

## Section 5 Total Estimated Reductions

In 2020, total emissions from Riverside County are projected to total 10.4 MMT CO<sub>2</sub>e, without the incorporation of any reduction measures. With the incorporation of both the State reduction measures and the County's implementation measures, County emissions for 2020 are estimated to be reduced to 6.1 MMT CO<sub>2</sub>e. Emission reductions estimated for year 2020 were based on the accomplishments likely to be achieved as indicated in the measures detailed in Section 4. A detailed description of the reduction calculations associated with the various measures is included as Appendix F.

### 5.1 2020 Reduced Emissions Inventory

With the incorporation of the reduction strategies described in this report, Riverside County is predicted to reduce emissions by 4.3 MMT CO<sub>2</sub>e from the projected BAU 2020 emissions. This brings the County's 2020 emissions below their reduction target, a 15 percent reduction from 2008 emissions. The following sections describe the predicted 2020 reduced inventory as a whole and for each sector.

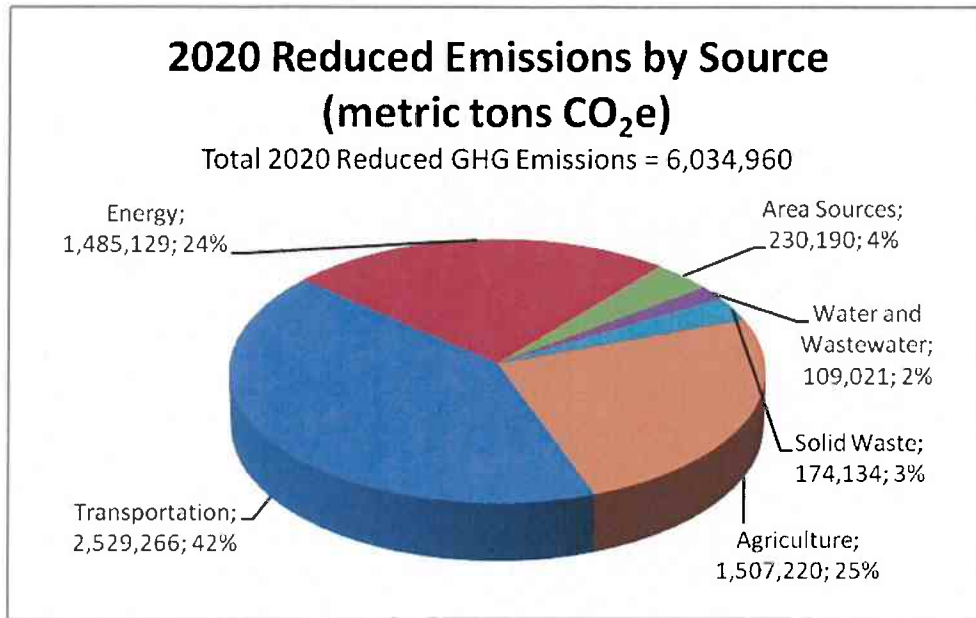
#### 5.1.1 2020 Total Reduced Emissions

Table 5-1 summarizes the net 2020 County emissions of CO<sub>2</sub>e as broken down by emissions source category. Each of these categories is further broken down in Tables 5-2 through 5-7 below. Figure 5-1 is a graphical representation of Table 5-1.

**Table 5-1: 2020 Reduced Total Emissions**

| Net Total Emissions   |                                  |
|-----------------------|----------------------------------|
| Emissions Category    | Metric tons of CO <sub>2</sub> e |
| Transportation        | 2,529,266                        |
| Energy                | 1,485,129                        |
| Area Source Emissions | 230,190                          |
| Water/Wastewater      | 109,021                          |
| Solid Waste           | 174,134                          |
| Agriculture           | 1,507,220                        |
| <b>Total</b>          | <b>6,034,960</b>                 |

Figure 3-2: 2020 Reduced Emissions Generated by Source (MT CO<sub>2</sub>e)



A detailed breakdown of 2020 reduced emissions by category is available in Appendix A.

