

## **Appendix B. Ridership and Air Quality Benefits**



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This appendix presents an adjusted estimate of current bicycling levels within unincorporated areas of the County of Los Angeles. The analysis is based on County and U.S. Census data along with several adjustments for likely bicycle commuter underestimations. This study uses models to estimate the positive air quality impacts associated with existing and future bicycle and pedestrian travel within the study area. Non-motorized travel directly and indirectly translates into fewer vehicle trips and an associated reduction in vehicle miles traveled and auto emissions.

The model input variables generally follow industry standards for demand models, including study area population, employed persons and commute mode share. Other inputs include data on college student and school children commuting patterns. Additional assumptions were used to estimate the number of reduced vehicle trips and vehicle miles traveled, as well as vehicle emissions reductions. The analysis assumes that 73 percent of bicycling trips will directly replace vehicle trips for adults and college students, and a 53 percent reduction in vehicular trips for school children.

To estimate the reduction of existing and future vehicle miles traveled, this analysis assumes a bicycle roundtrip distance of eight miles for adults and college students, and one mile for school children. These distance assumptions are consistent with industry-standard non-motorized benefits models. The vehicle emissions reduction estimates also incorporate calculations commonly used in other models, and are identified in the footnotes of each table.

## B.1 Antelope Valley Planning Area

The benefits model predicts that by 2030 the total number of bicycle commuters could increase from the current estimate of 744 to 2,714, resulting in an estimated decrease of 26 pounds of hydrocarbons per weekday, 18 pounds of mono-nitrogen oxides (NO<sub>x</sub>) per weekday, 26 pounds of PM10 (particulate matter) per year, and 1,825,446 pounds of carbon dioxide (CO<sub>2</sub>) per year by 2030.

**Table B-1: Antelope Valley Planning Area Current / Future Demand and Air Quality Benefits Estimates**

Variable	Current Value	Future Value	Source (1)	Source (2)
<b>Demographics</b>				
Study area population	103,451	255,364	<i>Los Angeles County General Plan Update(2008)</i>	
Employed population	41,648	110,202	<i>Estimate based on 2005-2007 American Community Survey, B0801 3-Year Percentages</i>	<i>Antelope Valley Area Plan Update, Background Report, April 2009</i>
Bike-to-work mode share	0.10%	0.15%	<i>2005-2007 American Community Survey, B0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements</i>
Number of bike-to-work commuters	42	165	<i>Employed persons multiplied by bike-to-work mode share</i>	
Work-at-home mode share	3.50%	4.00%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate based on historic work-at-home population growth (or decline) trends</i>
Number of work-at-home bike commuters	3	88	<i>Assumes 0.2% of population working at home makes at least one daily bicycle trip</i>	<i>Assumes 2% of population working at home makes at least one daily bicycle trip</i>

**Table B-1: Antelope Valley Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Transit-to-work mode share	0.60%	1.00%	2005-2007 American Community Survey, S0801 3-Year Estimates	Estimate of the potential mode share increase (or decrease) associated with planned/proposed bikeway system improvements and transit service improvements/reductions
Transit bicycle commuters	3	276	Employed persons multiplied by transit mode share. Assumes 1.2% of transit riders access transit by bicycle	Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle
School children, ages 6-14 (grades K-8)	13,301	26,563	2005-2007 American Community Survey, S0801 3-Year Estimates	Population-based estimate
School children bicycling mode share	2.00%	4.00%	National Safe Routes to School surveys, 2003.	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
School children bike commuters	266	1,063	School children population multiplied by school children bike mode share	School children population multiplied by school children bicycling mode share
Number of college students in study area	4,303	8,633	2005-2007 American Community Survey, B14001 3-Year Estimates	Population-based estimate
Estimated college bicycling mode share	10.00%	13.00%	Review of bicycle commute share in seven university communities (source: National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995).	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
College bike commuters	430	1,122	College student population multiplied by college student bicycling mode share	
Total number of bike commuters	744	2,714	Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.	
Total daily bicycling trips	1,487	5,427	Total bicycle commuters x 2 (for round trips)	
<b>Current Estimated VMT Reductions</b>				
Reduced Vehicle Trips per Weekday	488	1,567	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children	
Reduced Vehicle Trips per Year	127,273	409,095	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)	
Reduced Vehicle Miles per Weekday	2,914	8,597	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren	
Reduced Vehicle Miles per Year	760,594	2,243,926	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)	
<b>Current Air Quality Benefits Estimates</b>				
Reduced Hydrocarbons (pounds/weekday)	9	26	Daily mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/weekday)	0	<1	Daily mileage reduction multiplied by 0.0052 grams per reduced mile	
Reduced PM2.5 (pounds/weekday)	0	<1	Daily mileage reduction multiplied by 0.0049 grams per reduced mile	
Reduced NO <sub>x</sub> (pounds/weekday)	6	18	Daily mileage reduction multiplied by 0.95 grams per reduced mile	
Reduced CO (pounds/weekday)	80	235	Daily mileage reduction multiplied by 12.4 grams per reduced mile	

**Table B-1: Antelope Valley Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Reduced CO <sub>2</sub> (pounds/weekday)	2,371	6,994	<i>Daily mileage reduction multiplied by 369 grams per reduced mile</i>	
Reduced Hydrocarbons (pounds/year)	2,280	6,728	<i>Yearly mileage reduction multiplied by 1.36 grams per reduced mile</i>	
Reduced PM10 (pounds/year)	9	26	<i>Yearly mileage reduction multiplied by 0.0052 grams per reduced mile</i>	
Reduced PM2.5 (pounds/year)	8	24	<i>Yearly mileage reduction multiplied by 0.0049 grams per reduced mile</i>	
Reduced NO <sub>x</sub> (pounds/year)	1,593	4,700	<i>Yearly mileage reduction multiplied by 0.95 grams per reduced mile</i>	
Reduced CO (pounds/year)	20,793	61,343	<i>Yearly mileage reduction multiplied by 12.4 grams per reduced mile</i>	
Reduced CO <sub>2</sub> (pounds/year)	618,747	1,825,446	<i>Yearly mileage reduction multiplied by 369 grams per reduced mile</i>	

*(Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline Fueled Passenger Cars and Light Trucks." 2005.)*

## B.2 East San Gabriel Valley Planning Area

The benefits model predicts that by 2030 the total number of bicycle commuters could increase from the current estimate of 4,198 to 11,401, resulting in an estimated decrease of 132 pounds of hydrocarbons per weekday, 92 pounds of mono-nitrogen oxides (NO<sub>x</sub>) per weekday, 132 pounds of PM10 (particulate matter) per year, and 9,341,105 pounds of carbon dioxide (CO<sub>2</sub>) per year.

