *(maximum score = 3)*	**unweighted levelized score** *(levelizing factor = 3.33)* *(maximum score = 10)*	**weighted score** *(weighting factor = 4)* *(maximum score = 40)*	1. Is long-term funding in place ?	2. Are there additional investment costs?	3. Are administrative costs expected to be relatively large in relation to other actions?	4. Will the program result in cost savings to residents, businesses, or the City?	**unweighted & unlevelized score** *(maximum score = 8)*	**unweighted levelized score** *(levelizing factor = 1.25)* *(maximum score = 10)*	**weighted score** *(weighting factor = 3)* *(maximum score = 30)*	**weighted score Municipal Actions**	
		1= more than average 2 = average or less than average	*1= doesn't have direct control 2 = has direct control*	*1 = stakeholder opposition 2 = stakeholder support or neutrality*	*1 = high level 2 = no or low level*	*1 = no 2 = yes*				*1 = yes 2 = no*	*1 = over ten years 2 = five to ten years 3 = five years or less*	*1 = no 2 = yes*				*1= less than 100 MTCO2e 2 = 100 - 1000 MTCO2e 3 = over 1000 MTCO2e*				*1 = no 2 = yes*	*1 = yes 2 = no*	*1= yes 2 = no*	*1 = no 2 = yes*					
Action 1.13	provide commuter benefits to government employees	2	2	2	1	2	9	9.0	**18.0**	2	2	2	6	8.6	**8.6**	2	2	6.7	**26.7**	1	1	1	2	5	2.5	**7.5**	60.7	**7**
Action 1.14	develop car-share and/or bike-share program for city employees	2	1	1	1	2	7	7.0	**14.0**	1	2	1	4	5.7	**5.7**	2	2	6.7	**26.7**	1	2	2	2	7	2.5	**7.5**	53.9	**15**
Action 1.15	prefer facilities with convenient access to public transit	2	2	2	2	2	10	10.0	**20.0**	2	3	2	7	10.0	**10.0**	2	2	6.7	**26.7**	2	2	2	1	7	1.3	**3.8**	60.4	**8**
Action 2.3	procure fuel-efficient and low-carbon fuel vehicles for municipal fleet	2	2	2	2	2	10	10.0	**20.0**	2	1	2	5	7.1	**7.1**	2	2	6.7	**26.7**	2	2	2	2	8	2.5	7.5	61.3	**6**
Action 2.4	negotiate alternative-fuel and fuel economy requirements into new contracts and franchise agreements	2	1	2	1	1	7	7.0	**14.0**	2	1	2	5	7.1	**7.1**	2	2	6.7	**26.7**	1	2	2	2	7	2.5	**7.5**	55.3	**12**
Action 3.10	upgrade streetlights to LEDs	2	2	2	1	1	8	8.0	**16.0**	2	3	2	7	10.0	**10.0**	3	3	10.0	**40.0**	1	2	2	2	7	2.5	**7.5**	73.5	**1**
Action 3.11	prepare and implement energy conservation plan for municipal buildings	1	2	2	1	1	7	7.0	**14.0**	2	1	2	5	7.1	**7.1**	3	3	10.0	**40.0**	1	1	1	2	5	2.5	**7.5**	68.6	**3**
Action 3.12	audit city buildings and identify energy savings opportunities	2	2	2	2	1	9	9.0	**18.0**	2	1	2	5	7.1	**7.1**	3	3	10.0	**40.0**	1	2	2	2	7	2.5	**7.5**	72.6	**2**
Action 4.3	continue to implement municipal green building ordinance	2	2	2	2	2	10	10.0	**20.0**	1	1	2	4	5.7	**5.7**	1	1	3.3	**13.3**	1	1	2	2	6	2.5	**7.5**	46.5	**9**
Action 5.5	assess city buildings and identify buildings best-suited for renewable energy	2	2	2	2	1	9	9.0	**18.0**	1	1	2	4	5.7	**5.7**	3	3	10.0	**40.0**	1	1	2	1	5	1.3	**3.8**	67.5	**4**
Action 5.6	maximize renewable generation on municipal property	2	2	2	2	1	9	9.0	**18.0**	1	1	2	4	5.7	**5.7**	3	3	10.0	**40.0**	1	1	2	1	5	1.3	**3.8**	67.5	**5**
Action 6.8	implement recycling programs in city buildings	2	2	2	1	1	8	8.0	**16.0**	2	2	2	6	8.6	**8.6**	1	1	3.3	**13.3**	2	2	2	1	7	1.3	**3.8**	41.7	**16**
Action 6.9	implement food scraps collection programs in city buildings	2	2	2	1	1	8	8.0	**16.0**	2	2	2	6	8.6	**8.6**	2	2	6.7	**26.7**	2	2	2	1	7	1.3	**3.8**	55.0	**13**
Action 6.10	develop environmentally friendly purchasing program	1	2	2	2	1	8	8.0	**16.0**	1	3	2	6	8.6	**8.6**	2	2	6.7	**26.7**	1	2	2	1	6	1.3	**3.8**	55.0	**14**
Action 7.2	maximize carbon sequestration on municipal property	2	2	2	2	2	10	10.0	**20.0**	2	2	2	6	8.6	**8.6**	1	1	3.3	**13.3**	1	1	1	1	4	1.3	**3.8**	45.7	**17**
Action 8.2	PLACE HOLDER - ACTIONS NOT DEFINED	---	---	---	---	---	---	---	**---**	---	---	---	---	---	**---**	---	---	---	**---**	---	---	---	---	---	---	**---**	---	**---**
Action 9.4	offer climate education programs to City employees	2	2	2	1	1	8	8.0	**16.0**	2	3	2	7	10.0	**10.0**	2	2	6.67	**26.67**	1	2	1	2	6	2.5	**7.5**	60.2	**9**
Action 9.5	demonstrate leadership by setting municipal reduction targets. Work to achieve these targets	1	2	2	2	2	9	9.0	**18.0**	1	1	2	4	5.7	**5.7**	2	2	6.67	**26.67**	1	1	1	2	5	2.5	**7.5**	57.9	**11**
Action 9.6	when awarding contracts, request applicants provide information about sustainability practices	2	2	2	2	1	9	9.0	**18.0**	2	1	2	5	7.1	**7.1**	2	2	6.67	**26.67**	1	2	2	2	7	2.5	**7.5**	59.3	**10**

This page left intentionally blank for double sided printing.

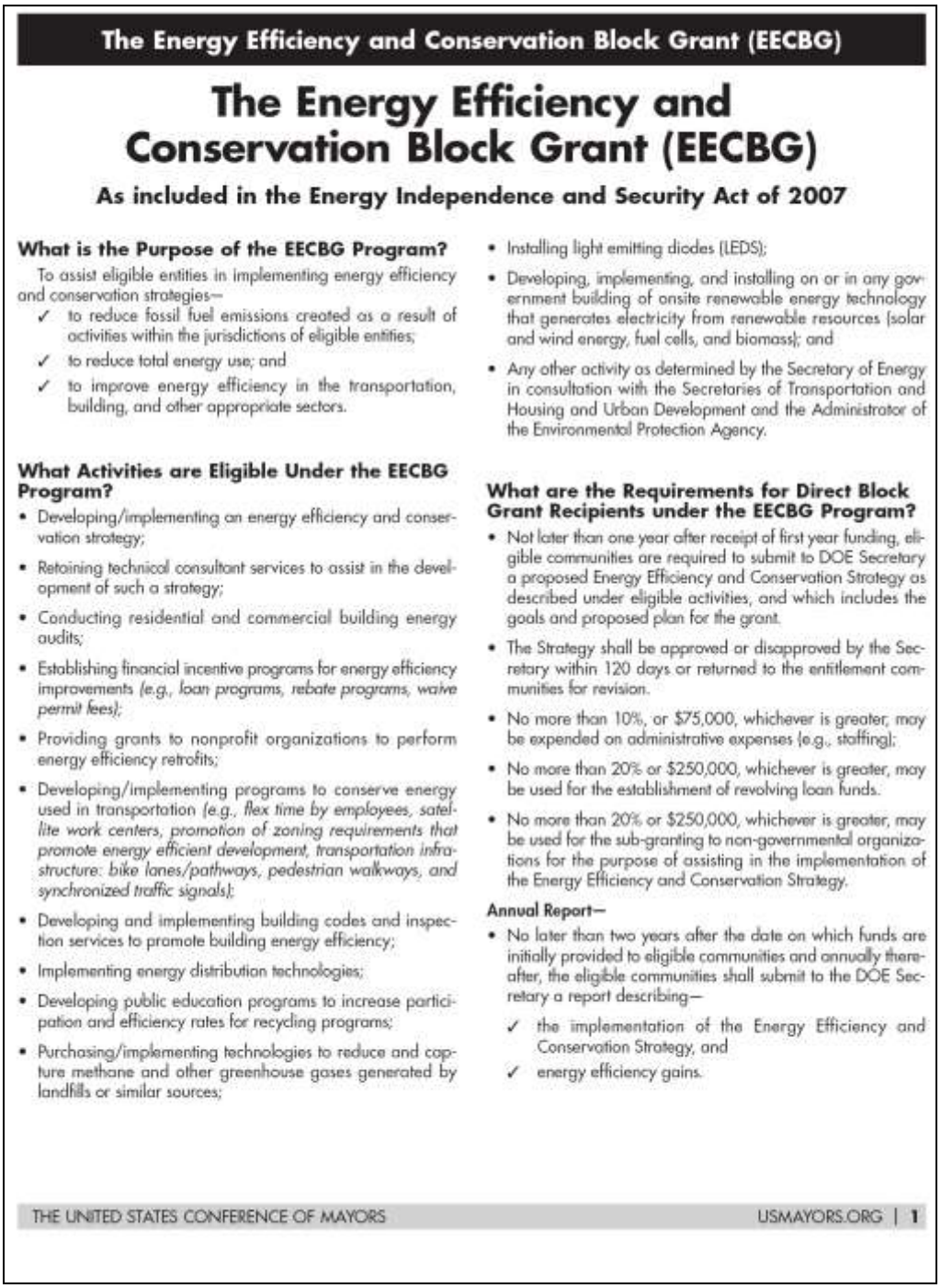
Appendix E: Recommended Implementation Timing

Strategy and Action		Proposed Timeline
		2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050
Strategy 1 – Transportation and Land Use: Reduce Vehicle Miles Traveled		
Action 1.1	assist businesses in providing commuter benefits programs	development; Phase 1; Phase 2
Action 1.2	assist businesses in establishing car share / bike-share programs	development; Phase 1; Phase 2
Action 1.3	update parking policies to encourage reduction in vehicle travel	development; Phase 1; Phase 2
Action 1.4	expand public transit services to encourage reductions in vehicle travel	development; Phase 1; Phase 2
Action 1.5	continue to implement bike master-plan	Phase 1; Phase 2
Action 1.6	develop and implement pedestrian master-plan	development; Phase 1; Phase 2
Action 1.7	update the Circulation Element of the General Plan to evaluate expansions of appropriate modes of transit	development
Action 1.8	prioritize traffic-flow management practices to reduce idling time	development; Phase 1
Action 1.9	encourage high density, mixed-use, smart-growth development in areas near public transit stations	Continuous effort, already under way
Action 1.10	align zoning policies to minimize vehicle travel	Continuous effort, already under way
Action 1.11	increase availability of affordable housing for people employed in Hayward	*timing not yet determined*
Action 1.12	incentivize filling local jobs with local residents	*timing not yet determined*
Strategy 2 – Transportation: Decrease Carbon-intensity of Vehicles		
Action 2.1	provide incentives for low-carbon vehicles and low-carbon fuels	development; Continuous effort with lead-in time to examine ways to advocate and participate in regional, state, and federal programs
Action 2.2	collaborate the state and federal government on policies that promote low-carbon vehicles and low-carbon fuels	development; Continuous effort with lead-in time to examine ways to advocate and participate in regional, state, and federal programs
Strategy 3 – Energy: Improve Energy Performance of Existing Buildings		
Action 3.1	develop and implement Residential Energy Conservation Ordinance for single-family homes	development; Phase 1; Phase 2; Phase 3
Action 3.2	develop and implement Residential Energy Conservation Ordinance for multiple-family homes	development; Phase 1; Phase 2; Phase 3
Action 3.3	develop and implement Commercial Energy Conservation Ordinance	development; Phase 1; Phase 2; Phase 3
Action 3.4	actively participate in low-income weatherization programs	development; Continuous with lead-in time for initial outreach
Action 3.5	promote a voluntary commitment for businesses and residents to reduce energy consumption	development; Continuous with lead-in time for initial outreach
Action 3.6	promote use of home energy monitors	development; Continuous with lead-in time for initial outreach
Action 3.7	offer energy efficiency financing program for single-family homes	development; Phase 1; Phase 2; Phase 3
Action 3.8	offer energy efficiency financing program for multiple-family homes	development; Phase 1; Phase 2; Phase 3
Action 3.9	offer energy efficiency financing program for commercial buildings	development; Phase 1; Phase 2; Phase 3
Strategy 4 – Energy: Improve Energy Performance of New Buildings		
Action 4.1	continue to implement private development green building ordinance for residential buildings	Phase 1; Phase 2; Phase 3
Action 4.2	continue to implement private development green building ordinance for commercial buildings	Phase 1; Phase 2; Phase 3
Strategy 5 – Energy: Use Renewable Energy		
Action 5.1	offer renewable energy financing program for residential buildings	development; Phase 1; Phase 2; Phase 3
Action 5.2	offer renewable energy financing program for commercial buildings	development; Phase 1; Phase 2; Phase 3
Action 5.3	add renewable energy requirement into private development green building ordinance, RECO, and CECO	development; Phase 1; Phase 2
Action 5.4	increase portion of electricity provided by renewable energy	Continuous effort
Strategy 6 – Solid Waste: Increase Waste Reduction and Recycling		
Action 6.1	increase participation in recycling programs	development; Phase 1; Phase 2
Action 6.2	increase participation in food-scraps collection programs	development; Phase 1; Phase 2
Action 6.3	improve construction and demolition debris program	development; Phase 1; Phase 2
Action 6.4	ban certain materials from landfill	development; Phase 1
Action 6.5	require residents / businesses to participate in recycling programs	development; Phase 1
Action 6.6	encourage waste reduction and promote recycling participation at multi-family properties	Continuous
Action 6.7	prefer waste management strategies that maximize the useful value of waste streams	development; Phase 1
Strategy 7 – Sequester Carbon		
Action 7.1	maximize carbon sequestration within City	timing not yet determined
Strategy 8 – Climate Change Adaptation		
Action 8.1	*no actions defined*	timing not yet determined
Strategy 9 – Engage and Educate Community		
Action 9.1	create green-portal website	development; Phase 1
Action 9.2	develop and implement plan to engage residents in emissions reductions activities	development; Phase 1
Action 9.3	develop and implement plan to engage businesses in emissions reductions activities	development; Phase 1

Key
- development
- continuous
- phase 1
- phase 2
- phase 3

This page left intentionally blank for double sided printing.