### 5.1.2 2020 Reduced Energy Emissions

Table 5-2 summarizes the reduced 2020 emissions from energy generation and/or consumption with respect to electricity and natural gas. The total also includes indirect energy emissions associated with pumping and treating potable water and wastewater. Energy-related emissions represent approximately twenty-four percent of the emissions associated with the 2020 scenario achieved when reduction measures are applied to the BAU scenario. A detailed breakdown of 2020 reduced energy emissions is available in Appendix A.

Table 5-2: 2020 Reduced Energy Emissions

| Energy Emissions |                                  |
|------------------|----------------------------------|
| Sources:         | Metric tons of CO <sub>2</sub> e |
| Electric         | 842,728                          |
| Natural Gas      | 642,400                          |
| <b>Total</b>     | <b>1,485,129</b>                 |

### 5.1.3 2020 Reduced Solid Waste Emissions

Table 5-3 summarizes the 2020 reduced County emissions from the transportation, disposal, and decomposition of solid waste generated within the unincorporated areas of the County. Solid waste-related emissions represent approximately three percent of the total emissions associated with the 2020 scenario achieved when reduction measures are applied to the BAU scenario. A detailed breakdown of 2020 reduced solid waste emissions is available in Appendix A.

**Table 5-3: 2020 Reduced Solid Waste Emissions**

| <b>Solid Waste</b> |                                       |
|--------------------|---------------------------------------|
| <b>Source</b>      | <b>Metric tons of CO<sub>2</sub>e</b> |
| Landfill Offgasing | 168,325                               |
| Onsite Equipment   | 5,810                                 |
| <b>Total</b>       | <b>174,134</b>                        |

### 5.1.4 2020 Reduced Area Source Emissions

Table 5-4 summarizes the reduced 2020 County emissions from area source activities. The primary source of emissions results from wood burning and the use of combustion-powered landscape equipment. Area Source emissions represent approximately four percent of the total emissions associated with the 2020 scenario achieved when reduction measures are applied to the BAU scenario. A detailed breakdown of 2020 reduced Landscape emissions is available in Appendix A.

**Table 5-4: 2020 Reduced Area Source Emissions**

| <b>Area Source Emissions</b> |                                       |
|------------------------------|---------------------------------------|
| <b>Sources:</b>              | <b>Metric tons of CO<sub>2</sub>e</b> |
| Landscape Emissions          | 126,465                               |
| Wood Burning                 | 103,725                               |
| <b>Total</b>                 | <b>230,190</b>                        |

### 5.1.5 2020 Reduced Water and Wastewater Emissions

Table 5-5 summarizes the reduced 2020 County indirect emissions from purchased water. Purchased water related emissions are indirectly (i.e., outside of the County and any of its direct

water providers) produced as a result of electrical consumption to pump and treat water. Indirect emissions from the water represent approximately two percent of the total GHG emissions associated with the 2020 scenario achieved when reduction measures are applied to the BAU scenario. A detailed breakdown of reduced 2020 water emissions is available in Appendix A.

**Table 5-5: 2020 Reduced Purchased Water Emissions**

| <b>Purchased Water Emissions</b> |                                       |
|----------------------------------|---------------------------------------|
| <b>Sources:</b>                  | <b>Metric tons of CO<sub>2</sub>e</b> |
| Purchased Water                  | 109,021                               |
| <b>Total</b>                     | <b>109,021</b>                        |

#### 5.1.6 2020 Reduced Agricultural Emissions

Table 5-5 summarizes the 2020 reduced emissions with respect to agricultural activities within the unincorporated areas of the County. Agricultural emissions represent approximately twenty-five percent of the emissions associated with the 2020 scenario achieved when reduction measures are applied to the BAU scenario. Table 5-6 represents the breakdown of agricultural emissions by activity. A detailed breakdown of 2020 reduced agricultural emissions is available in Appendix A.