**Table B-2: East San Gabriel Valley Planning Area Current / Future Demand and Air Quality Benefits Estimates**

Variable	Current Value	Future Value	Source (1)	Source (2)
<b>Demographics</b>				
Study area population	274,374	371,842	<i>Los Angeles County General Plan Update (2008)</i>	
Employed population	41,655	49,187	<i>LAFCO MSR Report</i>	
Bike-to-work mode share	2.00%	4.00%	<i>2005-2007 American Community Survey, B0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements</i>
Number of bike-to-work commuters	814	1,967	<i>Employed persons multiplied by bike-to-work mode share</i>	
Work-at-home mode share	6.80%	8.60%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate based on historic work-at-home population growth (or decline) trends</i>
Number of work-at-home bike commuters	20	85	<i>Assumes 0.7% of population working at home makes at least one daily bicycle trip</i>	<i>Assumes 2% of population working at home makes at least one daily bicycle trip</i>

**Table B-2: East San Gabriel Valley Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Transit-to-work mode share	9.60%	12.20%	2005-2007 American Community Survey, S0801 3-Year Estimates	Estimate of the potential mode share increase (or decrease) associated with planned/proposed bikeway system improvements and transit service improvements/reductions
Transit bicycle commuters	48	1,495	Employed persons multiplied by transit mode share. Assumes 1.2% of transit riders access transit by bicycle	Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle
School children, ages 6-14 (grades K-8)	44,600	65,258	2005-2007 American Community Survey, S0801 3-Year Estimates	Population-based estimate
School children bicycling mode share	2.00%	4.00%	National Safe Routes to School surveys, 2003.	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
School children bike commuters	892	2,610	School children population multiplied by school children bike mode share	School children population multiplied by school children bicycling mode share
Number of college students in study area	24,242	34,960	2005-2007 American Community Survey, B14001 3-Year Estimates	Population-based estimate
Estimated college bicycling mode share	10.00%	15.00%	Review of bicycle commute share in seven university communities (source: National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995).	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
College bike commuters	2,424	5,244	College student population multiplied by college student bicycling mode share	
Total number of bike commuters	4,198	11,401	Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.	
Total daily bicycling trips	8,396	22,803	Total bicycle commuters x 2 (for round trips)	
<b>Estimated VMT Reductions</b>				
Reduced Vehicle Trips per Weekday	2,851	6,710	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children	
Reduced Vehicle Trips per Year	744,140	1,751,268	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)	
Reduced Vehicle Miles per Weekday	19,500	43,994	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren	
Reduced Vehicle Miles per Year	5,089,390	11,482,531	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)	
<b>Air Quality Benefits Estimates</b>				
Reduced Hydrocarbons (pounds/weekday)	58	132	Daily mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/weekday)	<1	1	Daily mileage reduction multiplied by 0.0052 grams per reduced mile	
Reduced PM2.5 (pounds/weekday)	<1	<1	Daily mileage reduction multiplied by 0.0049 grams per reduced mile	
Reduced NO <sub>x</sub> (pounds/weekday)	41	92	Daily mileage reduction multiplied by 0.95 grams per reduced mile	
Reduced CO (pounds/weekday)	533	1,203	Daily mileage reduction multiplied by 12.4 grams per reduced mile	

**Table B-2: East San Gabriel Valley Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Reduced CO <sub>2</sub> (pounds/weekday)	15,863	35,790	<i>Daily mileage reduction multiplied by 369 grams per reduced mile</i>	
Reduced Hydrocarbons (pounds/year)	15,259	34,428	<i>Yearly mileage reduction multiplied by 1.36 grams per reduced mile</i>	
Reduced PM10 (pounds/year)	58	132	<i>Yearly mileage reduction multiplied by 0.0052 grams per reduced mile</i>	
Reduced PM2.5 (pounds/year)	55	124	<i>Yearly mileage reduction multiplied by 0.0049 grams per reduced mile</i>	
Reduced NO <sub>x</sub> (pounds/year)	10,659	24,049	<i>Yearly mileage reduction multiplied by 0.95 grams per reduced mile</i>	
Reduced CO (pounds/year)	139,130	313,902	<i>Yearly mileage reduction multiplied by 12.4 grams per reduced mile</i>	
Reduced CO <sub>2</sub> (pounds/year)	4,140,248	9,341,105	<i>Yearly mileage reduction multiplied by 369 grams per reduced mile</i>	

*(Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline Fueled Passenger Cars and Light Trucks." 2005.)*

### B.3 Gateway Planning Area

The benefits model predicts that by 2030 the total number of bicycle commuters could increase from the current estimate of 1,673 to 4,717, resulting in an estimated decrease of 50 pounds of hydrocarbons per weekday, 35 pounds of mono-nitrogen oxides (NO<sub>x</sub>) per weekday, 50 pounds of PM10 (particulate matter) per year, and 3,519,069 pounds of carbon dioxide (CO<sub>2</sub>) per year.