Appendix F: Energy Efficiency and Conservation Block Grant Information



The Energy Efficiency and Conservation Block Grant (EECBG)

The Energy Efficiency and Conservation Block Grant (EECBG)

As included in the Energy Independence and Security Act of 2007

What is the Purpose of the EECBG Program?

To assist eligible entities in implementing energy efficiency and conservation strategies—

- ✓ to reduce fossil fuel emissions created as a result of activities within the jurisdictions of eligible entities;
- ✓ to reduce total energy use; and
- ✓ to improve energy efficiency in the transportation, building, and other appropriate sectors.

What Activities are Eligible Under the EECBG Program?

- Developing/implementing an energy efficiency and conservation strategy;
- Retaining technical consultant services to assist in the development of such a strategy;
- Conducting residential and commercial building energy audits;
- Establishing financial incentive programs for energy efficiency improvements *(e.g., loan programs, rebate programs, waive permit fees)*;
- Providing grants to nonprofit organizations to perform energy efficiency retrofits;
- Developing/implementing programs to conserve energy used in transportation *(e.g., flex time by employees, satellite work centers, promotion of zoning requirements that promote energy efficient development, transportation infrastructure: bike lanes/pathways, pedestrian walkways, and synchronized traffic signals)*;
- Developing and implementing building codes and inspection services to promote building energy efficiency;
- Implementing energy distribution technologies;
- Developing public education programs to increase participation and efficiency rates for recycling programs;
- Purchasing/implementing technologies to reduce and capture methane and other greenhouse gases generated by landfills or similar sources;
- Installing light emitting diodes (LEDS);
- Developing, implementing, and installing on or in any government building of onsite renewable energy technology that generates electricity from renewable resources (solar and wind energy, fuel cells, and biomass); and
- Any other activity as determined by the Secretary of Energy in consultation with the Secretaries of Transportation and Housing and Urban Development and the Administrator of the Environmental Protection Agency.

What are the Requirements for Direct Block Grant Recipients under the EECBG Program?

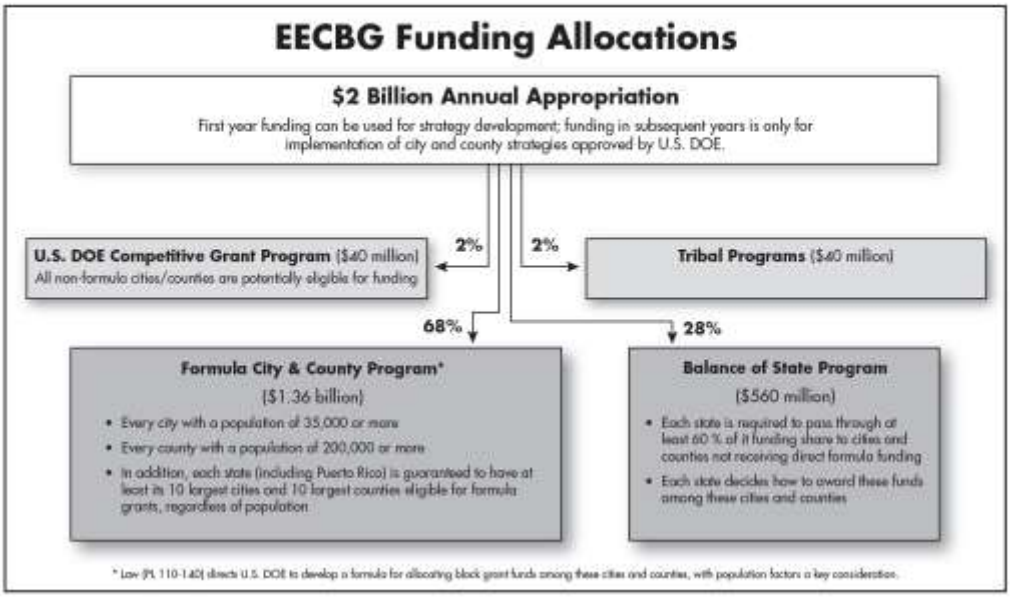
- Not later than one year after receipt of first year funding, eligible communities are required to submit to DOE Secretary a proposed Energy Efficiency and Conservation Strategy as described under eligible activities, and which includes the goals and proposed plan for the grant.
- The Strategy shall be approved or disapproved by the Secretary within 120 days or returned to the entitlement communities for revision.
- No more than 10%, or $75,000, whichever is greater, may be expended on administrative expenses (e.g., staffing);
- No more than 20% or $250,000, whichever is greater, may be used for the establishment of revolving loan funds.
- No more than 20% or $250,000, whichever is greater, may be used for the sub-granting to non-governmental organizations for the purpose of assisting in the implementation of the Energy Efficiency and Conservation Strategy.

Annual Report—

- No later than two years after the date on which funds are initially provided to eligible communities and annually thereafter, the eligible communities shall submit to the DOE Secretary a report describing—
  - ✓ the implementation of the Energy Efficiency and Conservation Strategy, and
  - ✓ energy efficiency gains.

THE UNITED STATES CONFERENCE OF MAYORS USMAYORS.ORG | 1

The Energy Efficiency and Conservation Block Grant (EECBG)



What are the Requirements for States under the EECBG Program?

- A state that receives a grant under the program shall use not less than 60 percent of the amount received to provide subgrants to non-entitlement communities no later than 180 days after the date on which the DOE Secretary approves a proposed Energy Efficiency and Conservation Strategy of the State.
- No later than 120 days after enactment of the law each state shall modify its energy conservation plan to establish additional goals for increased energy efficiency and conservation.
- Also within those 120 days, each state will submit to the DOE Secretary a proposed Energy Efficiency and Conservation Strategy that establishes a process for providing subgrants to non-entitlement communities and includes a plan for the use of their money to implement their energy conservation plan. The DOE Secretary has 120 days to approve or disapprove a proposed strategy. If a strategy is disapproved, the Secretary will provide reasons for disapproval and allow the recipient to resubmit as many times as needed until the Secretary approves a proposed strategy.)
- A state may not use more than 10 percent of amounts provided for administrative expenses.
- Each state that receives a grant under the program shall submit to the DOE Secretary an annual report that describes the status of the implementation of the State's conservation strategy, the status of the subgrant program, and the energy efficiency gains achieved.

Who is Eligible for U.S. DOE Competitive Grants and How Do I Apply?

- Units of local governments (including Indian tribes) that are not eligible entities and consortia of those units of local government can submit an application at the time and manner that the DOE Secretary designates and includes a plan that outlines the eligible activities that they will be implementing. Priority will be given to units of local governments located in States with populations of less than 2,000,000 or to plans that carry out projects that would result in significant energy efficiency improvements or reduction in fossil fuel use.

Appendix G: California Executive Orders and Legislation Pertaining to Climate Change

California Executive Orders Pertaining to Climate Change

- Governor Schwarzenegger Executive Order # S-14-08, November 17,2008, Increasing Renewable Portfolio Standards to 33 percent renewable energy by 2020.
- Governor Schwarzenegger Executive Order # S-13-08, November 14, 2008, Directing state Agencies to Plan for Sea Level Rise and Climate Impacts.
- Governor Schwarzenegger Executive Order # S-01-07, January 18, 2007, on Low Carbon Fuel Standard.
- Governor Schwarzenegger Executive Order # S-20-06, October 18, 2006, on responsibilities and roles of state agencies in climate change.
- Governor Schwarzenegger Executive Order # S-06-06, April 25, 2006, on biofuels and bioenergy from renewable resources.
- Governor Schwarzenegger Executive Order # S-03-05, June 1, 2005, establishing greenhouse gas emission reduction targets.

California Adopted Legislation on Climate Change 2008

- Assembly Bill 811 (Levine, Chapter 159, Statutes of 2008) – Contractual Assessments: Energy Efficiency Improvements.
- Assembly Bill 1470 (Huffman, Chapter 536. Statutes of 2008) – Solar energy: Solar Water Heating and Efficiency Act of 2007.
- Senate Bill 375 (Steinberg, Chapter 728, Statues of 2008) – Transportation Planning: Travel Demand Models:

California Adopted Legislation on Climate Change 2007

- Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007) - Alternative Fuels and Vehicles Technologies.
- Assembly Bill 236 (Lieu, Chapter 593, Statutes of 2007) - Public Resources: State and Local Motor Vehicle Fleets.
- Assembly Bill 532 (Wolk, Chapter 598, Statutes of 2007) - State Property: Solar Energy.
- Assembly Bill 662 (Ruskin, Chapter 531, Statutes of 2007) - Water Conservation.
- Assembly Bill 1103 (Blakeslee, Chapter 684, Statutes of 2007) - Energy: Renewable energy resources, hydrogen highway.
- Assembly Bill 1109 (Huffman, Chapter 534, Statutes of 2007) - Energy Resources: Lighting Efficiency: Hazardous Waste.
- Assembly Bill 1470 (Perata, Chapter 536, Statutes of 2007) - Solar Water Heating and Efficiency Act of 2007.
- Assembly Bill 1560 (Huffman, Chapter 532, Statutes of 2007) - Public Resources: Water efficiency in building standards.
- Assembly Bill 1613 (Blakeslee Chapter 713, Statutes of 2007) - Waste Heat and Carbon Emissions Reduction Act.
- Senate Bill 85 (Committee on Budget and Financial Review. Chapter 178. Statues of 2007)

- Senate Bill 97 (Dutton, Chapter 185, Statutes of 2007) - Directs Governor's Office of Planning and Research to develop CEQA guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions."

California Adopted Legislation on Climate Change 2006

- Assembly Bill 32 (Núñez, Statutes of 2006, Chapter 488) - California Global Warming Solutions Act of 2006.
- Assembly Bill 1803 (Committee on Budget, Chapter 77, Stautes of 2006) - Transfers greenhouse gas inventory to Air Resources Board from Energy Commision.
- Assembly Bill 1925 (Blakeslee, Chapter 471, Statues of 2006) - Report on carbon dioxide sequestration.
- Senate Bill 107 (Simitian, Chapter 464, Statutes of 2006) – Renewable Energy: California Renewable Portfolio Standard Program
- Senate Bill 1368 Perata, (Chapter 598, Statutes of 2006) - Electricity greenhouse gas performance standard.

Previous Recent Years

- Assembly Bill 117 (Migden, Chapter 838, Statues of 2002) – Electrical restructuring, Community Choice Aggregation
- Senate Bill 1078 (Sher, Chapter 516, Statues of 2002) – Renewable Energy: California Renewable Portfolio Standard Program
- Senate Bill 812 (Sher, Chapter 423, Statutes of 2002) – Climate Action Registry.
- Assembly Bill 1493 (Pavley, Chapter 200, Statutes of 2002) - Vehicle emissions, greenhouse gases.
- Senate Bill 527 (Sher, Chapter 769, Statutes of 2001) – Climate Action Registry.
- Senate Bill 1771 (Sher, Chapter 1018, Statutes of 2000) - Greenhouse gas emission registry and reduction and impacts on climate change. (2000 - PDF file)
- Assembly Bill 4420 (Sher, Chapter 1506, Statutes of 1988) - The California Energy Commission was directed to prepare and maintain the state's inventory of greenhouse gas (GHG) emissions and to study the effects of GHGs.

Appendix H: Recommended Changes Municipal Code

Hayward's Municipal Code, in relation to the climate change plan, is intended to achieve the following relevant goals:

- To protect the public health, safety, and welfare of the citizens of the City of Hayward;
- To gain compliance with state Codes, ordinances, and regulations in a timely and efficient manner.

This sections lists a number of recommended changes to the Municipal Code to successfully:

- Address the CAP's environmental, social and economic goals relative to applicable sections of the Code.
- Describe Climate Change Plan-applicable laws and ordinances for reducing greenhouse gas (GHG) emissions and its reliance on non-renewable resources for existing and future development.