**Table 5-6: 2020 Reduced Agricultural Emissions**

| <b>Agriculture</b>           |                                       |
|------------------------------|---------------------------------------|
| <b>Sources:</b>              | <b>Metric tons of CO<sub>2</sub>e</b> |
| Enteric Fermentation         | 80,051                                |
| Manure Management            | 140,938                               |
| Agricultural Residue Burning | 124                                   |
| Crop Growth                  | 924,811                               |
| Animals and Runoff           | 176,674                               |
| Fertilizer Use               | 184,621                               |
| <b>Total</b>                 | <b>1,507,220</b>                      |

#### 5.1.7 2020 Reduced Transportation Emissions

Table 5-7 summarizes the 2020 reduced County emissions with respect to airport operations and vehicle miles traveled. Transportation emissions do not include pass-through traffic on the freeways in Riverside County and only account for vehicle trips related to Riverside County land

uses as starting points and destinations. Transportation-related emissions represent approximately forty-two percent of the emissions associated with the 2020 scenario achieved when reduction measures are applied to the BAU scenario. A detailed breakdown of 2020 transportation emissions is available in Appendix A.

**Table 5-7: 2020 Reduced Transportation Emissions**

| <b>Transportation Emissions</b> |                                       |
|---------------------------------|---------------------------------------|
| <b>Sources:</b>                 | <b>Metric tons of CO<sub>2</sub>e</b> |
| On-Road Vehicles                | 2,508,105                             |
| Airport Operations              | 21,162                                |
| <b>Total</b>                    | <b>2,529,266</b>                      |

## **5.2 Net Emissions Comparison by Year**

Table 5-8, below, shows the results of the three GHG emission scenarios examined in this document. The 2008 County total, 7,102,319 MT CO<sub>2</sub>e, is the total “baseline” value for GHG emissions within unincorporated Riverside County. The ‘BAU 2020’ Scenario in Table 5-8 represents those same County emissions projected forward by 12 years without the application of any regulatory controls for GHGs. The resultant 2020 BAU value, 10,268,937 MT CO<sub>2</sub>e, reflects an increase of roughly 44.5% over the 2008 ‘baseline’ value. Lastly, the ‘Reduced 2020’ Scenario represents the anticipated 2020 levels within the County as achieved *with* the incorporation of the various measures outlined herein (including R1 and IM measures). The resultant value, 6,034,960 MT CO<sub>2</sub>e, is a 41.2% reduction (4,233,977 MT less) from the 2020 BAU scenario and a 15.0% reduction (1,067,359 MT CO<sub>2</sub>e) below that of the 2008 ‘baseline’ scenario.

**Table 5-8: Net Total Emissions by Year**

| <b>Net Total Emissions</b> |                                       |                   |                     |
|----------------------------|---------------------------------------|-------------------|---------------------|
| <b>Source Category</b>     | <b>Metric tons of CO<sub>2</sub>e</b> |                   |                     |
|                            | <b>2008</b>                           | <b>BAU 2020</b>   | <b>Reduced 2020</b> |
| Transportation             | 2,850,520                             | 4,950,296         | 2,529,266           |
| Energy                     | 1,585,565                             | 2,837,295         | 1,485,129           |
| Area Sources               | 269,181                               | 442,033           | 230,190             |
| Water and Wastewater       | 152,473                               | 175,344           | 109,021             |
| Solid Waste                | 214,149                               | 341,145           | 174,134             |
| Agriculture                | 2,030,431                             | 1,522,823         | 1,507,220           |
| <b>Total</b>               | <b>7,102,319</b>                      | <b>10,268,937</b> | <b>6,034,960</b>    |

**5.2.1 2035 and 2060 Forecasts**

In order to estimate compliance with SB 375 and anticipated emissions at General Plan build-out, two other emissions inventories were completed for 2035 and 2060. These inventories were estimated using growth in housing and jobs provided by the County. EMFAC transportation emissions coefficients only exist through the year 2040, so coefficients specific to 2035 were used for the 2035 analysis, while the 2060 analysis used the 2040 emission coefficients.