**Table B-3: Gateway Planning Area Current / Future Demand and Air Quality Benefits Estimates**

Variable	Current Value	Future Value	Source (1)	Source (2)
<b>Demographics</b>				
Study area population	129,247	142,829	<i>Los Angeles County General Plan Update (2008)</i>	
Employed population	83,435	93,006	<i>Los Angeles County General Plan Update (2008)</i>	
Bike-to-work mode share	0.29%	1.00%	<i>2005-2007 American Community Survey, B0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements</i>
Number of bike-to-work commuters	243	930	<i>Employed persons multiplied by bike-to-work mode share</i>	
Work-at-home mode share	1%	2.00%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate based on historic work-at-home population growth (or decline) trends</i>
Number of work-at-home bike commuters	5	74	<i>Assumes 0.44% of population working at home makes at least one daily bicycle trip</i>	<i>Assumes 4% of population working at home makes at least one daily bicycle trip</i>
Transit-to-work mode share	2%	4.00%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase (or decrease) associated with planned/proposed bikeway system improvements and transit service improvements/reductions</i>

**Table B-3: Gateway Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Transit bicycle commuters	17	930	Employed persons multiplied by transit mode share. Assumes 1.2% of transit riders access transit by bicycle	Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle
School children, ages 6-14 (grades K-8)	23,406	26,083	2005-2007 American Community Survey, S0801 3-Year Estimates	Population-based estimate
School children bicycling mode share	2%	4.00%	National Safe Routes to School surveys, 2003.	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
School children bike commuters	468	1,043	School children population multiplied by school children bike mode share	School children population multiplied by school children bicycling mode share
Number of college students in study area	9,397	11,592	2005-2007 American Community Survey, B14001 3-Year Estimates	Population-based estimate
Estimated college bicycling mode share	10%	15.00%	Review of bicycle commute share in seven university communities (source: National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995).	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
College bike commuters	940	1,739	College student population multiplied by college student bicycling mode share	
Total number of bike commuters	1,673	4,717	Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.	
Total daily bicycling trips	3,345	9,433	Total bicycle commuters x 2 (for round trips)	
<b>Estimated VMT Reductions</b>				
Reduced Vehicle Trips per Weekday	1,115	2,556	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children	
Reduced Vehicle Trips per Year	291,032	667,008	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)	
Reduced Vehicle Miles per Weekday	7,184	16,574	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren	
Reduced Vehicle Miles per Year	1,874,972	4,325,807	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)	
<b>Air Quality Benefits Estimates</b>				
Reduced Hydrocarbons (pounds/weekday)	22	50	Daily mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/weekday)	0	0	Daily mileage reduction multiplied by 0.0052 grams per reduced mile	
Reduced PM2.5 (pounds/weekday)	0	0	Daily mileage reduction multiplied by 0.0049 grams per reduced mile	
Reduced NO <sub>x</sub> (pounds/weekday)	15	35	Daily mileage reduction multiplied by 0.95 grams per reduced mile	
Reduced CO (pounds/weekday)	196	453	Daily mileage reduction multiplied by 12.4 grams per reduced mile	
Reduced CO <sub>2</sub> (pounds/weekday)	5844	13483	Daily mileage reduction multiplied by 369 grams per reduced mile	



**Table B-3: Gateway Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Reduced Hydrocarbons (pounds/year)	5,622	12,970	<i>Yearly mileage reduction multiplied by 1.36 grams per reduced mile</i>	
Reduced PM10 (pounds/year)	21	50	<i>Yearly mileage reduction multiplied by 0.0052 grams per reduced mile</i>	
Reduced PM2.5 (pounds/year)	20	47	<i>Yearly mileage reduction multiplied by 0.0049 grams per reduced mile</i>	
Reduced NO <sub>x</sub> (pounds/year)	3927	9060	<i>Yearly mileage reduction multiplied by 0.95 grams per reduced mile</i>	
Reduced CO (pounds/year)	51,257	118,256	<i>Yearly mileage reduction multiplied by 12.4 grams per reduced mile</i>	
Reduced CO <sub>2</sub> (pounds/year)	1,525,300	3,519,069	<i>Yearly mileage reduction multiplied by 369 grams per reduced mile</i>	

*(Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline Fueled Passenger Cars and Light Trucks." 2005.)*

## B.4 Metro Planning Area

The benefits model predicts that by 2030 the total number of bicycle commuters could increase from the current estimate of 2,612 to 12,021, resulting in an estimated decrease of 95 pounds of hydrocarbons per weekday, 66 pounds of mono-nitrogen oxides (NO<sub>x</sub>) per weekday, 95 pounds of PM10 (particulate matter) per year, and 6,722,256 pounds of carbon dioxide (CO<sub>2</sub>) per year.

**Table B-4: Metro Planning Area Current / Future Demand and Air Quality Benefits Estimates**

Variable	Current Value	Future Value	Source (1)	Source (2)
<b>Demographics</b>				
Study area population	316,978	353,336	<i>Los Angeles County General Plan Update (2008)</i>	
Employed population	63,693	101,909	<i>LA County 2008 In-Fill Study</i>	<i>Estimate based on historic employment population growth (or decline) trends</i>
Bike-to-work mode share	0.30%	1.00%	<i>2005-2007 American Community Survey, B0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements</i>
Number of bike-to-work commuters	191	1,019	<i>Employed persons multiplied by bike-to-work mode share</i>	
Work-at-home mode share	2.10%	4.00%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate based on historic work-at-home population growth (or decline) trends</i>
Number of work-at-home bike commuters	4	82	<i>Assumes 0.3% of population working at home makes at least one daily bicycle trip</i>	<i>Assumes 2% of population working at home makes at least one daily bicycle trip</i>
Transit-to-work mode share	12.70%	15.00%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase (or decrease) associated with planned/proposed bikeway system improvements and transit service improvements/reductions</i>