The recommended changes impact the following sections of the Municipal Code:

Chapter 10: Article 1 – Zoning Ordinance
Chapter 10: Article 2 – Off Street Parking Regulations
Chapter 10: Article 3 – Subdivision Ordinance
Chapter 10: Article 11 – Historic Preservation

The general regulations apply to all districts and to all uses permitted in the districts. The provisions are intended to amplify and to supplement district regulations. In the event of conflict with the specific district regulations, whichever regulations are more restrictive shall apply, unless otherwise determined by the Planning Director.

Recommended Changes to Chapter 10: Article 1 - Zoning Ordinance

Municipal Code Section	Recommended Change
Sec. 10-1.2720 Special Lot Requirements a. Minimum Lot Frontage Except as provided herein, each lot shall have a minimum frontage of 35 feet.	1. In order to allow a wider range of housing, permit narrow lots for single-family detached homes that are alley-loaded, including reduced lot size widths of 30 feet for detached housing and 18 feet for vertically attached housing. Attached town homes or condos are allowed to have narrow lots (no min. specified in Code).
Yard Exceptions - Accessory Buildings and Uses (1) In conjunction with single-family development located on parcels zoned for same, and in zoning districts where single-family homes are permitted: (a) Accessory buildings not used for parking and not exceeding 14 feet in height and 120 square feet in area and detached from the main buildings, when located in area other than the required front yard (i.e., in side or rear yard area), shall be placed no closer than 3 feet from the side and rear property lines.	2. In order to facilitate the addition of more cost-effective housing, correlate the allowable height and area of Accessory Buildings with the lot size, using the overall lot coverage and rear and side setbacks as determinants, to permit large units on larger lots.
q. Front Yards - Driveway Width and Coverage (1) Driveway width, regardless of the number of driveways, shall not exceed 20 feet in front of the garage, except for 3-car garages where the width shall not exceed 26 feet. In addition, for access to a recreational vehicle storage area adjacent to a dwelling, a maximum 10-foot-wide driveway may be located on the opposite	3. In order to reduce the amount of impervious and low albedo surfaces, limit driveway widths to 18 feet for impervious paving, with exceptions for greater width only for pervious paving materials approved by the City Building Official, aesthetics notwithstanding.

Municipal Code Section	Recommended Change
side of the lot from the garage, and outside the required side yard.	
i. Private Street Criteria Approval of a private way as a private street (not part of a subdivision or other development project) for the purpose of establishing a street frontage for a lot shall be governed by the following: (3) In the instance that multiple lots are to be served by one private street, the following criteria may apply: (a) Six or fewer lots require a minimum of a 20-foot wide paved private driveway. (b) Seven or more lots require a minimum of a 24-foot wide paved private street. (c) Six or fewer lots may be served by a hammerhead. (d) Seven or more lots shall be served by a cul-de-sac.	4. In order to reduce the amount of impervious and low albedo surfaces on private streets, while maintaining emergency vehicle access, require a maximum of 20 feet street width for the travel lanes. 5. A circular or elongated turn-around should consisting of a maximum 12 feet width one-way lane enclosing a sustainably landscaped center.
k. Vehicle Parking, Repair, Display, and Storage Requirements (1) Single-Family Residential Uses. (a) Parking and Storage in Front Yards. Vehicles shall be parked in the required front yard only on the paved driveway which provides direct access to the garage from a public street or an approved private street, perpendicular to the street, or on a curved driveway. (b) Parking or Storage in Other Than Front Yards. (i) Parking or storage of vehicles in areas other than the front yard is permitted subject to the following requirements: (ii) Parking or vehicle storage areas shall be paved with asphaltic or Portland Cement concrete and conform to City standards.	6. Provide incentives for alley-loaded lots in order to reduce the predominance of front-loaded lots with driveways that constrain the placement of trees and the consistency and safety of the sidewalk. 7. Require or provide incentives for pervious paving materials with low albedo surfaces, as substitutes for standard asphaltic or Portland Cement concrete.
Industrial District The Industrial District currently allows office buildings only within business or industrial parks that are 25 acres or greater in size…and office buildings cannot exceed 40 feet in height. A Manufacturing district could be structured to accommodate manufacturing facilities as well as research and development operations. A new Warehousing district could respond to the needs of wholesaling and distribution uses.	8. Continue to allow mixed-use development such as allowing office buildings with first floor commercial in commercially zoned areas with permitted heights scaled to surrounding, desired conditions. 9. Locate transportation-intensive manufacturing adjacent to existing or extendable rail infrastructure and roadways. 10. Locate 'light manufacturing' and research and development uses in commercial/mixed use areas.

Recommended Changes to Chapter 10: Article 2 – off street parking regulations

Municipal Code Section	Recommended Change
Sec. 10-2.205 Administration Except where indicated otherwise, the Director of Community and Economic Development/Planning Director shall administer and interpret these regulations. Prior to authorization for occupancy of any structure, including authorization for gas and/or electric meter service, City officials shall ensure that the use, arrangement, construction, and improvements are in accordance with plans approved through the verification of zoning compliance procedure.	11. Adopt a Parking Management Plan that considers ways to reduce the need for additional parking garages, queuing of parking seekers, and the improvement of pedestrian access: 12. Parking Pricing: Set Prices to ensure parking availability 13. se Differential Rates Instead of Time Limits: Since short-term shoppers are the most important user to accommodate in the downtown, prioritize short-term users with time limits, or eliminate in favor of differential rate to simplify parking by eliminating the complex mix of meters. 14. Market Pricing: Setting rates to achieve an 85% occupancy goal. 15. Extend Meter Hours: If Hayward decides to adopt metered parking, extending meter hours would bring additional revenue for the City, and make it easier to find a parking space in the evenings. 16. Improve Payment Options: Consider options such as multi-space meters or pay-and-display machines.
Sec. 10-2.300 Required Ratio Of Parking Spaces Uses not specifically listed in this article shall provide the minimum off-street parking required of the use most similar in nature, as determined by the Director of Community and Economic Development/ Planning Director. Additional parking spaces may be required for developments requiring conditional use permits,	**Parking and New Development** 17. Reduce Parking Requirements Downtown: As downtown Hayward becomes a mixed-use, walkable district which has a lower parking generation rate than the single use suburban land use environment that dominates parking generation rates prescribed in the ITE Parking Generation Handbook, consider

parcel map or tract map approvals, or other conditionally approved projects at the discretion of the Director of Community and Economic Development/Planning Director.	parking demand at ranges from 1.6 to 1.9 spaces per 1,000 square feet of non-residential built space, or one- third to one-half of that typically required for conventional suburban development. 18. Consider Parking Requirements Strategies: Adopt a single "blended" parking requirement, for example 1.7 spaces per 1,000 square feet. This simplifies changes of use, for example from offices to restaurants. 19. Allow on-street parking along the property's frontage to count towards satisfying parking requirements. 20. Eliminate Parking Provision Requirements Downtown: Allow developers to choose the optimum amount of parking to maximize development feasibility and reduce traffic generated by excess parking. 21. Parking Maximums: Set parking maximums instead of parking minimums. With parking maximums, developers have a cap on the amount of parking that they may build on site. 22. Parking Preferences: Provide parking preferences in public lots, garages and on-street spaces for residents who rideshare or use low-carbon fuel vehicles.

Recommended Changes to Chapter 10: Article 3 - Subdivision Ordinance

Municipal Code Section	Recommended Change
Sec. 10-3.515 Pavement Surfaces All streets shall have an asphalt-concrete, plant-mixed surface. The thickness of the surface course shall be as determined by the method described in section 10-3.525 herein.	23. Require or provide incentives for pervious paving materials with low albedo surfaces, as substitutes for standard asphaltic or Portland Cement concrete.
Sec. 10-3.550 Private Streets Private streets, alleys or ways shall not be permitted unless approved by the Advisory Agencies and/or the City Council, and then only under conditions which guarantee the construction and continued maintenance thereof.	24. Permit and encourage the use of alleys in both new and existing development where feasible, in order to improve the quality of sidewalks and landscape along the street.
Sec. 10-3.845 Block Lengths Blocks shall not exceed 1200' in length between street lines in standard residential and industrial subdivisions. Block lengths in hill area subdivisions may vary from said standard when approved by the City Engineer who shall give consideration to the following factors in granting such approval.	25. Reduce the maximum length of blocks to 600 feet in new development, and encourage the installation of mid-block pedestrian walkways in longer, existing blocks to increase the degree of 'walkability' by making destinations more convenient.

Recommended Changes to Chapter 10: Article 11 – Historic Preservation

Municipal Code Section	Recommended Change
Sec. 10-11.05 Alteration Of Significant Structures Or Sites. a. Review Process. All development permit applications affecting a significant structure or site shall be reviewed as follows: (1) The Director of Community and Economic Development/ Planning Director shall review and may approve additions or alterations which will not adversely affect the exterior architectural characteristics or the historical or aesthetic value of a significant structure or site or its site or surroundings in accordance with the procedures for approval of an administrative use permit. (2) The Planning Commission shall review all development permit applications for proposed alterations of a significant structure or site which may substantially affect its style, scale, or bulk as well as	26. Encourage the addition of energy conserving measures to historic structures that do not qualitatively and adversely impact its historic value, including near-clear, low-emissivity glazing and roof-mounted solar collection equipment that is visually screened from any and all public rights-of-way. 27. Coordinate with federal, state, and regional governments to support the incorporation of GHG considerations into the policies and standards for the alteration of significant facilities.

Municipal Code Section	Recommended Change
new construction in an historic district or on an historic site. The Planning Commission's decision shall become final ten days after the decision.	
Sec. 10-11.06 Demolition Of Significant Structures. a. Applications for demolition of a significant structure shall include one (1) clear photograph of the front of the building and such other information as may be required by the City Building Official and the Director of Community and Economic Development/ Planning Director.	28. Consider and quantify the value of the embedded or sequestered carbon within the structure as important criteria in determining whether or not to allow demolition of a structure.
Residential zoning districts	29. Allow neighborhood-serving commercial uses.

Appendix I: Recommended Changes to General Plan

The City's General Plan, last updated in 2002, provides a fundamental means for documenting and integrating the Climate Action Plan's environmental, social and economic goals, objectives, principles, policies, and programs within each of the relevant General Plan's categorical elements, and the CAP's relationship to the community's development over a twenty-year time horizon. The Climate Action Plan process, therefore, requires an assessment of those General Plan elements and recommendations for modifications, deletions, and/or additions to the policies, etc. in order to fulfill the purpose of the CAP: reducing the community's greenhouse gas (GHG) emissions and its reliance on non-renewable resources, and improving the environmental, social and economic health of the community.

The City's General Plan is intended to:
• Address the CAP's environmental, social and economic goals;
• Describe policies for reducing greenhouse gas (GHG) emissions and its reliance on non-renewable resources for existing and future development;
• Provide methods for analyzing proposed development to determine consistency with the CAP goals, objectives, and policies.

The General Plan Elements addressed in the following documents consist of:

Chapter 2: Land Use
Chapter 3: Circulation
Chapter 5: Housing
Chapter 6: Community Facilities and Amenities
Chapter 7: Conservation and Environmental Protection
Chapter 8: Public Utilities and Services

Recommended Changes to Chapter 2: Land Use

Chapter 2 focuses on Hayward's lands within the City as well as those areas beyond the City limits that are within its sphere of influence. California's land continues to be developed at a rate almost three times faster than population growth. This expansive development has caused CO2 emissions from cars to rise even as it reduces the amount of forest, natural coastal and inland areas available to absorb CO2. Despite Hayward's fixed development boundaries, market pressures could continue to alter the City's development patterns. Growing out instead of within could exacerbate the adverse environmental impacts from increasing energy and water use to vehicle miles traveled. Land availability is a primary issue for the City of Hayward. The amount of vacant land available for business expansion and new development has become quite limited.

Recommendations to the General Plan's Principles
The General Plan follows "smart growth" principles that encourage the reduction of greenhouse gas (GHG) emissions and reliance on non-renewable resources for existing and future development.

The following recommendations could help "activate" the smart growth principles.

