# 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 ($NO_x$) per weekday, 26 pounds of PM10 (particulate matter) per year, and 1,825,446 pounds of carbon dioxide ($CO_2$) 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) |
|---|---|---|---|---|
| **Demographics** | | | | |
| Study area population | 103,451 | 255,364 | *Los Angeles County General Plan Update(2008)* | |
| Employed population | 41,648 | 110,202 | *Estimate based on 2005-2007 American Community Survey, B0801 3-Year Percentages* | *Antelope Valley Area Plan Update, Background Report, April 2009* |
| Bike-to-work mode share | 0.10% | 0.15% | *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 | 42 | 165 | *Employed persons multiplied by bike-to-work mode share* | |
| Work-at-home mode share | 3.50% | 4.00% | *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 | 3 | 88 | *Assumes 0.2% of population working at home makes at least one daily bicycle trip* | *Assumes 2% of population working at home makes at least one daily bicycle trip* |

**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)* | |
| **Current Estimated VMT Reductions** | | | | |
| 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)* | |
| **Current Air Quality Benefits Estimates** | | | | |
| 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 $NO_X$ (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 $C0_2$ (pounds/weekday) | 2,371 | 6,994 | *Daily mileage reduction multiplied by 369 grams per reduced mile* | |
| Reduced Hydrocarbons (pounds/year) | 2,280 | 6,728 | *Yearly mileage reduction multiplied by 1.36 grams per reduced mile* | |
| Reduced PM10 (pounds/year) | 9 | 26 | *Yearly mileage reduction multiplied by 0.0052 grams per reduced mile* | |
| Reduced PM2.5 (pounds/year) | 8 | 24 | *Yearly mileage reduction multiplied by 0.0049 grams per reduced mile* | |
| Reduced $NO_X$ (pounds/year) | 1,593 | 4,700 | *Yearly mileage reduction multiplied by 0.95 grams per reduced mile* | |
| Reduced CO (pounds/year) | 20,793 | 61,343 | *Yearly mileage reduction multiplied by 12.4 grams per reduced mile* | |
| Reduced $C0_2$ (pounds/year) | 618,747 | 1,825,446 | *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 Gaso 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 ($NO_x$) per weekday, 132 pounds of PM10 (particulate matter) per year, and 9,341,105 pounds of carbon dioxide ($CO_2$) 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) |
|---|---|---|---|---|
| **Demographics** | | | | |
| Study area population | 274,374 | 371,842 | *Los Angeles County General Plan Update (2008)* | |
| Employed population | 41,655 | 49,187 | *LAFCO MSR Report* | |
| Bike-to-work mode share | 2.00% | 4.00% | *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 | 814 | 1,967 | *Employed persons multiplied by bike-to-work mode share* | |
| Work-at-home mode share | 6.80% | 8.60% | *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 | 20 | 85 | *Assumes 0.7% of population working at home makes at least one daily bicycle trip* | *Assumes 2% of population working at home makes at least one daily bicycle trip* |