**Table B-4: Metro Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Transit bicycle commuters	97	3,822	Employed persons multiplied by transit mode share. Assumes 1.2% of transit riders access transit by bicycle	Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle
School children, ages 6-14 (grades K-8)	43,216	76,375	2005-2007 American Community Survey, S0801 3-Year Estimates	Population-based estimate
School children bicycling mode share	2.00%	4.00%	National Safe Routes to School surveys, 2003.	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
School children bike commuters	864	3,055	School children population multiplied by school children bike mode share	School children population multiplied by school children bicycling mode share
Number of college students in study area	14,559	26,956	2005-2007 American Community Survey, B14001 3-Year Estimates	Population-based estimate
Estimated college bicycling mode share	10.00%	15.00%	Review of bicycle commute share in seven university communities (source: National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995).	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
College bike commuters	1,456	4,043	College student population multiplied by college student bicycling mode share	
Total number of bike commuters	2,612	12,021	Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.	
Total daily bicycling trips	5,225	24,041	Total bicycle commuters x 2 (for round trips)	
<b>Estimated VMT Reductions</b>				
Reduced Vehicle Trips per Weekday	1,663	5,374	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children	
Reduced Vehicle Trips per Year	434,125	1,402,690	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)	
Reduced Vehicle Miles per Weekday	10,100	31,660	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren	
Reduced Vehicle Miles per Year	2,636,069	8,263,317	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)	
<b>Air Quality Benefits Estimates</b>				
Reduced Hydrocarbons (pounds/weekday)	30	95	Daily mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/weekday)	<1	<1	Daily mileage reduction multiplied by 0.0052 grams per reduced mile	
Reduced PM2.5 (pounds/weekday)	<1	<1	Daily mileage reduction multiplied by 0.0049 grams per reduced mile	
Reduced NO <sub>x</sub> (pounds/weekday)	21	66	Daily mileage reduction multiplied by 0.95 grams per reduced mile	
Reduced CO (pounds/weekday)	276	866	Daily mileage reduction multiplied by 12.4 grams per reduced mile	
Reduced CO <sub>2</sub> (pounds/weekday)	8,216	25756	Daily mileage reduction multiplied by 369 grams per reduced mile	

**Table B-4: Metro Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Reduced Hydrocarbons (pounds/year)	7,904	24,776	Yearly mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/year)	30	95	Yearly mileage reduction multiplied by 0.0052 grams per reduced mile	
Reduced PM2.5 (pounds/year)	28	89	Yearly mileage reduction multiplied by 0.0049 grams per reduced mile	
Reduced NO <sub>x</sub> (pounds/year)	5,521	17307	Yearly mileage reduction multiplied by 0.95 grams per reduced mile	
Reduced CO (pounds/year)	72,063	225,897	Yearly mileage reduction multiplied by 12.4 grams per reduced mile	
Reduced CO <sub>2</sub> (pounds/year)	2,144,457	6,722,256	Yearly mileage reduction multiplied by 369 grams per reduced mile	

(Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline Fueled Passenger Cars and Light Trucks." 2005.)

## B.5 San Fernando Valley Planning Area

The benefits model predicts that by 2030 the total number of bicycle commuters could increase from the current estimate of 708 to 1,583, resulting in an estimated decrease of 21 pounds of hydrocarbons per weekday, 15 pounds of mono-nitrogen oxides (NO<sub>x</sub>) per weekday, 21 pounds of PM10 (particulate matter) per year, and 1,470,980 pounds of carbon dioxide (CO<sub>2</sub>) per year.

**Table B-5: San Fernando Valley Planning Area Current / Future Demand and Air Quality Benefits Estimates**

Variable	Current Value	Future Value	Source (1)	Source (2)
<b>Demographics</b>				
Study area population	27,634	34,505	Los Angeles County General Plan Update (2008)	
Employed population	24,820	26,785	Los Angeles County General Plan Update (2008)	
Bike-to-work mode share	1.00%	2.00%	2005-2007 American Community Survey, B0801 3-Year Estimates	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
Number of bike-to-work commuters	246	536	Employed persons multiplied by bike-to-work mode share	
Work-at-home mode share	4.00%	5.00%	2005-2007 American Community Survey, S0801 3-Year Estimates	Estimate based on historic work-at-home population growth (or decline) trends
Number of work-at-home bike commuters	11	54	Assumes 1.1% of population working at home makes at least one daily bicycle trip	Assumes 4% of population working at home makes at least one daily bicycle trip
Transit-to-work mode share	1.00%	2.00%	2005-2007 American Community Survey, S0801 3-Year Estimates	Estimate of the potential mode share increase (or decrease) associated with planned/proposed bikeway system improvements and transit service improvements/reductions

**Table B-5: San Fernando Valley Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Transit bicycle commuters	3	134	Employed persons multiplied by transit mode share. Assumes 1.2% of transit riders access transit by bicycle	Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle
School children, ages 6-14 (grades K-8)	6,235	7,230	2005-2007 American Community Survey, S0801 3-Year Estimates	Population-based estimate
School children bicycling mode share	2.00%	4.00%	National Safe Routes to School surveys, 2003.	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
School children bike commuters	125	289	School children population multiplied by school children bike mode share	School children population multiplied by school children bicycling mode share
Number of college students in study area	3,234	3,805	2005-2007 American Community Survey, B14001 3-Year Estimates	Population-based estimate
Estimated college bicycling mode share	10.00%	15.00%	Review of bicycle commute share in seven university communities (source: National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995).	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
College bike commuters	323	571	College student population multiplied by college student bicycling mode share	
Total number of bike commuters	708	1,583	Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.	
Total daily bicycling trips	1,416	3,166	Total bicycle commuters x 2 (for round trips)	
<b>Estimated VMT Reductions</b>				
Reduced Vehicle Trips per Weekday	490	1,000	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children	
Reduced Vehicle Trips per Year	127,798	261,029	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)	
Reduced Vehicle Miles per Weekday	3,455	6,928	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren	
Reduced Vehicle Miles per Year	901,634	1,808,199	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)	
<b>Air Quality Benefits Estimates</b>				
Reduced Hydrocarbons (pounds/weekday)	10	21	Daily mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/weekday)	0	0	Daily mileage reduction multiplied by 0.0052 grams per reduced mile	
Reduced PM2.5 (pounds/weekday)	0	0	Daily mileage reduction multiplied by 0.0049 grams per reduced mile	
Reduced NO <sub>x</sub> (pounds/weekday)	7	15	Daily mileage reduction multiplied by 0.95 grams per reduced mile	
Reduced CO (pounds/weekday)	94	189	Daily mileage reduction multiplied by 12.4 grams per reduced mile	
Reduced CO <sub>2</sub> (pounds/weekday)	2,810	5,636	Daily mileage reduction multiplied by 369 grams per reduced mile	
Reduced Hydrocarbons (pounds/year)	2,703	5,421	Yearly mileage reduction multiplied by 1.36 grams per reduced mile	