Principles	Recommendations
• Mix land uses	1. Codify to allow mixed use in most City areas to help reduce vehicle miles traveled (VMT)
• Take advantage of compact building design	2. Codify compact design in appropriate City areas to improve energy conservation
• Create a range of housing opportunities and choices	3. Codify a range of housing opportunities and choices in appropriate City areas to increase the ability to maintain neighborhood viability and value over time, and to help reduce vehicle miles traveled (VMT)
• Create walkable neighborhoods	4. Codify walkability in most City areas to help reduce vehicle miles traveled (VMT)
• Foster distinctive, attractive communities with a strong sense of place	5. Codify distinctive, attractive design in most City areas to improve economic value
• Preserve open space, natural beauty, and critical environmental areas	6. Codify the preservation of open space, natural beauty, and critical environmental areas, to increase local food production opportunities and carbon sequestering
• Strengthen and direct development towards existing neighbohoods	7. Codify incentives for developing in existing neighborhoods to reduce infrastructure and land consumption
• Provide a variety of transportation choices	8. Create a long range transit and pedestrian action plan to help reduce vehicle miles traveled (VMT)
• Make development decisions predictable, fair and cost-effective	9. Codify the development 'rules' to provide the 'rules' to equitably measure development's climate change benefits and drawbacks
• Encourage community and stakeholder collaboration in development decisions	10. Codify the standards for comparing and assessing development proposals to provide CAP benefits and drawbacks

The following recommendations address the Land Use Element

Excerpts from the Land Use Regulations and Development Standards	Recommendations
Industrial Corridor • Development regulations in the Industrial Corridor essentially presume and encourage a manufacturing-based economy, whereas a new approach may be warranted that better reflects the needs of the information-based economy. This is essential with regard to provisions for business parks and research and development firms.	11. Encourage 'green' manufacturing and determine development standards for a range of users, and appropriate locations. 12. Create redevelopment standards for business parks to allow a mix of uses, maximum building coverage, minimum parking requirements, and maximize pedestrian and transit access. 13. Allow work/live uses in commercial/mixed use areas.
Industrial District • The Industrial District currently allows office buildings only within business or industrial parks that are 25 acres or greater in size…and office buildings cannot exceed 40 feet in height. A Manufacturing district could be structured to accommodate manufacturing facilities as well as research and development operations. A new Warehousing district could respond to the needs of wholesaling and distribution uses.	14. Continue to allow mixed-use development such as allowing office buildings with first floor commercial in commercially zoned areas with permitted heights scaled to surrounding, desired conditions. 15. Locate transportation-intensive manufacturing adjacent to existing or extendable rail infrastructure and roadways. 16. Locate 'light manufacturing' and research and development uses in commercial/mixed use areas.
Integration vs. Separation of Land Uses • The separation of these industrial uses from adjacent residential uses makes it easier for emergency responders to mitigate and evacuate a hazardous situation. On the other hand, as portions of the Industrial Corridor are developed with more intensive uses, the increase in employee densities may result in a need for child-care facilities in closer proximity to the workforce.	17. Separate potential hazard-generating industrial uses from adjacent residential uses in designated locations and in flexible configurations, recognizing that the number of these types of users will decline over time. Hayward currently requires a use permit when an industrial use is located adjacent to residential.. 18. Allow the replacement of business parks over time by mixed-use centers populated with a majority of employment uses. 19. Permit the inclusion of child-care facilities in employment areas that protect the health and safety of the children.
Parking Requirements • Parking issues arise as more intensive development occurs in the Industrial Corridor. Parking requirements for warehouse uses are obviously much less than those for more intensive uses. This situation often inhibits the conversion of warehouse space to office and research and development uses. There are several approaches that might address this problem. Higher parking ratios could be required for all new	20. Minimize or eliminate minimum parking requirements. 21. Provide transit alternatives to driving and parking, and/or parking and shuttle ride lots. 22. Maximize on street parking wherever feasible. 23. Adopt a policy requiring limitations on idling for commercial vehicles, construction vehicles, buses and other similar vehicles, beyond state law, where feasible. 24. Provide an employer incentive program for a voluntary commute

Excerpts from the Land Use Regulations and Development Standards	Recommendations
buildings so as to facilitate conversion at a later date. Or, perhaps an overlay district could be applied to certain areas to address parking issues, including those related to conversion of warehouses to more intensive uses. In addition, it may be desirable to explore with industrial park owners the possibility of allowing on-street employee and visitor parking (no trucks) within some of the business and industrial parks.	trip reduction programs, such as car-sharing and other services that reduce the need for personal motor vehicle use.
Minimum Parcel Size • It may also be appropriate to consider increased minimum parcel sizes for certain types of industrial development. The minimum lot size in the Industrial District is currently 10,000 square feet. However, lots this small are not conducive to manufacturing or research and development operations. Perhaps the City should consider prohibiting the subdivision of industrial land into parcels of less than one acre.	25. Determine the appropriate lot size thresholds for industrial users that require buffering for security and public health needs. 26. Determine whether new large industrial areas are appropriate for the City, and whether these facilities can be redeveloped if and when this industry changes its requirements.

Recommendations for Chapter 3: Circulation

The City's General Plan Circulation Element addresses the movement of people and goods through and around the City through freeways, local roads, bus and rail transit, by bicycle and as pedestrians. Bicycle facilities are addressed in more detail in the Bicycle Master Plan; Recreational trails, including bikeways and pedestrian pathways, are addressed in the Open Space Element

The following recommendations address the Circulation Element

Excerpt from General Plan	Recommendations
Circulation Element	
• State law recognizes that circulation and land use are closely related and requires that policies in the Circulation Element and Land Use Element complement and support each other. The policies and strategies should demonstrate a balance between land uses and the transportation facilities that serve them. Within the larger context of the General Plan, the circulation policies are also interwoven with economic, housing, open space, air quality, noise, and safety policies. • Better integration of transportation and land use planning in Bay Area communities could help to reduce the use of the automobile. One obvious solution is to achieve a more balanced distribution of jobs and housing in the surrounding communities and the greater Bay Area. Although it is not always possible for people to live and work in the same community, this approach would help to reduce the amount of commute traffic traversing the City. Improved transit systems along with greater usage of transit could also help to reduce the amount of auto travel. These solutions are regional in scope and beyond the City's ability to successfully address or implement by itself. • Regional growth projections prepared by the Association of Bay Area Governments indicate that in addition to growth in Alameda County, Silicon Valley will continue to show significant gains in employment and the Tri-Valley and Central Valley areas will continue to add substantially more housing units, all of which will continue the existing regional imbalance in the distribution of jobs and housing.	27. Amend the General Plan to more comprehensively integrate the Land Use and Circulation Elements, rather than just including text from each in the Elements. 28. Describe polices that will enable people to live, work, shop, and recreate within walking or bicycling distance of some of the destinations of work, shops, schools, parks, and transit stops. 29. Accelerate workshops and meetings and other venues with regional transportation partners to plan collaboratively, and determine responsibilities and authority for implementation and, if need be, enforcement of new GHG reduction requirements, as each agency or entity contains different strengths and capabilities that should be utilized. 30. Develop local government quantification protocols, improve VMT estimation tools, and develop more refined land use and transportation models that reflect the benefits of high-quality development, and use these tools for planning and to measure progress 31. Modify zoning to allow mixed use in most City areas and to allow more compact design in appropriate City areas to help reduce vehicle miles traveled (VMT). 32. Modify zoning and development standards to allow a broader range of housing opportunities and choices in appropriate City areas to increase the ability to help reduce VMT.

Excerpt from General Plan	Recommendations
Dealing with Traffic on Highways and Major Arteries	
• Major increases are projected in the future for in-commuting from Oakland/Hayward and Contra Costa County, as well as San Joaquin County. • Hayward's central location within the regional transportation network, in combination with the imbalances in the growth of jobs and households throughout the Bay Area, have contributed to the significant amount of regional or through traffic congesting area highways, primarily during the peak commute hours, and spilling over onto City arterials and into residential neighborhoods. • The amount of regional traffic traversing the Hayward area … (regional through traffic that does not have an origin or destination in Hayward) contributes as much as 25%-30% of the peak hour traffic on some of the major arterials in Hayward. As a result, it is readily apparent that the City's ability to reduce local traffic congestion is inextricably linked to its success in enlisting the cooperation of surrounding jurisdictions in dealing with regional traffic.	33. Circulation policies must reflect the trends of aging population, changing demographics, rising gas prices, and longer commutes in the City's transportation, land use, and development standards, that will allow the market to respond to the demand for townhouses, condominiums, and smaller homes nearer to jobs, schools, and other activities. 34. Create policies to direct jobs and households to brownfield and other infill sites that reduce overall travel, congestion and emissions from cars. If a small percentage of the Bay Area's jobs and households were shifted over time toward redevelopment and infill, congestion, cut-though traffic, and emissions would be significantly reduced. 35. Encourage local employers to "hire Hayward" in order to reduce the distance for those employed in the City have to travel. 36. Update transportation models and surveys to capture data for and accurately reflect all modes of transportation. 37. Make reductions in vehicle-miles traveled (VMT) high-priority criteria in evaluation of policy, program and project alternatives. 38. Implement transportation planning procedures that consider demand management solutions equally with strategies to increase capacity. 39. Include all significant impacts (costs and benefits) in benefit-cost assessment of alternatives, including non-market or indirect impacts, such as improving mobility options or reducing air pollution and greenhouse gas emissions. 40. Improve infrastructure and Transportation Systems Management (TSM).
Linking Transportation and Land Use Planning	
• Better integration of transportation and land use planning in Bay Area communities could help to reduce the use of the automobile. One obvious solution is to achieve a more balanced distribution of jobs and housing in the surrounding communities and the greater Bay Area. Although it is not always possible for people to live and work in the same community, this approach would help to reduce the amount of commute traffic traversing the City	41. Revise development standards to allow appropriate mix of land uses in most areas of the City to facilitate the proximity of commerce and housing. 42. Where possible and appropriate, add housing, including affordable housing, in areas of Hayward best served by transit, jobs, retail options, and other services 43. Create a Safe Routes to School Program (SR2S) combined with more progressive school siting to allow most children to walk or bike to school, or at least use public transit.

Excerpt from General Plan	Recommendations
Proposed Transportation Improvements	
• Transit improvements essentially reflect proposals contained in the BART Long-Range Transit Plan or envisioned in the AC Transit Central County Transit Study. Although expanded express bus service across the San Mateo Bridge has been envisioned in the past and is supported in the Countywide Transportation Plan, funding is not included in the Regional Transportation Plan and efforts by AC Transit to implement this service have been rejected by the Metropolitan Transportation Commission. • Issues of importance to Hayward residents focus on the inaccessibility and infrequency of bus service and the perception of inefficiencies and duplication of transbay service between BART and AC Transit. Hayward residents have also indicated a desire for transit-related improvements such as coordinated transfers/passes, posted routes and schedules at bus stops, bus shelters, and safe, convenient parking at BART stations. The City, in cooperation with AC Transit, has undertaken a major project to install bus shelters and benches throughout the City. • The fundamental service design problem in Hayward is that the widely spaced BART stations and freeway overpasses provide very few opportunities for continuous east-west lines.	44. Partner with BART to improve bicycle access on trains, at Hayward's two stations, and other BART stations. 45. Consider the cost/benefits of a Hayward streetcar system that connects higher density neighborhoods and centers with BART and the City Center along transportation corridors. Because streetcars do not require dedicated ROW, their installation and operation is about 1/3 less that Light Rail Transit (LRT). 46. Support regional efforts to implement improved bus service, including Bus Rapid Transit (BRT). 47. Where possible and appropriate, provide incentives for attracting essential retail services in Hayward's main transit and economic corridors.
Walking and Biking	
• Walking (and biking) is popular as a form of recreation, exercise, and commuting for relatively short trips. Walking can be promoted as an alternative to driving if there are safe, attractive facilities. A network of pedestrian pathways between activity centers and transit facilities, as well as between residences, schools and neighborhood shopping, can encourage walking. • Greater use of bicycles can provide many benefits. Bicycles are a quiet, non-polluting form of transportation that does not directly consume fossil fuels or require vast amounts of land and expensive infrastructure. Bicycling can be encouraged with the provision of bikeways to major destinations and requirement of bike racks and lockers at destination points such as governmental centers or other places of employment..	48. Expand and improve bicycle and pedestrian infrastructure improvements such as adding additional bike lanes and introducing bike boulevards, and maintaining and improving sidewalks. 49. Increase bicycle and pedestrian safety by enforcement of existing laws, and partnering with other agencies to provide continuing education for motorists, cyclists and pedestrians. 50. Identify and improve areas with high auto/pedestrian and auto/bicycle collision rates. 51. Partner with other agencies to promote and market cycling and walking as an attractive alternative to driving 52. Reduce pedestrian block length by introducing mid-block crossings and reducing redeveloped or new block lengths to a maximum of 600 feet.
Intersection Level of Service (LOS)	
• A summary of the existing LOS conditions, including the calculated stopped delay in seconds per vehicle for PM Peak Hour conditions for all study intersections, is presented in Appendix G. Of the 27 intersections analyzed, 19 currently operate at an acceptable level of service (LOS D or better) during the PM Peak Hour. Four intersections operate at marginal conditions (LOS E), while four intersections operate at LOS F or unacceptable conditions. • The roadway miles of congested segments in 2005 were calculated to be about 98 miles in length. The roadway miles of congested segments in 2025 with the General Plan network were calculated to be about 92 miles in length. The roadway miles of congested segments under the Constrained Project were calculated to be about 96 miles in length.	53. Recommend an expansion of roadway and intersection performance metrics to include pedestrian, bicycle, and transit 'LOS' criteria to measure quantitative and qualitative metrics such as accessibility, intersection crossing times, and other relevant and contextual data. 54. As transportation design, planning, funding decisions are considered; recommend using the multi-modal evaluation metrics rather than the more conventional AASHTO and ITE Manual criteria. 55. Implement Intelligent Transportation Systems (ITS) for surveillance and traffic control, such as synchronized signals, transit and emergency signal priority, and other traffic flow management techniques, to improve traffic flow and reduce vehicle idling. 56. Develop infrastructure improvements such as HOV/HOT lanes and dedicated bus rapid transit right-of-ways. 57. Implement programs to reduce "incident-based" traffic congestion, such as expedited clearing of accidents from major traffic arteries, airport traffic mitigation, etc.