**5.2.1.1 SB 375**

In accordance with SB 375, CARB and SCAG have collaboratively established a reduction target for passenger car emissions. This target consists of two goals: a reduction of 8% per capita reduction for the year 2020, and a conditional target of 13% for the year 2035. SCAG is currently in the process of updating the Regional Transportation Plan (RTP) and including the Sustainable Communities Strategy (SCS) as part of the update. Because the RTP and SCS are not yet complete, consistency with the forthcoming plan is analyzed based on Riverside’s consistency with the reduction goals for the SCAG region. Table 5-9, below, summarizes the per capita emissions from automobiles and light-duty trucks for the existing conditions, forecasted emissions for 2020 and 2035 based on General Plan Build out (2020, 2035 BAU) and the reduced emissions for 2020 and 2035 with the incorporation of the proposed General Plan policies and mitigation measures for new development described above. The target for per capita emissions from passenger vehicles is 8% below existing emissions for 2020 and 13% below existing

emissions for 2035; these were calculated to be 3.07 MTCO<sub>2</sub>e/person/year and 2.90 MTCO<sub>2</sub>e/person/year, respectively, for the SCAG region (CARB 2010a). Without the incorporation of the mitigation measures described above, the unincorporated County's per capita emissions from passenger vehicles would be 3.86 MTCO<sub>2</sub>e/person in 2020 and 4.47 MTCO<sub>2</sub>e/person in 2035.

With the incorporation of the mitigation measures, the per capita emissions are reduced to 2.46 MTCO<sub>2</sub>e/person in 2020, which is below the SB 375 target, and 2.98 MTCO<sub>2</sub>e/person in 2035, which is not below the target for 2035. Therefore, the updated general plan would have a less than significant impact on the implementation of SB 375 through 2020, however, with only the mitigation included in this report, the updated general plan would have a significant impact on the implementation of SB 375 through to 2035. Most of the mitigation measures enforced at the state level (the Pavley fuel efficiency standards, for example) have implementation plans only through 2020; future fuel efficiency legislation at the state or federal level will likely contribute to further reductions in GHG emissions from passenger vehicles by 2035.

**Table 5-9: SB 375 Per Capita Emissions**

| <b>Per Capita Passenger Vehicle Emissions</b>         |             |                 |                         |                 |                         |
|---|-------------|-----------------|-------------------------|-----------------|-------------------------|
|   | <b>2008</b> | <b>BAU 2020</b> | <b>Reduced<br/>2020</b> | <b>BAU 2035</b> | <b>Reduced<br/>2035</b> |
| Autos and Light Duty Emissions (MT CO <sub>2</sub> e) | 2,512,787   | 3,395,910       | 2,167,232               | 4,335,453       | 2,886,001               |
| Population  | 553,461     | 880,557         | 880,557                 | 969,071         | 969,071                 |
| <b>Per Capita Emissions</b>                           | <b>4.54</b> | <b>3.86</b>     | <b>2.46</b>             | <b>4.47</b>     | <b>2.98</b>             |
| <b>SCAG SB 375 Target</b>                             | -           | <b>3.07</b>     | <b>3.07</b>             | <b>2.90</b>     | <b>2.90</b>             |
| <b>Significant?</b>                                   | -           | <b>Yes</b>      | <b>No</b>               | <b>Yes</b>      | <b>Yes</b>              |

#### *5.2.1.2 2060 Build-Out BAU GHG Emissions*

The following table (Table 4.7.M) summarizes the County Existing 2008, BAU 2060, and Reduced 2060 GHG Emissions Inventories. The BAU 2060 inventory represents the County's forecasted emissions for the year 2060, the General Plan build-out year under GPA 960, without the addition of any of the emissions-reducing strategies or mitigation measures described in this report. The Reduced 2060 inventory includes the measures presented in this report that reduce the 2020 emissions to below the AB 32 target. Given the level of growth and the current

limitations on technology to further reduce emissions, impacts from the full build-out scenario in 2060 would not meet the 1990 reduction threshold, even including the mitigation described under the 2020 analysis. Future planning efforts, including revisions to the forthcoming Climate Action Plan, further advances in technology, and environmental analysis would address this additional growth and the potential implications of this growth.