**Table B-5: San Fernando Valley Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Reduced PM10 (pounds/year)	10	21	<i>Yearly mileage reduction multiplied by 0.0052 grams per reduced mile</i>	
Reduced PM2.5 (pounds/year)	10	20	<i>Yearly mileage reduction multiplied by 0.0049 grams per reduced mile</i>	
Reduced NO <sub>x</sub> (pounds/year)	1,888	3,787	<i>Yearly mileage reduction multiplied by 0.95 grams per reduced mile</i>	
Reduced CO (pounds/year)	24,648	49,431	<i>Yearly mileage reduction multiplied by 12.4 grams per reduced mile</i>	
Reduced CO <sub>2</sub> (pounds/year)	733,484	1,470,980	<i>Yearly mileage reduction multiplied by 369 grams per reduced mile</i>	

*(Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline Fueled Passenger Cars and Light Trucks." 2005.)*

## B.6 Santa Clarita Valley Planning Area

The benefits model predicts that by 2030 the total number of bicycle commuters could increase from the current estimate of 754 to 3,217, resulting in an estimated decrease of 37 pounds of hydrocarbons per weekday, 26 pounds of mono-nitrogen oxides (NO<sub>x</sub>) per weekday, 37 pounds of PM10 (particulate matter) per year, and 2,653,579 pounds of carbon dioxide (CO<sub>2</sub>) per year.

**Table B-6: Santa Clarita Valley Planning Area Current / Future Demand and Air Quality Benefits Estimates**

Variable	Current Value	Future Value	Source (1)	Source (2)
<b>Demographics</b>				
Study area population	85,326	170,085	<i>Los Angeles County General Plan Update (2008)</i>	
Employed population	37,652	47,065	<i>2006-2008 American Community Survey, B0801 3-Year Estimates</i>	<i>Los Angeles County General Plan Update (2008)</i>
Bike-to-work mode share	0.20%	1.00%	<i>2005-2007 American Community Survey, B0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements</i>
Number of bike-to-work commuters	62	471	<i>Employed persons multiplied by bike-to-work mode share</i>	
Work-at-home mode share	2.80%	3.50%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate based on historic work-at-home population growth (or decline) trends</i>
Number of work-at-home bike commuters	2	33	<i>Assumes 0.2% of population working at home makes at least one daily bicycle trip</i>	<i>Assumes 2% of population working at home makes at least one daily bicycle trip</i>
Transit-to-work mode share	1.40%	2.00%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase (or decrease) associated with planned/proposed bikeway system improvements and transit service improvements/reductions</i>
Transit bicycle commuters	7	235	<i>Employed persons multiplied by transit mode share. Assumes 1.2% of transit riders access transit by bicycle</i>	<i>Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle</i>

**Table B-6: Santa Clarita Valley Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
School children, ages 6-14 (grades K-8)	11,814	30,850	2005-2007 American Community Survey, S0801 3-Year Estimates	Population-based estimate
School children bicycling mode share	2.00%	3.00%	National Safe Routes to School surveys, 2003.	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
School children bike commuters	236	925	School children population multiplied by school children bike mode share	School children population multiplied by school children bicycling mode share
Number of college students in study area	4,472	11,942	2005-2007 American Community Survey, B14001 3-Year Estimates	Population-based estimate
Estimated college bicycling mode share	10.00%	13.00%	Review of bicycle commute share in seven university communities (source: National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995).	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
College bike commuters	447	1,552	College student population multiplied by college student bicycling mode share	
Total number of bike commuters	754	3,217	Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.	
Total daily bicycling trips	1,508	6,434	Total bicycle commuters x 2 (for round trips)	
<b>Estimated VMT Reductions</b>				
Reduced Vehicle Trips per Weekday	498	1,991	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children	
Reduced Vehicle Trips per Year	130,102	519,758	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)	
Reduced Vehicle Miles per Weekday	3,111	12,498	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren	
Reduced Vehicle Miles per Year	812,022	3,261,905	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)	
<b>Air Quality Benefits Estimates</b>				
Reduced Hydrocarbons (pounds/weekday)	9	37	Daily mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/weekday)	0	0	Daily mileage reduction multiplied by 0.0052 grams per reduced mile	
Reduced PM2.5 (pounds/weekday)	0	0	Daily mileage reduction multiplied by 0.0049 grams per reduced mile	
Reduced NO <sub>x</sub> (pounds/weekday)	7	26	Daily mileage reduction multiplied by 0.95 grams per reduced mile	
Reduced CO (pounds/weekday)	85	342	Daily mileage reduction multiplied by 12.4 grams per reduced mile	
Reduced CO <sub>2</sub> (pounds/weekday)	2,531	10,167	Daily mileage reduction multiplied by 369 grams per reduced mile	
Reduced Hydrocarbons (pounds/year)	2,435	9,780	Yearly mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/year)	9	37	Yearly mileage reduction multiplied by 0.0052 grams per reduced mile	

**Table B-6: Santa Clarita Valley Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Reduced PM2.5 (pounds/year)	9	35	<i>Yearly mileage reduction multiplied by 0.0049 grams per reduced mile</i>	
Reduced NO <sub>x</sub> (pounds/year)	1,701	6,832	<i>Yearly mileage reduction multiplied by 0.95 grams per reduced mile</i>	
Reduced CO (pounds/year)	22,199	89,172	<i>Yearly mileage reduction multiplied by 12.4 grams per reduced mile</i>	
Reduced CO <sub>2</sub> (pounds/year)	660,585	2,653,579	<i>Yearly mileage reduction multiplied by 369 grams per reduced mile</i>	

*(Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline Fueled Passenger Cars and Light Trucks." 2005.)*

## B.7 Santa Monica Mountains Planning Area

The benefits model predicts that by 2030 the total number of bicycle commuters could increase from the current estimate of 210 to 897, resulting in an estimated decrease of 11 pounds of hydrocarbons per weekday, 7 pounds of mono-nitrogen oxides (NO<sub>x</sub>) per weekday, 11 pounds of PM10 (particulate matter) per year, and 750,588 pounds of carbon dioxide (CO<sub>2</sub>) per year.