Excerpt from General Plan	Recommendations
Promoting Public Transit and Alternative Modes of Transit	
• The increase in traffic congestion within Hayward and throughout the region, as well as the collective environmental costs of automobile proliferation, have intensified the need to promote alternative transportation modes.	58. Provide continual educational opportunities for residents, businesses, and others to help them recognize the critical connection between urban development and vehicle travel patterns, its contribution to climate change, and its essential role in combating it. 59. Provide agency employees with incentives to use alternatives to single occupant auto commuting, such as parking cash-out, flexible schedules, transit incentives, bicycle facilities, ridesharing services and subsidies, and telecommuting. 60. Reduce greenhouse gas emissions from municipal fleet operations by purchasing or leasing high MPG, low carbon fuel or hybrid vehicles, or by using an external car sharing program in lieu of City/county fleet. 61. Work with major employers in the community to offer incentives and services to increase the use of alternatives to single-occupant auto commuting (voluntary commute trip reduction programs). 62. Encourage and facilitate the development of car-sharing and related programs.
Transit and Density of Development	
• Discretionary use of transit is primarily dependent upon frequency of service and proximity, both of which are linked to the density and design of development. More intensive development, whether denser residential development or concentrations of employment, supplies more potential riders along a route. Lower intensity development requires more route mileage to bring service close to residents and each route may have too few riders to be economically feasible.	63. Coordinate the scale of roadways with the scale of development and anticipated densities and uses.
Street Widening and Intersection Improvements	
• The City has completed several major street widening projects, including West A Street and D Street. Other widening projects are contemplated for the future.	64. Recommend the reallocation of funding for street widening to pedestrian, bicycle, and transit improvements. Street widening will not decrease GHG emissions since they tend to induce motor vehicle use.
Street Design	
• Principles of "smart growth" call for greater attention to the design of streets and the overall streetscape and consideration of how those aspects can contribute to the creation of more livable neighborhoods. Furthermore, the quality of street design can play a significant role in determining property values within a neighborhood and throughout the City. This section focuses on the design of the street pattern and public rights-of-way and the need for coordination with alternative modes (e.g. sidewalks, bicycle lanes) and consideration of related concerns (e.g., pedestrian safety, street trees and landscaping).	65. The criteria for the design of Hayward's streets should address the convenience, safety, and attractiveness for motor vehicles, pedestrians, and bicycles. 66. The design or redesign of existing streets for retrofitting should first determine the desired motor vehicle speed most appropriate for surrounding physical context, and for the integration of the desired alternative mobility modes – pedestrian, bicycles, and transit. 67. Rather than add speed bumps and other retrogressive elements, recommend using street design improvements, such as visual narrowing techniques, to reduce speeding.

Recommendations for Chapter 5: Housing

The purpose of the Housing Element is to identify local housing issues within the broader regional context, determine associated housing needs, and set forth a housing strategy that will address those needs, consistent with adopted goals and policies.

The following recommendations address sections of the Housing Element:

Excerpt from General Plan	Recommendations
Excerpts from Patterns and Trends	
• Developers thought of Hayward as a suburban, rather than an urban area where single family development could not be too dense; otherwise, the units might not sell. However, through the City's efforts to redevelop downtown and create transit-oriented housing, this perception is slowly changing. • Although the City is very supportive of mixed-use development to increase the supply of housing and highlight smart growth principles, many developers would prefer not to build these types of projects because they are much more complex to finance. Unless the project is in a high demand market, there is also the risk that the retail or office space will be or become vacant.	68. Recommend a form-based zoning code and development standards that reflect the desired uses, forms, and scale, and calibrated to the specific local context as a tool to add housing appropriate to Hayward's neighborhoods, centers, and corridors, and to the goals of the Climate Action Plan. 69. Recommend providing builder and developer incentives, such as expedited planning approval and building permitting for applications consistent with the City's codes and the CAP. 70. Recommend using a 'Town Architect' to review applications for consistency. 71. Recommend holding a forum with local, regional, and national builders, lenders, planners, and other real estate professionals and community representatives to exchange needs, desires, information and values relative to proposed new form-based zoning code and development standards, and the CAP.
Excerpts from Land Use Controls: General Plan and Zoning Ordinance	
• The City's General Plan and Zoning Ordinance provide for a wide range of housing types and densities, ranging from one unit per net acre in the Hayward Hills to a maximum of 65 units per acre in the downtown (Parts of the South Hayward BART plan allow up to 100 units per acre).In addition, the City allows a density bonus for developments that qualify under state law.	72. Recommend that a form-based zoning code and development standards specifically target those areas designated as infill and/or redevelopment opportunities.
• The basic concept is to make more efficient use of existing developed areas so that the need to accommodate growth through unfettered expansion of developed area is minimized. The basic principles can be summarized as follows: • Mix land uses • Take advantage of compact building design • Create a range of housing opportunities and choices • Create walkable neighborhoods • Foster distinctive, attractive communities with a strong sense of place • Preserve open space,, natural beauty, and critical environmental areas • Strengthen and direct development towards existing communities • Provide a variety of transportation choices • Make development decisions predictable, fair and cost-effective • Encourage community and stakeholder collaboration in development decisions •	73. Recommend a codification of the "basic principles" into specific, prescriptive standards to achieve the designed results: 74. Mix land uses – Create a wider range of permitted uses in more areas of the City. 75. Create a range of housing opportunities and choices – Provide builder/developer incentives and clear 'development rules'. 76. Create walkable neighborhoods – See the Circulation Element. 77. Foster distinctive, attractive communities with a strong sense of place – Create and adopt a place-based, form-based code. 78. Preserve open space, natural beauty, and critical environmental areas – Create more incentives for infill and redevelopment. 79. Strengthen and direct development towards existing communities - Create and adopt a place-based, form-based code to set specific rules for where and how infill and redevelopment will occur. 80. Provide a variety of transportation choices – See the Circulation Element. 81. Make development decisions predictable, fair and cost-effective – Create and adopt a place-based, form-based code. 82. Encourage community and stakeholder collaboration in development decisions – Require the uses of the Charrette process for all significant development planning.

Excerpt from General Plan	Recommendations
Excerpts from Parking Requirements	
• Hayward has reduced the parking requirements for residential developments on a case-by-case basis where development has been adjacent to transit or is a senior or special needs project. Success has been mixed. In senior and special needs projects, few problems have been noted. In market-rate rental developments, the City has gotten many complaints from the adjoining neighborhood and from tenants in the development about the proliferation of vehicles. Although many tenants take public transportation to work, each tenant has his or her own vehicle. Since rents are high, it is not unusual for three single adults to inhabit two or three bedroom unit.	83. Recommend lowering parking requirements to reduce the amount of impervious paving, discourage auto dependency, and encourage alternative mobility modes – while reducing housing cost. 84. However, reduced parking requirements require counterbalancing increases in convenient, safe, and accessible transit within a ¼ mile, and zoning and development standards that allow and encourage a comprehensive mix of uses as incentives to walk and bike to destinations. 85. Primarily residential areas with live-work (primary residence and allowed limited business) and/or work-live (primary business and allowed residence) will require specific parking strategies.
Expand The Housing Supply	
• Maintain an adequate supply of land designated and zoned for residential use at appropriate densities to meet housing needs, consistent with the objective of maintaining a balance of land uses. • Encourage mix of shopping, employment and residential use in areas that are to be more intensely developed. • Promote development of infill housing units within existing residential neighborhoods in a variety of housing types. • Encourage high-density residential development along major arterials and near major activity or transit centers. • Encourage developers to create housing units that accommodate varied household sizes and income levels.	86. Recommend that promotion include adopted land use and development standards that require – as opposed to merely encouraging – transit, bike, and pedestrian-oriented development – in appropriate centers and corridors. 87. Recommend permitting horizontal and vertical mix of uses in all appropriate locations, especially centers and corridors, including allow live-work and work-live units. 88. Recommend the drafting and adoption of a form-based code calibrated to the context of each City area, to provide infill building standards consistent with community values. 89. Recommend the drafting and adoption of a form-based code calibrated to the context of each City area, to provide compatible 'high-density residential development'. 90. Recommend the drafting and adoption of a form-based code that include flexible building types that are intergenerational, and provide a greater range of housing choices.
Conserve the Housing Stock	
• Maintain and upgrade the housing stock by encouraging the rehabilitation, maintenance and upkeep of residential properties.	91. Recommend City programs to provide incentives for sustainable building redevelopment. 92. Provide incentives such as flexibility in owner-builder options.

Additional Recommendations for Consideration: Land Value Taxes

The following describes one strategy for helping accomplish the goals of the Housing Element and the CAP. To accomplish some of these changes, Hayward may need to work with the County Assessor and possibly change state laws. Most property taxes base themselves on the highest and best use for the underlying land; and, whatever improvements are on the land. This causes two distinct problems as it relates to building:

First, it permits owners of land in downtown areas to remain undeveloped, such as parking lots, or under developed, such as one story buildings. Substituting a land value tax that primarily taxes the land, not the improvements (i.e., the buildings) will provide incentives to develop the land consistent with the City's land and development standards, since the economic value will naturally flow to those who are willing to develop the land.

Second, business and home owners pay a disproportionably large percentage of total property taxes (land + improvements) yet enjoy the same locational advantages as speculators, investors, and other non-users, all of whom pay far less. So, a shift to land taxation would lower individual home owners and business owners property tax bill, providing more "fairness" to the system.

Third, property taxes are far less "green" than land taxes. Firstly because they discourage building reuse but also because they lack the density incentives inherent in a land tax.

Fourth, a property tax provides an incentive for owners of land on the edge of Hayward to sell to developers who can build subdivisions on the underlying land, as long as the agricultural value of land is a fraction of what someone might sell it if it were developed as a residential lot. Thus, demand alone does not turn this property into conventional subdivisions; the property taxes provide an incentive for the rancher or farmer to turn the property into a subdivision.

Generally, in a land value tax, Hayward would provide a high improvements tax where open space preservation is wanted and a high land tax where more intense development is desired.

Land value tax references:

- Mark Alan Hughes, Why So Little Georgism in America: Using the Pennsylvania Case Studies to Explain the Slow, Uneven Progress of Land Value Taxation.
  http://www.lincolninst.edu/pubs/PubDetail.aspx?pubid=1275
- Spencer Banzhaf, How Smart is the Split-Rate Property Tax.
  http://www.lincolninst.edu/pubs/PubDetail.aspx?pubid=1372
- Richard England, Current Use Property Assessment and Land Development:
  http://www.lincolninst.edu/pubs/PubDetail.aspx?pubid=669
- A web-based course on Two-Rate Taxation of Land and Buildings:
  http://www.lincolninst.edu/education/leo.asp

Recommendations for Chapter 6: Community Facilities and Amenities

The Chapter provides a background for discussion of the community facilities and amenities, both existing and desired, in the Hayward area. Community facilities include public schools, libraries, and parks, as well as community and cultural centers. Amenities include historic resources and the surrounding open space that provides the visual setting for the City.

The following recommendations address the Community Facilities and Amenities Element:

Excerpt from General Plan	Recommendations
Schools • The increase in student enrollment, in conjunction with the state-mandated reduction in classroom size for the lower grades, has greatly exacerbated the overcrowding of existing school facilities and sites. In addition, all of the District's schools are more than 40 years old. They lack many of the facilities required for a quality education, such as modern libraries, comprehensive computer capabilities, and science and math labs.	93. Review latest Facilities Study to determine the potential for addressing sustainability issues at the macro scale (e.g., siting relative to walkability, proximity to student services, etc.). 94. Create a Safe Routes to School Program (SR2S) combined with more progressive school siting to allow most children to walk or bike to school, or at least use public transit.
Facilities • The continued use of relocatables can have significant impacts on individual sites… Construction of new permanent buildings would address these concerns and also create a better learning environment and improve the overall aesthetic appearance of the site.	95. Consider designing and building durable, flexible-use, multiple-story buildings that can accommodate a diversity of educational venues, and adapt to business and other uses over time without replacement, and conserve building energy more effectively.
Consideration of Surplus Sites • The District is currently evaluating the possibility of reopening school facilities on various sites now used for other purposes.	96. Revisit the siting and reuse criteria to determine: a) the types of buildings should serve as the most innovative, adaptable, and energy-efficient facilities in the long term; b) the sites should provide adequate connectivity to the neighborhoods they serve and daily needs required by the users, and greatly reduce the need for motor vehicle transportation and parking; c) the sites should serve as community models of adaptive, sustainable reuse economically, environmentally, and socially.
Schools as Community Centers At the same time the District is focusing on efforts to accommodate the need for additional classroom facilities, desires have been expressed by various segments of the community to have the schools enhance their function as community centers.	97. Minimize or eliminate minimum parking requirements. 98. Provide transit alternatives to driving and parking, and/or parking and shuttle ride lots. 99. Maximize on street parking wherever feasible. 100. Revise zoning and development standards to permit the building and rebuilding of facilities for an appropriate diversity of uses.
Park Sizes and Uses It may be desirable to consider more, smaller parks to adequately serve existing neighborhoods as well as new infill housing developments.	101. Revise park and open space standards and uses to allow both private and public gardens 102. Revise park and opens space standards to allow a range of sizes, including 'pocket parks' and other lot scale facilities within a two minute walk of most neighborhood homes.
Historic Preservation • Historic preservation can play an important role in enhancing the character of the community. Some buildings have been officially recognized as architecturally and/or historically significant structures.	103. Well-built, traditional buildings represent a timeless model of efficient, adaptable, and carbon-conserving structures that should be protected for their economic and environmental value, beyond their architectural significance.

Recommendations for Chapter 7: Conservation and Environmental Protection

This Chapter focuses on the conservation of natural resources and protection from environmental Hazards, including preservation of open space, protection of mineral resources, biological resources, and hydrology and water quality, and environmental protection including geological and seismic hazards, flood hazards, hazardous materials, air quality, and noise mitigation.