**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)* | |
| **Estimated VMT Reductions** | | | | |
| 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)* | |
| **Air Quality Benefits Estimates** | | | | |
| 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 $NO_X$ (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 $C0_2$ (pounds/weekday) | 15,863 | 35,790 | *Daily mileage reduction multiplied by 369 grams per reduced mile* | |
| Reduced Hydrocarbons (pounds/year) | 15,259 | 34,428 | *Yearly mileage reduction multiplied by 1.36 grams per reduced mile* | |
| Reduced PM10 (pounds/year) | 58 | 132 | *Yearly mileage reduction multiplied by 0.0052 grams per reduced mile* | |
| Reduced PM2.5 (pounds/year) | 55 | 124 | *Yearly mileage reduction multiplied by 0.0049 grams per reduced mile* | |
| Reduced $NO_X$ (pounds/year) | 10,659 | 24,049 | *Yearly mileage reduction multiplied by 0.95 grams per reduced mile* | |
| Reduced CO (pounds/year) | 139,130 | 313,902 | *Yearly mileage reduction multiplied by 12.4 grams per reduced mile* | |
| Reduced $C0_2$ (pounds/year) | 4,140,248 | 9,341,105 | *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 Gaso 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 ($NO_x$) per weekday, 50 pounds of PM10 (particulate matter) per year, and 3,519,069 pounds of carbon dioxide ($CO_2$) 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) |
|---|---|---|---|---|
| **Demographics** | | | | |
| Study area population | 129,247 | 142,829 | *Los Angeles County General Plan Update (2008)* | |
| Employed population | 83,435 | 93,006 | *Los Angeles County General Plan Update (2008)* | |
| Bike-to-work mode share | 0.29% | 1.00% | *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 | 243 | 930 | *Employed persons multiplied by bike-to-work mode share* | |
| Work-at-home mode share | 1% | 2.00% | *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 | 5 | 74 | *Assumes 0.44% 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 | 2% | 4.00% | *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-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)* | |
| **Estimated VMT Reductions** | | | | |
| 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)* | |
| **Air Quality Benefits Estimates** | | | | |
| 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 $NO_X$ (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 $C0_2$ (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 | *Yearly mileage reduction multiplied by 1.36 grams per reduced mile* | |
| Reduced PM10 (pounds/year) | 21 | 50 | *Yearly mileage reduction multiplied by 0.0052 grams per reduced mile* | |
| Reduced PM2.5 (pounds/year) | 20 | 47 | *Yearly mileage reduction multiplied by 0.0049 grams per reduced mile* | |
| Reduced $NO_X$ (pounds/year) | 3927 | 9060 | *Yearly mileage reduction multiplied by 0.95 grams per reduced mile* | |
| Reduced CO (pounds/year) | 51,257 | 118,256 | *Yearly mileage reduction multiplied by 12.4 grams per reduced mile* | |
| Reduced $C0_2$ (pounds/year) | 1,525,300 | 3,519,069 | *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 Gaso 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 ($NO_x$) per weekday, 95 pounds of PM10 (particulate matter) per year, and 6,722,256 pounds of carbon dioxide ($CO_2$) 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) |
|---|---|---|---|---|
| **Demographics** | | | | |
| Study area population | 316,978 | 353,336 | *Los Angeles County General Plan Update (2008)* | |
| Employed population | 63,693 | 101,909 | *LA County 2008 In-Fill Study* | *Estimate based on historic employment population growth (or decline) trends* |
| Bike-to-work mode share | 0.30% | 1.00% | *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 | 191 | 1,019 | *Employed persons multiplied by bike-to-work mode share* | |
| Work-at-home mode share | 2.10% | 4.00% | *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 | 4 | 82 | *Assumes 0.3% of population working at home makes at least one daily bicycle trip* | *Assumes 2% of population working at home makes at least one daily bicycle trip* |
| Transit-to-work mode share | 12.70% | 15.00% | *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-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)* | |
| **Estimated VMT Reductions** | | | | |
| 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)* | |
| **Air Quality Benefits Estimates** | | | | |
| 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 $NO_X$ (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 $C0_2$ (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 $NO_X$ (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 $C0_2$ (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 Gaso 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 ($NO_x$) per weekday, 21 pounds of PM10 (particulate matter) per year, and 1,470,980 pounds of carbon dioxide ($CO_2$) 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) |
|---|---|---|---|---|
| **Demographics** | | | | |
| 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)* | |
| **Estimated VMT Reductions** | | | | |
| 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)* | |
| **Air Quality Benefits Estimates** | | | | |
| 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 $NO_X$ (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 $C0_2$ (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 | *Yearly mileage reduction multiplied by 0.0052 grams per reduced mile* | |
| Reduced PM2.5 (pounds/year) | 10 | 20 | *Yearly mileage reduction multiplied by 0.0049 grams per reduced mile* | |
| Reduced $NO_X$ (pounds/year) | 1,888 | 3,787 | *Yearly mileage reduction multiplied by 0.95 grams per reduced mile* | |
| Reduced CO (pounds/year) | 24,648 | 49,431 | *Yearly mileage reduction multiplied by 12.4 grams per reduced mile* | |
| Reduced $C0_2$ (pounds/year) | 733,484 | 1,470,980 | *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 Gaso 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 ($NO_x$) per weekday, 37 pounds of PM10 (particulate matter) per year, and 2,653,579 pounds of carbon dioxide ($CO_2$) 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) |
|---|---|---|---|---|
| **Demographics** | | | | |
| Study area population | 85,326 | 170,085 | *Los Angeles County General Plan Update (2008)* | |
| Employed population | 37,652 | 47,065 | *2006-2008 American Community Survey, B0801 3-Year Estimates* | *Los Angeles County General Plan Update (2008)* |
| Bike-to-work mode share | 0.20% | 1.00% | *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 | 62 | 471 | *Employed persons multiplied by bike-to-work mode share* | |
| Work-at-home mode share | 2.80% | 3.50% | *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 | 2 | 33 | *Assumes 0.2% of population working at home makes at least one daily bicycle trip* | *Assumes 2% of population working at home makes at least one daily bicycle trip* |
| Transit-to-work mode share | 1.40% | 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* |
| Transit bicycle commuters | 7 | 235 | *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* |