**Table B-7: Santa Monica Mountains Planning Area Current / Future Demand and Air Quality Benefits Estimates**

Variable	Current Value	Future Value	Source (1)	Source (2)
<b>Demographics</b>				
Study area population	21,925	32,888	<i>Los Angeles County General Plan Update (2008)</i>	
Employed population	16,277	17,854	<i>Los Angeles County General Plan Update (2008)</i>	
Bike-to-work mode share	0.20%	0.60%	<i>2005-2007 American Community Survey, B0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements</i>
Number of bike-to-work commuters	26	107	<i>Employed persons multiplied by bike-to-work mode share</i>	
Work-at-home mode share	3.30%	4.80%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate based on historic work-at-home population growth (or decline) trends</i>
Number of work-at-home bike commuters	2	9	<i>Assumes 0.3% of population working at home makes at least one daily bicycle trip</i>	<i>Assumes 1% of population working at home makes at least one daily bicycle trip</i>
Transit-to-work mode share	0.50%	0.80%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase (or decrease) associated with planned/proposed bikeway system improvements and transit service improvements/reductions</i>
Transit bicycle commuters	1	34	<i>Employed persons multiplied by transit mode share. Assumes 1.2% of transit riders access transit by bicycle</i>	<i>Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle</i>
School children, ages 6-14 (grades K-8)	2,873	7,098	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Population-based estimate</i>

**Table B-7: Santa Monica Mountains Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
School children bicycling mode share	2.00%	4.00%	National Safe Routes to School surveys, 2003.	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
School children bike commuters	57	284	School children population multiplied by school children bike mode share	School children population multiplied by school children bicycling mode share
Number of college students in study area	1,240	3,093	2005-2007 American Community Survey, B14001 3-Year Estimates	Population-based estimate
Estimated college bicycling mode share	10.00%	15.00%	Review of bicycle commute share in seven university communities (source: National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995).	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
College bike commuters	124	464	College student population multiplied by college student bicycling mode share	
Total number of bike commuters	210	897	Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.	
Total daily bicycling trips	420	1,795	Total bicycle commuters x 2 (for round trips)	
<b>Estimated VMT Reductions</b>				
Reduced Vehicle Trips per Weekday	141	574	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children	
Reduced Vehicle Trips per Year	36,833	149,698	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)	
Reduced Vehicle Miles per Weekday	916	3,535	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren	
Reduced Vehicle Miles per Year	239,022	922,659	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)	
<b>Air Quality Benefits Estimates</b>				
Reduced Hydrocarbons (pounds/weekday)	3	11	Daily mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/weekday)	0	0	Daily mileage reduction multiplied by 0.0052 grams per reduced mile	
Reduced PM2.5 (pounds/weekday)	0	0	Daily mileage reduction multiplied by 0.0049 grams per reduced mile	
Reduced NO <sub>x</sub> (pounds/weekday)	2	7	Daily mileage reduction multiplied by 0.95 grams per reduced mile	
Reduced CO (pounds/weekday)	25	97	Daily mileage reduction multiplied by 12.4 grams per reduced mile	
Reduced CO <sub>2</sub> (pounds/weekday)	745	2,876	Daily mileage reduction multiplied by 369 grams per reduced mile	
Reduced Hydrocarbons (pounds/year)	717	2,766	Yearly mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/year)	3	11	Yearly mileage reduction multiplied by 0.0052 grams per reduced mile	
Reduced PM2.5 (pounds/year)	3	10	Yearly mileage reduction multiplied by 0.0049 grams per reduced mile	
Reduced NO <sub>x</sub> (pounds/year)	501	1,932	Yearly mileage reduction multiplied by 0.95 grams per reduced mile	



**Table B-7: Santa Monica Mountains Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Reduced CO (pounds/year)	6,534	25,223	<i>Yearly mileage reduction multiplied by 12.4 grams per reduced mile</i>	
Reduced CO <sub>2</sub> (pounds/year)	194,446	750,588	<i>Yearly mileage reduction multiplied by 369 grams per reduced mile</i>	

*(Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline Fueled Passenger Cars and Light Trucks." 2005.)*

## B.8 South Bay Planning Area

The benefits model predicts that by 2030 the total number of bicycle commuters could increase from the current estimate of 747 to 2,030, resulting in an estimated decrease of 25 pounds of hydrocarbons per weekday, 17 pounds of mono-nitrogen oxides (NO<sub>x</sub>) per weekday, 25 pounds of PM10 (particulate matter) per year, and 1,768,883 pounds of carbon dioxide (CO<sub>2</sub>) per year.

**Table B-8: South Bay Planning Area Current / Future Demand and Air Quality Benefits Estimates**

Variable	Current Value	Future Value	Source (1)	Source (2)
<b>Demographics</b>				
Study area population	78,254	86,880	<i>Los Angeles County General Plan Update (2008)</i>	
Employed population	20,346	21,767	<i>Los Angeles County General Plan Update (2008)</i>	
Bike-to-work mode share	0.80%	1.20%	<i>2005-2007 American Community Survey, B0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements</i>
Number of bike-to-work commuters	170	255	<i>Employed persons multiplied by bike-to-work mode share</i>	
Work-at-home mode share	3.10%	4.40%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate based on historic work-at-home population growth (or decline) trends</i>
Number of work-at-home bike commuters	4	479	<i>Assumes 0.7% of population working at home makes at least one daily bicycle trip</i>	<i>Assumes 50% of population working at home makes at least one daily bicycle trip</i>
Transit-to-work mode share	3.30%	4.50%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase (or decrease) associated with planned/proposed bikeway system improvements and transit service improvements/reductions</i>
Transit bicycle commuters	8	246	<i>Employed persons multiplied by transit mode share. Assumes 1.2% of transit riders access transit by bicycle</i>	<i>Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle</i>
School children, ages 6-14 (grades K-8)	8,397	9,848	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	
School children bicycling mode share	2.00%	4.00%	<i>National Safe Routes to School surveys, 2003.</i>	<i>Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements</i>
School children bike commuters	168	394	<i>School children population multiplied by school children bike mode share</i>	<i>School children population multiplied by school children bicycling mode share</i>