The following recommendations address the Conservation and Environmental Protection Element:

Excerpt from General Plan	Recommendations
Open Space Preservation	
• There is a need to protect surrounding regional open space and maintaining open space corridors within the urbanized area.	104. Recommend considerations for open space allocations for community food production.
Air Quality	
• The climate of Hayward is affected by its proximity to San Francisco Bay. Winds are predominantly out of the northwest during the summer months. As a result, Hayward has a relatively high potential for poor air quality during the summer and fall. When high pressure dominates, low mixing depths and bay and ocean wind patterns can concentrate and carry pollutants from other cities to Hayward, adding to the locally emitted pollutant mix. • There are currently no federal, state or local air quality-related constraints on cities in the Bay Area. Although the Bay Area is a federal non-attainment area for ozone, there are no plans to impose the federal sanctions provided for in the federal Clean Air Act. The BAAQMD has, however, developed guidelines and thresholds of significance for local plans that will affect the CEQA documentation for the Hayward General Plan Update. • Guide development into patterns that reduce dependency on automobile usage. • Require pedestrian-, bicycle-, and transit-oriented features in new development projects. • Encourage compact development featuring a mix of uses that locates residences near jobs and services. • Facilitate the development of higher-density housing and employment centers • Encourage employers and developers to provide bicycle access and facilities. • Incorporate subdivision, zoning and site design measures that reduce the number and length of single-occupant automobile trips. • Consider traffic calming strategies in capital improvement programs.	105. Recommend accelerated climate action coordination between Hayward and the surrounding jurisdictions to reduce regional emissions. 106. Recommend a special and continued focus on reducing both point source and tail pipe emissions in Hayward. 107. Incorporate and adopt sustainable development patterns into Hayward's zoning maps and development standards. 108. Draft and adopt development standards that require effective actions to enable robust pedestrian, bicycle, and transit mobility. 109. Draft and adopt sustainable development patterns into Hayward's zoning maps and development standards, and development standards that allow a range of uses as of right 110. Recommend the drafting and adoption of a form-based code calibrated to the context of each City area, to provide compatible 'high-density residential development'. 111. Require conformance similar to the LEED credits for facility bicycle access and facilities. 112. Draft and adopt development standards that allow a range of uses as of right, compact development, and multi-modal connectivity. 113. Draft and adopt street design standards that calm or slow motor vehicles through the design of the street section rather than retrofitting the street after construction. Refer to the draft CNU/ITE Street Design Manual. 114. Recommend advocacy for revision to CEQA to provide consistency with and relevance to the current and evolving state 'sustainable' policies and standards.

Chapter 8: Public Utilities and Service

This Chapter focuses on fire protection and emergency response, water supply and distribution, wastewater collection and treatment, solid waste management, telecommunications facilities, and energy conservation. The recommendations below address the energy conservation section of Chapter 8.

The following recommendations address the Public Utilities and Service Element:

Excerpt from General Plan	Recommendations
Excerpts from the Energy Conservation Regulations and Development Standards	
• Energy Conservation: The City may elect to go beyond outreach or provision of incentives in promoting energy conservation by adopting a variety of energy related ordinances.	115. Consider phasing in those sections of the new California Building Standards Commission adopted on July 17, 2008 in anticipation of its required implementation. The code will require improved energy efficiency and reduced water consumption in all new buildings.
Excerpts from Public Utilities And Services Policies And Strategies	
• Promote development patterns that are integrated with existing transit systems and encourage transit, bike and pedestrian circulation. • Encourage mix of shopping, employment and residential use in areas that are to be more intensely developed. • Develop an ordinance that encourages solar orientation in the site planning for new construction, protects solar access from future adjacent development, and promotes the use of solar systems where cost effective. • Seek to expand programs that capture energy from waste treatment.	116. Recommend that promotion include adopted land use and development standards that require – as opposed to merely encouraging – transit, bike, and pedestrian-oriented development – in appropriate centers and corridors. 117. Recommend permitting horizontal and vertical mix of uses in all appropriate locations, including live-work (primary residence, and allowed limited business) and work-live (primary business and allowed residence). 118. Recommend designing the ordinance accommodative of the specific physical context to maximize the potential of solar benefits while reducing the potential for adverse consequences (reducing a block's desired urban form and housing densities by reconfiguring the home sites for individual solar access). 119. Evaluate carefully the costs and benefits of waste-to-energy against significantly reducing and recycling solid waste.

Appendix J: Public Comments on the Draft Climate Action Plan

Comment #1

Let's take ***creative*** and ***bold leadership*** and make our Climate Action Plan one that other cities will want to emulate ... let's raise the bar to the limit, and then strive to reach what some may believe are "the unreachable." Like Sonoma County's ClimateProtectionCampaign, let's aim to reduce CO2 lower and faster than AB 32. AB 32 is good, but not good enough.

As you probably know, Dr. James E. Hansen (Director of NASA Goddard Institute of Space Studies) and Dr. Rajendra K. Pachauri (Chairman of the IPCC), and many others have expressed the need to take all means necessary to begin reducing CO2 emissions globally by 2012 and to continue reducing them at an aggressive rate thereafter if we are to have a chance at averting catastrophic climate change. They are unanimous in their assessment that we need to bring the atmospheric concentration of CO2 back to 350 ppm.

In Sweden -- an early champion of bold climate policy -- the person deemed most influential on the Swedish climate agenda (with the prime minister in third place and the environmental minister in fourth place) is Dr. Christian Azar, an IPCC scientist who has argued for over ten years that having a fair chance of staying within the temperature target set by the European Union requires a 350 ppm target.

I have a good friend who works for Dr. Azar. She showed me some of his graphs from 1997(!). It's painful to look at them and see that it was already so clear where we needed to aim a decade ago. And to know that we've wasted so much time.

With immediate action, the CO2 concentration will increase from the present 387 ppm up through 400 and possibly as high as 450 at the end of this century and into the next, but by mid-next century, CO2 will eventually return to 350 ppm. There will be significant impacts on human populations and our civilization. Scientist and military organizations have warned us of some of the possibilities that are in store for future generations.

Keep in mind that ice began to form on the planet 50 million years ago as the CO2 concentration declined below 425 (+/-75) ppm. Imagine an ice-free planet as we allow CO2 to increase and remain above 425 (+/-75) ppm. Please refer to ***Target Atmospheric CO2: Where Should Humanity Aim?*** (attached).

Comment #2

AB 32 reduction targets are aligned with the IPCC target range of 450 ppm to 550 ppm.

I was fortunate to meet Dr. Hansen in April and Dr. Pachauri in July. They both expressed their concern that 350 ppm is what current science indicates is necessary. Dr. Pachauri specifically stated that California's AB 32 target CO2 emission reduction targets are to be applauded, but insufficient to return to 350 ppm and a reasonable probability avert catastrophic climate change.

The 2050 CO2 emissions reduction target 80% below 1990 levels is insufficient. Lester Brown's target of an 80% reduction by 2020 intends to keep CO2 below 400 ppm. Hayward should take Lester Brown's assessment under consideration and aim lower than AB 32.

We have a choice. Let's be ***bold***. Let's be ***creative***. Let's be ***regional and national leaders***.

For the earth,
for humanity,

Doug Grandt

Part 1 of 3

Erik,

Last week after the joint work session of the City Council and Planning Commission, I promised to send you my thoughts in writing.
Since that time I have not had time to write, or to reread the Executive Summary or to even glance at the full report.

The past several days have been very full for me with a new harbor craft regulatory deadline; a major climate change presentation to residents of Lafayette, Moraga, Orinda, Walnut Creek, Alamo and Palo Alto; Measure A precinct captain training; and finally completing my tax returns -- I have not had an opportunity to put pen to paper.

This endeavor of reviewing and critiquing the Draft CAP is too important to try and develop a cohesive thought in one sitting, so I will try to lay out my thoughts in a series of short bursts. At some point, these chapters could conceivably be stitched together.

Bottom line: Last week at the joint working session of the City Council and the Planning Commissions, I attempted to address "two meaty topics" to use the Mayor's words in a short three-minute public comment. Judging from the responses around the table, I missed the mark. I just cannot speak in sound bites ...

My objective at the joint working session was five-fold:

1. To express my joy that the City has come to the pinnacle of activity in adopting AB 811 and publishing the CAP.
2. To express my total support of the report on AB 811 adoption, and to encourage its implementation in Hayward.
3. To clarify that staff's report on implementation of AB 811 and the Draft CAP refer to "solar" with apparent implication of "solar photovoltaic"
4. To demonstrate that we are conditioned to think of "solar PV" when the sole term "solar" is used. (Members of the City Council and the Planning Commission voiced "solar energy", "solar panels", "solar electric", "solar generation" and "solar plexus", but none voiced "solar thermal".
5. To ask that all references to "solar" in all documents make reference specifically to "solar photovoltaic", "solar thermal water heating", "solar thermal space heating" and "solar thermal space cooling" with the express purpose of educating all who read the documents, and ultimately to create awareness that solar thermal applications actually produce greater financial returns on investment and are economically available at this time. There is no need to delay installing such systems.

My message that the Draft CAP is insufficient and unacceptable was lost in my praise of its mere existence. I stated that the gap between the planned CO2 reductions and the targets set by AB 32 must be closed. To leave the gap open and subject to reliance on state and federal legislation is unacceptable when there are viable options to close the gap if one were to use a bit of imagination. One strategy to help close the gap is to target weaning ourselves off of coal, off of oil and off of natural gas. I stated that very clearly, but people seem to have only heard my approval of the report on AB 811.

Since I am unable to speak in sound bites in a three minute window, I will take this opportunity to develop my rationale for insisting that the draft CAP not be accepted as is, and I will make specific suggestion to make it sufficiently aggressive to warrant adoption.

Next: Part 2 will establish the urgency for aggressive action.

Part 2 of 3

Erik,

Imagine, in the beginning -- some four billion years ago -- the atmosphere was essentially anaerobic, poisonous to life and diversity as we know it. Concentrations of carbon dioxide were two orders of magnitude (100x) greater than the CO2 levels during the past several million years. Oxygen began to increase, spike and fluctuate dramatically about 2 billion years ago.

There was no ice on the planet during the first 4.5 (+/-) billion years of Earth's existence. Temperatures were sufficiently high so as to prohibit the formation of ice. Anywhere. Sea level was several hundred feet higher than today. It was a world we would not recognize, and difficult to imagine.

Carbon dioxide did not begin to decline significantly until about 50 million years ago when Azolla blooms in the fresh surface water of the extremely layered seas absorbed and sequestered COs through photosynthesis during a "brief" 800,000 period. As the concentration of CO2 declined through about 425 ppm, temperatures declined and made the planet more suitable to support life.

And ice began to form for the first time. At about 425 ppm ... remember that ... ICE < 425 ppm.

More and more CO2 was sequestered through photosynthesis and the temperature continued to decline with less greenhouse effect and more albedo. Various forms of life have come and gone during the past 50 million years. The concentration of CO2 during the past million years has stabilized in the range below 280 ppm. Ice has been present in amounts that fluctuate with the periodic hundred-thousand year Milankovich cycles, ebbing and flowing, but ever present.

With the industrial revolution and discovery of convenient and energy intense fossil fuels (coal, oil and natural gas) we have driven the concentration of CO2 from 280 ppm up to the current level of 387 ppm. Scientists who contributed to the U.N. International Panel on Climate Change 4th Assessment Report last year conclude that there is a high likelihood that business as usual scenarios will result in atmospheric CO2 concentration heading up to 400 ppm and beyond -- probably as high as 100 ppm depending upon how well we respond and mitigate CO2 emissions.

Imagine what will happen as the CO2 concentration returns to levels exceeding 425 ppm. Thereabouts, Earth will return to an ice-free state.

The rapid and unexpected acceleration of the Arctic ice cap melting fosters serious concern because the scientific models did not predict it -- this canary in the coal mine is dying a premature death -- premature by several decades. The implications of long-ignored global warming is now "in our face" instead of looming just beyond the horizon.

Dr. James E. Hansen (Director of NASA Goddard Institute of Space Studies), Dr. Rajendra K. Pachauri (Chairman of the IPCC), Dr. Christian Azar (IPCC scientist and author who has been deemed the person most influential on climate policy in Sweden, one country that is a roll model for climate policy) and many others have expressed the need to take all means necessary to begin reducing CO2 emissions globally by 2012 and to continue reducing them at an aggressive rate thereafter if we are to have a chance at averting

catastrophic climate change. They are unanimous in their assessment that we need to bring the atmospheric concentration of CO2 back to 350 ppm. With immediate action, the concentration will increase from the present 387 ppm up through 400 and possibly as high as 450 at the end of this century and into the next, but by mid-next century, CO2 will eventually return to 350 ppm. There will be significant impacts on human populations and our civilization. Scientist and military organizations have warned us of some of the possibilities that are in store for future generations.

I met Dr. Pachauri as well as Dr. Hansen during June and July. They expressed their concerns to me as individuals. Dr. Pachauri stated at his lecture to the Air Resources Board where I am employed that California's target CO2 reductions through 2050 are to be applauded, but they are not sufficient. He stated that we actually need to be more aggressive in reducing CO2 emissions.

Targeted 80% reduction of CO2 emissions below 1990 levels is insufficient. Some say we need to target 90% to 94%. Some say we need to actually must sequester more CO2 than we emit by 2050 if we are to avert catastrophic climate change.

AB 32 is not aggressive enough, so say the leading climate scientists of the world.

Hayward's CAP which strives to mirror AB 32 is, therefore, not aggressive enough.

As written, Hayward's plan admittedly falls far short of AB 32 targets for 2050.

The Draft CAP should be rejected in its current state. We must produce a CAP that is a model for other cities in California, in the nation, and around the world. Now is the time to address the issues and not to procrastinate.

Hayward has the opportunity to join and even surpass other cities that are taking bold, creative steps -- we know who those cities are. Berkeley took a bold, creative step with its BerkeleyFIRST initiative. Palm Desert took a bold, creative step by enlisting Assembly Member Lloyd Levine to advance AB 811 through to Governor Arnold Schwarzenegger's signature July 21, 2008.