**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)* | |
| **Estimated VMT Reductions** | | | | |
| 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)* | |
| **Air Quality Benefits Estimates** | | | | |
| 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 $NO_X$ (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 $C0_2$ (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 | *Yearly mileage reduction multiplied by 0.0049 grams per reduced mile* | |
| Reduced $NO_X$ (pounds/year) | 1,701 | 6,832 | *Yearly mileage reduction multiplied by 0.95 grams per reduced mile* | |
| Reduced CO (pounds/year) | 22,199 | 89,172 | *Yearly mileage reduction multiplied by 12.4 grams per reduced mile* | |
| Reduced $C0_2$ (pounds/year) | 660,585 | 2,653,579 | *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 Gaso 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 ($NO_x$) per weekday, 11 pounds of PM10 (particulate matter) per year, and 750,588 pounds of carbon dioxide ($CO_2$) 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) |
|---|---|---|---|---|
| **Demographics** | | | | |
| Study area population | 21,925 | 32,888 | *Los Angeles County General Plan Update (2008)* | |
| Employed population | 16,277 | 17,854 | *Los Angeles County General Plan Update (2008)* | |
| Bike-to-work mode share | 0.20% | 0.60% | *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 | 26 | 107 | *Employed persons multiplied by bike-to-work mode share* | |
| Work-at-home mode share | 3.30% | 4.80% | *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 | 2 | 9 | *Assumes 0.3% of population working at home makes at least one daily bicycle trip* | *Assumes 1% of population working at home makes at least one daily bicycle trip* |
| Transit-to-work mode share | 0.50% | 0.80% | *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 | 1 | 34 | *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) | 2,873 | 7,098 | *2005-2007 American Community Survey, S0801 3-Year Estimates* | *Population-based estimate* |

**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)* | |
| **Estimated VMT Reductions** | | | | |
| 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)* | |
| **Air Quality Benefits Estimates** | | | | |
| 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 $NO_X$ (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 $C0_2$ (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 $NO_X$ (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 | *Yearly mileage reduction multiplied by 12.4 grams per reduced mile* | |
| Reduced $C0_2$ (pounds/year) | 194,446 | 750,588 | *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 Gaso 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 ($NO_x$) per weekday, 25 pounds of PM10 (particulate matter) per year, and 1,768,883 pounds of carbon dioxide ($CO_2$) 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) |
|---|---|---|---|---|
| **Demographics** | | | | |
| Study area population | 78,254 | 86,880 | *Los Angeles County General Plan Update (2008)* | |
| Employed population | 20,346 | 21,767 | *Los Angeles County General Plan Update (2008)* | |
| Bike-to-work mode share | 0.80% | 1.20% | *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 | 170 | 255 | *Employed persons multiplied by bike-to-work mode share* | |
| Work-at-home mode share | 3.10% | 4.40% | *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 | 4 | 479 | *Assumes 0.7% of population working at home makes at least one daily bicycle trip* | *Assumes 50% of population working at home makes at least one daily bicycle trip* |
| Transit-to-work mode share | 3.30% | 4.50% | *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 | 8 | 246 | *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) | 8,397 | 9,848 | *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 | 168 | 394 | *School children population multiplied by school children bike mode share* | *School children population multiplied by school children bicycling mode share* |

**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)* | |
| **Estimated VMT Reductions** | | | | |
| 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)* | |
| **Air Quality Benefits Estimates** | | | | |
| 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 $NO_X$ (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 $C0_2$ (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 $NO_X$ (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 $C0_2$ (pounds/year) | 726,893 | 1,768,883 | *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 Gaso Fueled Passenger Cars and Light Trucks." 2005.)*