**Table B-8: South Bay Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Number of college students in study area	3,965	4,377	2005-2007 American Community Survey, B14001 3-Year Estimates	Population-based estimate
Estimated college bicycling mode share	10.00%	15.00%	Review of bicycle commute share in seven university communities (source: National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995).	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
College bike commuters	397	657	College student population multiplied by college student bicycling mode share	
Total number of bike commuters	747	2,030	Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.	
Total daily bicycling trips	1,494	4,061	Total bicycle commuters x 2 (for round trips)	
<b>Estimated VMT Reductions</b>				
Reduced Vehicle Trips per Weekday	506	1,224	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children	
Reduced Vehicle Trips per Year	132,019	319,480	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)	
Reduced Vehicle Miles per Weekday	3,423	8,331	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren	
Reduced Vehicle Miles per Year	893,531	2,174,396	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)	
<b>Air Quality Benefits Estimates</b>				
Reduced Hydrocarbons (pounds/weekday)	10	25	Daily mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/weekday)	0	<1	Daily mileage reduction multiplied by 0.0052 grams per reduced mile	
Reduced PM2.5 (pounds/weekday)	0	<1	Daily mileage reduction multiplied by 0.0049 grams per reduced mile	
Reduced NO <sub>x</sub> (pounds/weekday)	7	17	Daily mileage reduction multiplied by 0.95 grams per reduced mile	
Reduced CO (pounds/weekday)	94	228	Daily mileage reduction multiplied by 12.4 grams per reduced mile	
Reduced CO <sub>2</sub> (pounds/weekday)	2,785	6777	Daily mileage reduction multiplied by 369 grams per reduced mile	
Reduced Hydrocarbons (pounds/year)	2,679	6,519	Yearly mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/year)	10	25	Yearly mileage reduction multiplied by 0.0052 grams per reduced mile	
Reduced PM2.5 (pounds/year)	10	23	Yearly mileage reduction multiplied by 0.0049 grams per reduced mile	
Reduced NO <sub>x</sub> (pounds/year)	1,871	4554	Yearly mileage reduction multiplied by 0.95 grams per reduced mile	
Reduced CO (pounds/year)	24,427	59,442	Yearly mileage reduction multiplied by 12.4 grams per reduced mile	

**Table B-8: South Bay Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Reduced CO <sub>2</sub> (pounds/year)	726,893	1,768,883	<i>Yearly mileage reduction multiplied by 369 grams per reduced mile</i>	
<i>(Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline Fueled Passenger Cars and Light Trucks." 2005.)</i>				

## B.9 West San Gabriel Valley Planning Area

The benefits model predicts that by 2030 the total number of bicycle commuters could increase from the current estimate of 1,643 to 4,408, resulting in an estimated decrease of 50 pounds of hydrocarbons per weekday, 35 pounds of mono-nitrogen oxides (NO<sub>x</sub>) per weekday, 50 pounds of PM10 (particulate matter) per year, and 3,563,556 pounds of carbon dioxide (CO<sub>2</sub>) per year.

**Table B-9: West San Gabriel Valley Planning Area Current Future Demand and Air Quality Benefits Estimates**

Variable	Current Value	Future Value	Source (1)	Source (2)
<b>Demographics</b>				
Study area population	117,913	157,371	<i>Los Angeles County General Plan Update (2008)</i>	
Employed population	57,179	62,897	<i>Los Angeles County General Plan Update (2008)</i>	
Bike-to-work mode share	0.60%	1.00%	<i>2005-2007 American Community Survey, B0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements</i>
Number of bike-to-work commuters	336	629	<i>Employed persons multiplied by bike-to-work mode share</i>	
Work-at-home mode share	3.50%	4.70%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate based on historic work-at-home population growth (or decline) trends</i>
Number of work-at-home bike commuters	12	59	<i>Assumes 0.6% of population working at home makes at least one daily bicycle trip</i>	<i>Assumes 2% of population working at home makes at least one daily bicycle trip</i>
Transit-to-work mode share	2.90%	4.00%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase (or decrease) associated with planned/proposed bikeway system improvements and transit service improvements/reductions</i>
Transit bicycle commuters	20	631	<i>Employed persons multiplied by transit mode share. Assumes 1.2% of transit riders access transit by bicycle</i>	<i>Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle</i>
School children, ages 6-14 (grades K-8)	17,314	24,833	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	
School children bicycling mode share	2.00%	4.00%	<i>National Safe Routes to School surveys, 2003.</i>	<i>Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements</i>
School children bike commuters	346	993	<i>School children population multiplied by school children bike mode share</i>	<i>School children population multiplied by school children bicycling mode share</i>
Number of college students in study area	9,283	13,969	<i>2005-2007 American Community Survey, B14001 3-Year Estimates</i>	<i>Population-based estimate</i>

**Table B-9: West San Gabriel Valley Planning Area Current Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
Estimated college bicycling mode share	10.00%	15.00%	Review of bicycle commute share in seven university communities (source: National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995).	Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements
College bike commuters	928	2,095	College student population multiplied by college student bicycling mode share	
Total number of bike commuters	1,643	4,408	Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.	
Total daily bicycling trips	3,285	8,816	Total bicycle commuters x 2 (for round trips)	
<b>Estimated VMT Reductions</b>				
Reduced Vehicle Trips per Weekday	1115	2,559	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children	
Reduced Vehicle Trips per Year	291,054	667,793	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)	
Reduced Vehicle Miles per Weekday	7,636	16,783	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren	
Reduced Vehicle Miles per Year	1,993,124	4,380,493	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)	
<b>Air Quality Benefits Estimates</b>				
Reduced Hydrocarbons (pounds/weekday)	23	50	Daily mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/weekday)	<1	<1	Daily mileage reduction multiplied by 0.0052 grams per reduced mile	
Reduced PM2.5 (pounds/weekday)	<1	<1	Daily mileage reduction multiplied by 0.0049 grams per reduced mile	
Reduced NO <sub>x</sub> (pounds/weekday)	16	35	Daily mileage reduction multiplied by 0.95 grams per reduced mile	
Reduced CO (pounds/weekday)	209	459	Daily mileage reduction multiplied by 12.4 grams per reduced mile	
Reduced CO <sub>2</sub> (pounds/weekday)	6212	13,653	Daily mileage reduction multiplied by 369 grams per reduced mile	
Reduced Hydrocarbons (pounds/year)	5976	13,134	Yearly mileage reduction multiplied by 1.36 grams per reduced mile	
Reduced PM10 (pounds/year)	23	50	Yearly mileage reduction multiplied by 0.0052 grams per reduced mile	
Reduced PM2.5 (pounds/year)	22	47	Yearly mileage reduction multiplied by 0.0049 grams per reduced mile	
Reduced NO <sub>x</sub> (pounds/year)	4174	9,174	Yearly mileage reduction multiplied by 0.95 grams per reduced mile	
Reduced CO (pounds/year)	54487	119,751	Yearly mileage reduction multiplied by 12.4 grams per reduced mile	
Reduced CO <sub>2</sub> (pounds/year)	1,621,418	3,563,556	Yearly mileage reduction multiplied by 369 grams per reduced mile	

(Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline Fueled Passenger Cars and Light Trucks." 2005.)