There are a multitude of other cities and towns including Santa Monica, Santa Rosa, Rohnert Park and Sebastopol to name just a few.

Bold and creative ...

The CAP is neither as presently drafted. If it is adopted as presented, we will have missed a significant opportunity and we will have done our part in helping assure catastrophic climate change and all its implications for our offspring and their offspring and their offspring ... and their ... and theirs.

Next: Part 3 will address the gap between target CO2 emission reductions and the current plan.

Part 3 of 3

Erik,

The CAP makes the following statement in the **Meeting the 2020 target** section of the Executive Summary:

Given the estimated quantity of emissions reductions possible if Hayward achieves all program goals and implements programs according to the suggested timeline (154,600 MMTCO2e/year), the City will likely meet its target 2020 if the BAU emissions are closer to Scenario 2 projections.

However, without improvement to fuel economy or increases in renewable electricity generation, Hayward will not meet its 2020 target. This is a clear indication that state and federal programs will greatly impact Hayward's local emissions. If the state and federal programs are not successful, Hayward will not meet its emission target.

The following statement appears in the **Meeting the 2050 target** section of the Executive Summary:

This analysis indicates that ***the proposed CAP actions will not reduce emissions enough to meet the long-term emissions reduction target, even if recently established state and federal fuel economy and renewables goals are achieved.*** The City can do several things to help ensure long-term targets are met:

1. Make long-term CAP program goals more aggressive. It is technically possible for Hayward to meet its 2050 target by setting very aggressive program goals. To meet the 2050 goal, Hayward will have to eliminate all energy-related emissions (provide all electricity from renewable sources), eliminate all methane emissions from waste decomposition, and reduce fuel consumption to 70 percent below BAU levels. ***Though technically feasible, it will be extremely difficult for Hayward to achieve these goals without state, regional and federal cooperation.***

2. Work with state and federal agencies to ***encourage even more aggressive climate policies***. Scenario 2 assumptions are aligned with legislation that has already exists [sic] (CAFE Standards and RPS goals). Scenario 2 does assume a slight increase in both fuel economy and percent renewable energy generation by 2050, but these assumptions are quite conservative relative to what could be required by 2050. ***More aggressive state and federal policies will bring the projected emissions down, and in doing so will bring Hayward closer to its 2050 goal.***

3. Hayward should re-evaluate the CAP regularly to incorporate new technologies and new ideas that are not include in this iteration of the plan. In the future there may be more effective ways to sequester carbon, or more advanced technologies that Hayward would benefit from adopting. Technology improvements that may help Hayward meet the 2050 target include ***vehicles with higher fuel economy***, ***solar panels that can create more electricity per square foot and more cost-effective***, and ***energy-efficient appliances***. ...

This is not a plan. This is an assessment of some set of assumptions that preclude achieving the target. A plan should explore alternatives that will achieve the target, as well as the ramifications of adopting measures that achieve the target.

What is missing from the assumptions that restricts our ability to achieve the desired -- and mandated -- target?

Conversely, what alternative measures are available to us that will achieve the target? Put them into the plan.

For one thing, if we were to completely -- or nearly -- eliminate reliance on natural gas by promoting solar photovoltaic, solar thermal water heating, solar thermal space heating, solar thermal space cooling and energy efficiency measures in residences and commercial buildings, that would go a long way toward an 80%, 90% or 94% reduction. We can begin to make that happen using the CityFIRST program establish by Berkeley and AB 811. We need to prioritize Action 5.1 (priority 1), Action 5.3 (priority 2), Action 3.6 (priority 3), Action 3.7 (priority 4), Action 3.8 (priority 5), and Action 5.3 (priority 7) with start dates on each set with the highest urgency.

Simultaneously, we can make electricity from the grid carbon-free by promoting wind, solar photovoltaic, concentrated solar thermal, tidal and other emerging technologies and facilities in which entrepreneurs are now investing billions of venture capital right here in California. We need to prioritize implementation of a Community Choice Aggregation (CCA) program similar to others that are being developed now in several

cities and counties around the state. Where is this in the CAP? It appears that it might be Action 5.4. Let's set it at the highest priority with an immediate start date for investigative work. CCA should not be relegated to "later."

As Thomas Friedman stated December 16, 2007 in The New York Times: ***"It's Too Late for Later."***

A paradigm shift is needed in our way of thinking. By relying on federal fuel economy standards or appliance efficiency standards to incrementally improve efficiency by single digit percentage points while continuing to use the same old fossil fuel combustion technology, we will never achieve the target of 80% reduction in CO2 emissions -- let alone 90% - 94% that has been suggested by the leaders in science.

The solution is to eliminate carbon-based fuels and replace them with carbon-free fuels -- the solution is to leave the remaining carbon-based fuels in the ground -- or use them as building materials. To transition to that new paradigm will take time. Time is the limited resource here -- we have only 3 to 4 years to begin begin significant CO2 reductions.

We need to start immediately with technology that is available now. To wait for new improved technology will be a never ending waiting game. As with computer technology, we initially pay more, but the price comes down and we replace or supplement older less efficient machines with the latest greatest fastest processors.

We need to start with what is available now. There will be a return on the investment.

Hayward can take the ***bold and creative*** step of announcing -- like San Francisco recently did -- that it will install electrical outlets in its parking garages to charge electric and plug-in hybrids.. The task can be accomplished incrementally over time. By taking the initiative to install the "seed" of infrastructure and promote electrical automobiles, the reality will come to fruition sooner than later.

Although we cannot necessarily influence federal legislation, or even State programs, we can influence and accommodate our own residents who are more apt to rally in support of innovation than other parts of the state and other parts of the nation. State and federal legislators are less flexible and have more restrictions than do our mayors and city councils.

We cannot wait for federal or state programs. Hayward, like other cities around the state and around the nation, must take the lead with bold and creative local action.

The CAP is incomplete if it does not address innovative options to close the gap between perceived limitations and the required target.

The CAP cannot leave anything to chance.

Hayward must take control of its own destiny.

Next: Part 4 will address specific CAP language and priorities.

Comment #3

March 30.2009

Erik J. Pearson, AICP
Senior Planner
Department of Community and Economic Development
City of Hayward
777 B Street, Hayward, CA 94541

Dear Erik,

Re: Draft Climate Action Plan

First let me compliment the City of Hayward for taking this forward looking approach to a very much needed effort. It is critically important for all of us to understand and take action on our own and as a collective entity to deal with the impacts of global warming.

The costs of improving energy efficiencies to existing businesses and private residences seem to me to be both needed and daunting. Much of Hayward's housing was built long before many of us were aware of global warming. The construction of the housing and the appliances they contain could be costly for residents to modify. Both education and in some cases financial assistance would be needed. The plan does outline several potential strategies for achieving energy conservation that would reduce the carbon footprint and I would encourage the city to pursue any and all that might be available to achieve the desired outcome.

Reducing the carbon footprint on new building seems more manageable especially since the city does have a green building ordinance. The non-energy benefits described on pages 63-64 would apply to all buildings I think and might be a useful tool when conducting education outreach to various neighborhood groups.

The emphasis on solar capacity as a source of renewable energy is a very workable strategy for many commercial and residential buildings. The City of Berkeley's program for dealing with costs of installing solar panels seems to be a very useful model to follow as tailored to the needs of Hayward residents.

Is there a site that would be available within Alameda County to establish a county-wide composting facility? This would reduce the transportation cost and reduce greenhouse gases at the same time.

And finally, in the final paragraph page 82 of the draft sums up the intent of this plan very well. I would suggest that it might be possible to get a neighborhood or two to commit to implementing as much of the plan as possible to encourage other neighborhoods to follow suit. When Hayward does make significant progress on this ambitious project it will give us all something to crow about and make citizens proud to say that they live in Hayward. Than you for looking forward to our future as an energy efficient community reducing our carbon footprint on our world.

Yours truly,
Evelyn M. Cormier
31020 Carroll Avenue
Hayward, CA 94544
evcormier@sbcglobal.net

Comment #4

Author : Stopwaste.org (Heather Larson) (IP: 75.144.31.228 , 75-144-31-228-sfba.ca.comcastbusiness.net)
E-mail : hlarson@stopwaste.org
URL :
Whois : http://ws.arin.net/cgi-bin/whois.pl?queryinput=75.144.31.228
Comment:
Hi City of Hayward-
Please find below Stopwaste.org's comments on Hayward's Climate Action Plan. In general, it looks great!

1) Recommend adding the following introduction to page 97-98 (the funding section).

"The City Hayward can leverage its locally available funding by participating in the countywide project to green existing buildings. This will increase the likelihood of receiving competitive funding from federal, state and regional programs. In addition, the City will benefit from economies of scale in program administration, bulk purchasing, and consumer outreach."

2) Recommend modifying this paragraph on page 61:

"When the Ordinance takes effect, developers of new residential and commercial buildings will be required to submit documentation verifying that the building has been rated by the GreenPoints Rating 47 system, or a similar rating system like LEED.48 The City will not grant a Certificate of Occupancy without the required documentation."

To something like:

"By adopting a Private Development Green Building Ordinance, Hayward joined a number of Bay Area Cities, including Berkeley and San Francisco, that have adopted ordinances that require developers to follow industry-accepted green building standards when designing and building new buildings.46 When the Ordinance takes effect, new residential buildings will be required to be Green Point Rated47(or equivalent third party verified program) and commercial buildings will be required to meet LEED standards (or equivalent third party verified program).48 The City will not grant a Certificate of Occupancy without the required documentation from the respective program. While equivalent third party verified rating systems will be accepted for residential new construction, Build It Green's GreenPoint Rated system is referenced in the City's ordinance because; it is a California specific program and requires projects to meet or exceed all current State Codes. It is the program most
commonly adopted by Bay Area local governments therefore developers benefit from regional consistency. In addition, GreenPoint Rated has been endorsed by the California Building Industry Association and the Home Builders Association of Northern California. The estimated greenhouse gas emission reductions of GreenPoint Rated projects will be calculated in Build It Green's Climate Calculator and can inform the City of Hawyard climate action planning."

3) There is an error on page 61 (PDF page 87); footnote "GreenPoints Rating system," when it should say "Build It Green's GreenPoint Rated program" to be more clear.

4) Suggest that on Page 65 change "Build It Green: www.builditgreen .org" to "GreenPoint Rated Program: www.builditgreen.org"

5) Suggest that on Page 65 in place of the Boulder Program (used to be prominent program, now is one of many examples), include a more comprehensive list of sample Local Government Green Building

Ordinances, such as the Attorney General's Local Government Green Building Ordinances in California: http://ag.ca.gov/globalwarming/pdf/green_building.pdf

6) Page 65 also says:
"Additional GHG emissions reductions: Green building program results in solid waste reductions, but reductions in waste-related emissions were not calculated for the Climate Action Plan. Green buildings can also earn credit for innovative means of encouraging alternative modes of transportation (i.e. credit for secure bike parking), but CAP does not account for emissions savings from transportation." Suggest adding something like: "Some of these savings will however be captured through residential green building and the GreenPoint Rated Climate Calculator which estimate these types of emissions reductions."

Regards,
Heather

Heather Larson
Program Manager
_____
Green Building Alameda County
A program of StopWaste.Org
1537 Webster Street
Oakland, CA 94612
(510) 891-6500
(510) 893-2308 fax

Hlarson@stopwaste.org
www.StopWaste.Org

Comment #5

Erik, let me offer some comments on the Draft Hayward Climate action Plan from my perspective as a transit planner.

First off, the plan is commendably clear about the central role transportation plays in greenhouse gas emissions. It is also important that the plan highlights the need to both reduce vehicle miles traveled and to reduce the carbon intensity of each mile. While many believe that reducing automotive carbon emissions is the sole answer, increases in vehicle miles traveled can erode or eliminate those gains.

The evaluation of specific potential emission reductions from various actions is interesting, but somewhat confusing. I believe there is additional potential to shift travel modes from cars to transit, walking, and bicycling.

Appendix C of the Plan provides detailed analyses of the assumptions used to derive estimates of greenhouse gas reductions. This section is based on an estimated growth of "commuters" from approximately 107,000 to 119,000 by 2017. It's unclear to me where this number comes from. The 2000 Census indicates that there were some 62,000 employed residents of Hayward. This number is likely to have risen to some extent, but not by 40%. Does the 107,000 figure represent two trips per commuter, one to work and one home? I'd also note that the definition of commuter states that it is a traveler entering or leaving Hayward, but approximately ¼ of employed Hayward residents work in Hayward.

Strategies 1.1-1.6 are intended to reduce single occupant vehicle commute trips and/or vehicle miles traveled. But the target effect of the strategy is listed only as a reduction in SOV travel by *new* commuters. While a reduction in the SOV share of new commuters is desirable, shifts in modes by existing travelers are also important. In addition, if transit service were improved such that new commuters had a different mode split, that transit service would be attractive to some existing commuters as well.

Such mode shifts would be more likely to occur if new transit service were coupled with new charges on driving and/or parking. Some of these charges might be instituted at the regional or county level, some in "destination" cities with large numbers of jobs. The Plan rules out disincentives as distasteful to drivers. Yet it seems increasingly likely that some carbon-related fees will be charged in coming years, with the major questions being which entities will charge them and how will they use the revenue. Charges can be highly effective—the high cost of parking in Downtown San Francisco helps dissuade commuters from driving there.

Implementation of a parking cash out program—not mentioned in the Plan—could help encourage use of transit and non-automotive modes. Under such a program, employers that provide free parking to employees would charge for the parking, and pay their employees the cost of the parking. The employee could use the money to pay for parking, or to pay for transit (or a bicycle). This would "level the playing field" so that all travel choices were supported, whereas today only driving to these workplaces is subsidized.