## 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 ($NO_x$) per weekday, 50 pounds of PM10 (particulate matter) per year, and 3,563,556 pounds of carbon dioxide ($CO_2$) 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) |
|---|---|---|---|---|
| **Demographics** | | | | |
| Study area population | 117,913 | 157,371 | *Los Angeles County General Plan Update (2008)* | |
| Employed population | 57,179 | 62,897 | *Los Angeles County General Plan Update (2008)* | |
| Bike-to-work mode share | 0.60% | 1.00% | *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 | 336 | 629 | *Employed persons multiplied by bike-to-work mode share* | |
| Work-at-home mode share | 3.50% | 4.70% | *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 | 12 | 59 | *Assumes 0.6% of population working at home makes at least one daily bicycle trip* | *Assumes 2% of population working at home makes at least one daily bicycle trip* |
| Transit-to-work mode share | 2.90% | 4.00% | *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 | 20 | 631 | *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) | 17,314 | 24,833 | *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 | 346 | 993 | *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 | 9,283 | 13,969 | *2005-2007 American Community Survey, B14001 3-Year Estimates* | *Population-based estimate* |

**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)* | |
| **Estimated VMT Reductions** | | | | |
| 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)* | |
| **Air Quality Benefits Estimates** | | | | |
| 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 $NO_X$ (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 $C0_2$ (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 $NO_X$ (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 $C0_2$ (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 Gaso 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 ($NO_x$) per weekday, 19 pounds of PM10 (particulate matter) per year, and 1,374,433 pounds of carbon dioxide ($CO_2$) 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) |
|---|---|---|---|---|
| **Demographics** | | | | |
| Study area population | 31,777 | 40,949 | *LA County General Plan Update (2008)* | |
| Employed population | 17,637 | 18,459 | *LA County General Plan Update (2008)* | |
| Bike-to-work mode share | 0.30% | 1.00% | *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 | 46 | 185 | *Employed persons multiplied by bike-to-work mode share* | |
| Work-at-home mode share | 5.80% | 8.80% | *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 | 2 | 33 | *Assumes 0.2% of population working at home makes at least one daily bicycle trip* | *Assumes 2% of population working at home makes at least one daily bicycle trip* |
| Transit-to-work mode share | 2.00% | 4.00% | *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 | 4 | 185 | *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) | 2,984 | 5,396 | *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 | 60 | 216 | *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 | 3,192 | 5,811 | *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 | 319 | 872 | *College student population multiplied by college student bicycling mode share* | |
| Total number of bike commuters | 431 | 1,489 | *Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.* | |
| Total daily bicycling trips | 862 | 2,979 | *Total bicycle commuters x 2 (for round trips)* | |

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

| Variable | Current Value | Future Value | Source (1) | Source (2) |
|---|---|---|---|---|
| **Estimated VMT Reductions** | | | | |
| Reduced Vehicle Trips per Weekday | 300 | 909 | *Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children* | |
| Reduced Vehicle Trips per Year | 78225 | 237,316 | *Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)* | |
| Reduced Vehicle Miles per Weekday | 2,176 | 6,473 | *Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren* | |
| Reduced Vehicle Miles per Year | 568,008 | 1,689,518 | *Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)* | |
| **Air Quality Benefits Estimates** | | | | |
| Reduced Hydrocarbons (pounds/weekday) | 7 | 19 | *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 $NO_X$ (pounds/weekday) | 5 | 14 | *Daily mileage reduction multiplied by 0.95 grams per reduced mile* | |
| Reduced CO (pounds/weekday) | 59 | 177 | *Daily mileage reduction multiplied by 12.4 grams per reduced mile* | |
| Reduced $C0_2$ (pounds/weekday) | 1,770 | 5,266 | *Daily mileage reduction multiplied by 369 grams per reduced mile* | |
| Reduced Hydrocarbons (pounds/year) | 1,703 | 5,066 | *Yearly mileage reduction multiplied by 1.36 grams per reduced mile* | |
| Reduced PM10 (pounds/year) | 7 | 19 | *Yearly mileage reduction multiplied by 0.0052 grams per reduced mile* | |
| Reduced PM2.5 (pounds/year) | 6 | 18 | *Yearly mileage reduction multiplied by 0.0049 grams per reduced mile* | |
| Reduced $NO_X$ (pounds/year) | 1,190 | 3,539 | *Yearly mileage reduction multiplied by 0.95 grams per reduced mile* | |
| Reduced CO (pounds/year) | 15,528 | 46,187 | *Yearly mileage reduction multiplied by 12.4 grams per reduced mile* | |
| Reduced $C0_2$ (pounds/year) | 462,078 | 1,374,433 | *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 Gaso Fueled Passenger Cars and Light Trucks." 2005.)*