## B.10 Westside Planning Area

The benefits model predicts that by 2030 the total number of bicycle commuters could increase from the current estimate of 431 to 1,489, resulting in an estimated decrease of 19 pounds of hydrocarbons per weekday, 14 pounds of mono-nitrogen oxides (NO<sub>x</sub>) per weekday, 19 pounds of PM10 (particulate matter) per year, and 1,374,433 pounds of carbon dioxide (CO<sub>2</sub>) per year.

**Table B-10: Westside Planning Area Current / Future Demand and Air Quality Benefits Estimates**

Variable	Current Value	Future Value	Source (1)	Source (2)
<b>Demographics</b>				
Study area population	31,777	40,949	<i>LA County General Plan Update (2008)</i>	
Employed population	17,637	18,459	<i>LA County General Plan Update (2008)</i>	
Bike-to-work mode share	0.30%	1.00%	<i>2005-2007 American Community Survey, B0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements</i>
Number of bike-to-work commuters	46	185	<i>Employed persons multiplied by bike-to-work mode share</i>	
Work-at-home mode share	5.80%	8.80%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate based on historic work-at-home population growth (or decline) trends</i>
Number of work-at-home bike commuters	2	33	<i>Assumes 0.2% of population working at home makes at least one daily bicycle trip</i>	<i>Assumes 2% of population working at home makes at least one daily bicycle trip</i>
Transit-to-work mode share	2.00%	4.00%	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	<i>Estimate of the potential mode share increase (or decrease) associated with planned/proposed bikeway system improvements and transit service improvements/reductions</i>
Transit bicycle commuters	4	185	<i>Employed persons multiplied by transit mode share. Assumes 1.2% of transit riders access transit by bicycle</i>	<i>Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle</i>
School children, ages 6-14 (grades K-8)	2,984	5,396	<i>2005-2007 American Community Survey, S0801 3-Year Estimates</i>	
School children bicycling mode share	2.00%	4.00%	<i>National Safe Routes to School surveys, 2003.</i>	<i>Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements</i>
School children bike commuters	60	216	<i>School children population multiplied by school children bike mode share</i>	
Number of college students in study area	3,192	5,811	<i>2005-2007 American Community Survey, B14001 3-Year Estimates</i>	<i>Population-based estimate</i>
Estimated college bicycling mode share	10.00%	15.00%	<i>Review of bicycle commute share in seven university communities (source: National Bicycling &amp; Walking Study, FHWA, Case Study No. 1, 1995).</i>	<i>Estimate of the potential mode share increase associated with planned/proposed bikeway system improvements</i>
College bike commuters	319	872	<i>College student population multiplied by college student bicycling mode share</i>	
Total number of bike commuters	431	1,489	<i>Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.</i>	
Total daily bicycling trips	862	2,979	<i>Total bicycle commuters x 2 (for round trips)</i>	

**Table B-10: Westside Planning Area Current / Future Demand and Air Quality Benefits Estimates (continued)**

Variable	Current Value	Future Value	Source (1)	Source (2)
<b>Estimated VMT Reductions</b>				
Reduced Vehicle Trips per Weekday	300	909	<i>Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children</i>	
Reduced Vehicle Trips per Year	78225	237,316	<i>Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)</i>	
Reduced Vehicle Miles per Weekday	2,176	6,473	<i>Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren</i>	
Reduced Vehicle Miles per Year	568,008	1,689,518	<i>Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)</i>	
<b>Air Quality Benefits Estimates</b>				
Reduced Hydrocarbons (pounds/weekday)	7	19	<i>Daily mileage reduction multiplied by 1.36 grams per reduced mile</i>	
Reduced PM10 (pounds/weekday)	<1	<1	<i>Daily mileage reduction multiplied by 0.0052 grams per reduced mile</i>	
Reduced PM2.5 (pounds/weekday)	<1	<1	<i>Daily mileage reduction multiplied by 0.0049 grams per reduced mile</i>	
Reduced NO <sub>x</sub> (pounds/weekday)	5	14	<i>Daily mileage reduction multiplied by 0.95 grams per reduced mile</i>	
Reduced CO (pounds/weekday)	59	177	<i>Daily mileage reduction multiplied by 12.4 grams per reduced mile</i>	
Reduced CO <sub>2</sub> (pounds/weekday)	1,770	5,266	<i>Daily mileage reduction multiplied by 369 grams per reduced mile</i>	
Reduced Hydrocarbons (pounds/year)	1,703	5,066	<i>Yearly mileage reduction multiplied by 1.36 grams per reduced mile</i>	
Reduced PM10 (pounds/year)	7	19	<i>Yearly mileage reduction multiplied by 0.0052 grams per reduced mile</i>	
Reduced PM2.5 (pounds/year)	6	18	<i>Yearly mileage reduction multiplied by 0.0049 grams per reduced mile</i>	
Reduced NO <sub>x</sub> (pounds/year)	1,190	3,539	<i>Yearly mileage reduction multiplied by 0.95 grams per reduced mile</i>	
Reduced CO (pounds/year)	15,528	46,187	<i>Yearly mileage reduction multiplied by 12.4 grams per reduced mile</i>	
Reduced CO <sub>2</sub> (pounds/year)	462,078	1,374,433	<i>Yearly mileage reduction multiplied by 369 grams per reduced mile</i>	
<i>(Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline Fueled Passenger Cars and Light Trucks." 2005.)</i>				