It is of course a very challenging time to be considering transit expansions, when transit funding has been cut so drastically. In the immediate term, there is likely to be less transit rather than more. In the medium-term, such as represented by Phase I of this Plan, the Bay Area will simply have to find fiscal mechanisms to adequately support transit. Hayward should consider how it can provide local contributions—such as development fees or entities buying transit passes in bulk—to this effort.

The Plan should also be bolder about estimating greenhouse gas reductions due to smart growth development. On p.120, the Plan states (with regard to Strategy 1.9) that "GHG savings from these actions are not calculated or evaluated due to lack of sufficient data." However, there has been substantial research on precisely this topic. The Urban Land Institute's 2008 publication **Growing Cooler** focuses on this topic, particularly in Chapter 4 "The Urban Development/VMT Connection." While the subject is complex, Hayward should be able to make a reasonable estimate.

In the meantime, the chart on p. 110 treats smart growth impacts differently stating "emission reductions included in other actions in this strategy." Presumably that statement refers to other strategies' proposals for transit and non-motorized improvements. It is reasonable to assume that transit improvements would be needed to pursue a widespread smart growth strategy in Hayward. However, residents in smart growth development can also take advantage of existing transit, making that transit more efficient. In this way, smart growth can create emission reductions are greater than the amount of transit improvement.

Please feel free to contact me if you have any questions about these comments. I look forward to continuing to work with you on the Plan.

Nathan Landau

Comment #6

To: City of Hayward
Council
Manager
Planning Staff

Comments on Climate Action Plan, March 31, 2009

by Sherman Lewis, President
Hayward Area Planning Association
2787 Hillcrest Ave.
Hayward CA 94542
510-538-3692
sherman@quarryvillage.us

Problems of policy imagination and cross-policy linage in a complex situation.

The City at this time is processing several policies, including the Climate Action Plan (CAP), but it is not using innovative policies which are needed to achieve greenhouse gas (GHG) goals, and it does not adequately relate policies from one area to another. Partly as a result, the CAP is unable to achieve its goals in the out years.
The South Hayward Plans of April and June 2006 have good general ideas, but already assume replacement parking for BART and no exploration of rapid shuttles or of sustainable, affordable housing for people who do not own a car. By the time we get to the Wittek proposal of November 2008 and March 2009, the lack of imagination has become hardened into a project that goes directly contrary to the goals of the CAP and, indeed, the goals of the South Hayward Plan.

Looking first at CAP goals, there are now 1,207 parking spaces in the Wittek area, and the proposed development increases the number of spaces to 3,096, an increase of 157 percent. Car-oriented development is masquerading as Transit Oriented Development. Amount of City research into the market demand for car-free living? None. Amount of City research into fast shuttle access to BART? None. Estimates of savings to renter or home buyer from not having to pay for parking? None.

"Blame BART" is an excuse that works only at the most superficial level. BART is as conflicted over its replacement parking policy as anyone else. It has paralyzed station area development by creating huge costs not faced by other developers. It is all the more uneconomical with the collapse of housing prices. Neither BART nor cities, nor developers for that matter, have shown much if any imagination. BART needs to develop a replacement access policy to replace its promotion of global warming in the name of transit. But also, no one has come to BART and

said, here's a better way. Cities and BART have been almost brain dead on this issue, part of our larger American car culture problem.

With our brains anaesthetized by our car culture, we stumble towards the slow Armageddon of the end of the Holocene epoch, terminating with our own ignorance and recklessness the climate most supportive of our species. With our right hand we insulate houses and put up solar panels; with our left hand we increase parking and use of cars with public subsidies.

Now looking at selected goals of the South Hayward BART Plan:
"1) help create a vibrant, livable neighborhood with high-quality, safe, well-used public spaces,
...
3) encourage coordinated development that enhances the existing neighborhood fabric,
4) manage public and private parking resources to enhance the livability of the neighborhood,
5) encourage development that is oriented towards the street and is scaled to the pedestrian and
..." (South Hayward BART/Mission Boulevard Concept Design Plan, p. 3)

Concerning 1, do parking structures and increased parking contribute to a vibrant, livable neighborhood with high-quality, safe, well-used public spaces?

Concerning 3, do they "enhance the existing neighborhood fabric"?

Concerning 4, do they "enhance the livability of the neighborhood"?

Concerning 5, can they really be "scaled to the pedestrian"?

After Wittek came forward in November, the City considered revising the South Hayward BART Plan, largely by developing a Form Code. The Form Code proposal included five parking strategies (Dec. 2, 2008 staff report, p. 6 of 11, p. 3 of 5). While lacking in the ideas needed for rapid bus shuttles, the proposal was a big step forward.

Meanwhile, the City is working on the CAP. In fact, having a Form Code is CAP Strategy 1 Action 10. Form Code strategy 1 (TOD, transit passes, car sharing) is similar to CAP Strategy 1 Actions 1, 2, and 9. Form Code strategy 2 (reduce parking requirements, parking maximums, shared parking) overlaps with CAP Strategy 1 Action 3 (modify parking ordinances, time limits, paid spaces, let desired traffic limit spaces) and to Action 10 (vague "standards" to reduce GHG). Form Code strategy 3 (unbundling, cash out, metering) overlaps with CAP Strategy 1 Action 3 ("fees," but no detail).

Form Code strategy 4 (parking fee districts), however, has no CAP back up. The CAP should be improved to be as specific as Form Code ideas. The underlying problem is the scope of work in the CAP grant for the BAAQMD, which has historically been weak on transportation policies and pricing. It is, I hope, not to late to add the specific ideas of the Form Code strategies to appropriate Strategy 1 actions 1, 2, 3, 9, and 10.

The CAP, in its favor, has an item, Strategy 1 Action 7, that the Form Code needs and lacks: "Plan ...bus rapid transit that eventually greatly decreases the need for personal vehicles for travel within the City. ... the City will ...give preference to solutions that reduce auto dependency and minimize GHG emissions."

The City, however, takes too restrictive a view of rapid bus, excluding rapid shuttles (CAP Strategy 1 Action 4). Other cities — Union City, Emeryville, San Leandro — have supported their own services other than AC Transit. While they fall far short of rapid bus, they show a system that Hayward could build on.

Meanwhile, the City is processing Wittek, which totally ignores ideas I have put forward, the CAP and Form Code and goals of the South Hayward Plan. Instead, the City wants to spend millions of dollars of Redevelopment Agency funds as local match for state Proposition 1C Housing funds to build a very expensive parking structure that will subsidize increased Vehicle Miles Traveled.

City support for an unneeded structure at South Hayward, without exploring rapid shuttle replacement access with BART, means the City cannot very well try to stop CSUEB Hayward from building a parking structure. Publically subsidized parking structures are increasing GHG, undermining the policies of the CAP. We can't get there from here. The parking structure gun is shooting a hole in the GHG foot, and we will limp around bragging about fixing up houses.

I will be proposing a study of alternative access to South Hayward BART. I attach as part of this comment a slide show on sustainable access to CSUEB Hayward, compared to a parking structure. The rapid shuttle is less expensive than the structure and provides equal or better access.

The Sustainability Committee and Council should hold work sessions on policy integration concerning the CAP, the 238 Land Use Study, the Wittek Project, Prop 1C, BART access, the South Hayward Plan, and Form Code. The city needs more imagination about car free transit-oriented development and rapid shuttles, and more integration of related policies. The CAP plan's good policies need to beefed up and other policies need to be consistent with them.

Comment #7

Erik,
I'm having car trouble and may not be able to get to the meeting tonight. The one stand I want related to me is to STOP the LOOP project and slow the people Zipping through Hayward.
We need to attach shoppers and faster driving through our streets won't get them here to shop.

I would even support Foothill and Jackson becoming a toll road. That way we'd at least make some money off their passings.

Peggy Guernsey
25236 Delmar Ave
hayward, CA 94542-1806
510-881-7553

Summary of comments from second community meeting

The following is a summary of comments collected from worksheets participants filled out during the second community meeting on the Climate Action Plan. For each strategy we have listed action items or proposed changes to the Draft Action Plan that were identified because of comments received during the meeting.

Strategy 1

Comments from Worksheets

- Dixon Street as transit corridor with bus rapid transit
- Bus rapid transit S. Hayward-Fairview as proposed
- Bee – Mission – downtown with bus rapid transit
- Bus rapid transit to CSU
- Need another BART station at Harder & Mission Blvd
- Success of commuter benefits program depends on level of funding
- City uses inaccurate traffic modeling for non project alternatives
- General Plan has good ideas most implemented by zoning
- CAP not related to 238 Land-Use Plan – Need better TOD policies and stop Car-Oriented Development (COD)
- When updating codes, instruct staff to accomplish clear goals in the process of doing the updates (i.e. show how the new parking standards will reduce VMT)
- Allow community to participate in updating the Circulation Element of the General Plan.
- Have Steve Coyle review form-based codes
- Subsidized parking structures increases global warming
- QV – great for climate / great to avoid out-year parking failure?
- Need to identify more spaces for car-share cars & create ease of access
- Expanding transit services will require demonstrated commitment from riders
- Traffic signal synchronization is a large GHG benefit for the buck
- Review San Leandro's "links" program as a possible commuter benefit program.

Strategy 2

Comment from Worksheets

- Work with other cities to prepare for electric / plug-in vehicles

Strategy 3

Comment from Worksheets

- Focus on RECO & CECO first
- Estimate cost & cost savings associated with RECO and CECO
- RECO & CECO need more definition: should include calking, weather stripping, programmable thermostats, double-paned windows, insulation (older homes have asbestos), new furnace, new duct work.
- Efficiency improvements can be tax write-offs
- If Hayward uses CCA, the City could have access to funding for efficiency improvements

- CCA can fund large scale efficiency improvements
- An attempt to encourage a voluntary reduction in energy use is easy, achieving a 10% reduction in energy use is difficult. Need do to work with schools.
- Would commercial efficiency improvements impact productivity? If improvements have to be made off production time, it could increase cost.
- PG&E has installed smart gas and electric metering, can we tap into PG&Es system to get real-time feedback on energy use?
- Efficiency financing could be tough, can people afford a second mortgage?
- Hayward is in a housing depression. Many people don't have the money for efficiency improvements. They would need tax breaks.
- Offer carrots to encourage people to invest in energy efficiency
- 3.4 & 3.5 require behavioral change and are there fore unlikely to be successful
- For financing programs, focus on one neighborhood at a time, growing media, awareness, enthusiasm, then expand to other neighborhood
- Could target the club houses in mobile home parks for efficiency retrofits
- Habitat for Hayward could retrofit low income homes

Strategy 4

Comment from Worksheets

- Should be stringent to ensure maximum energy savings
- Will stringent development requirements drive developers away?

Strategy 5

Comment from Worksheets

- Plan should assume 100% success in eliminating fossil-fuel electricity as target. Aim for target, achieve 80%, 90%, or 95%
- CCA should be priority to be implemented as appropriate with or without inclusion of neighboring cities – begin evaluation ASAP
- CCA may be a great option for Hayward/ Alameda County
- Could Hayward join Marin's CCA?
- PV and solar-thermal co-gen
- Need to in clued wind and solar thermal in the plan
- Need to eliminate existing regulations that inhibit people from installing renewable energy. For example, existing regulations do not allow structures to be over 20 feet. If residents want to install wind turbines or tracking solar panels this regulation would likely be inhibiting.

Strategy 6

Comment from Worksheets

- Success will depend on level of funding and consistency of funding
- Need more participation in existing programs
- Many businesses only have room for a black bin
- Need C&D recycling staging area

- Encourage / impose plastic bag recycling @ large companies
- Require recycling in private sector construction projects
- Cause group interactions by trying to implant a ban
- Education at younger ages is critical to successful waste management
- Consider incentives for good waste management practices
- Offer coupons – real perceived incentive
- Educate younger generation via school curriculum
- Compile / update various groups (social & envit
- Use list-serves / online subscriptions to keep people informed
- HOA sign-up on list for action items or input
- Blog – keep city informed
- Send message to large stores by citing recycling problems – containers full so can't accept more plastic bags (ie. Target experience)
- Implement e-waste diversion program
- Offer historical artifacts from building demolitions to citizens

Strategy 7

Comment from Worksheets

- vast, low-cots opportunities exist for reforestation in urban and rural areas of the city
- Allow HASPA to have a more valued comment to City Council

Strategy 9

Comment from Worksheets

- Gateway projects / pilot projects would create visibility
- Strategic placement of "landmark" projects
- Not everybody has a computer, so a green portal website is not the only solution
- Green portal will require manpower to build an maintain
- CSUEB, Hayward High School, and Chabot Collage all have TV studios & courses in web and media. Could Hayward leverage these schools to help engage the community using modern media?
- Zucchini Festival / Blues Festival / other Festivals / Community Groups / Churches are good audiences and venues for change
- Community gardens can help reduce emissions from transporting food and can help create green spaces and community awareness

Other

Comment from Worksheets

- Reject fossil-fuel electricity generation within City limits
- City plans should not digress from State mandates. Hayward should fully participate in State programs
- City should take advantage of as many funding sources as possible.
- Plan needs to identify measures that will get us to 2050 target

- Show impact relative to non-pass-through travel separately
- CAP needs to identify actions that will allow the City to achieve targets based on AB 32.
- Set targets to be more aggressive. Current targets are not aggressive enough

This page left intentionally blank for double sided printing.