**Table 5-10: 2060 BAU Emissions**

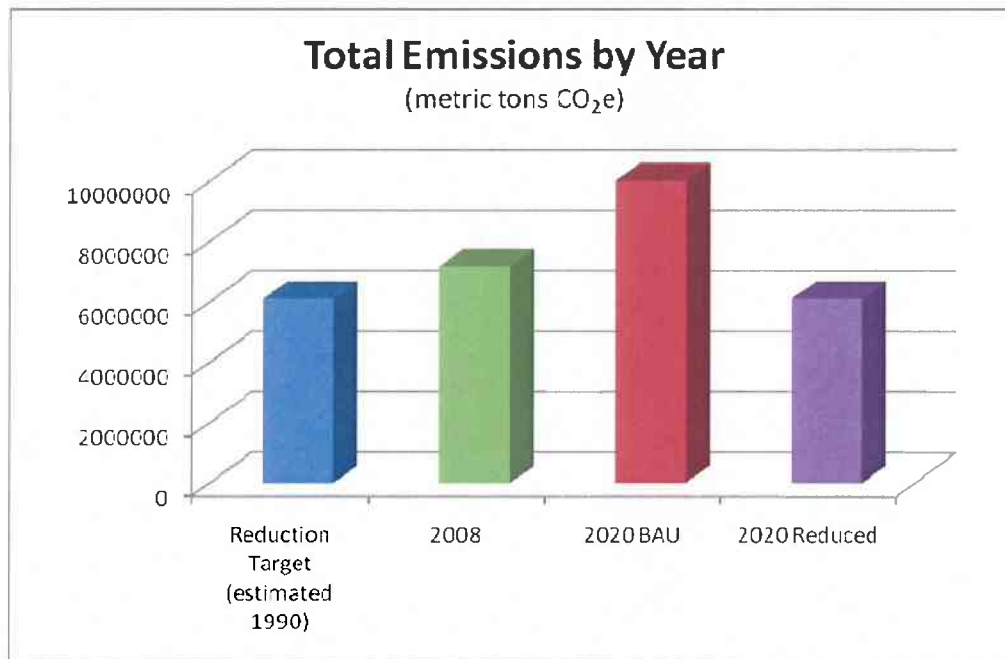
| <b>Net Total Emissions</b>           |                                       |                   |                     |
|--------------------------------------|---------------------------------------|-------------------|---------------------|
| <b>Source Category</b>               | <b>Metric tons of CO<sub>2</sub>e</b> |                   |                     |
|                                      | <b>2008</b>                           | <b>BAU 2060</b>   | <b>Reduced 2060</b> |
| Transportation                       | 2,850,520                             | 10,338,872        | 5,443,323           |
| Energy                               | 1,585,565                             | 6,084,365         | 2,958,328           |
| Area Sources                         | 269,181                               | 721,397           | 318,463             |
| Water and Wastewater                 | 152,473                               | 382,871           | 238,612             |
| Solid Waste                          | 214,149                               | 703,887           | 353,115             |
| Agriculture                          | 2,030,431                             | 1,522,823         | 1,507,220           |
| <b>Total</b>                         | <b>7,102,319</b>                      | <b>19,754,215</b> | <b>10,819,060</b>   |
| <b>AB 32 Target (1990 emissions)</b> | <b>6,036,971</b>                      | <b>6,036,971</b>  | <b>6,036,971</b>    |



## Section 6 Conclusion

This Riverside County GHG Technical Report serves as a guide to help the County pursue work plans with the objectives of conserving resources and reducing GHG emissions. This document also serves as a technical resource for the update of the County's General Plan and other land use related documents that may require evaluation and documentation of GHG emissions. Figure 6-1 shows a comparison between the emission inventories and the reduction target.

Figure 6-1: Total Emissions by Year (MT CO<sub>2</sub>e)



A target has been set to reduce County-wide GHG emission emissions by 15% from 2008 levels by 2020 consistent with the State AB 32 reduction goals. The CARB Scoping Plan provides the State with reduction strategies designed to meet the reduction goal of AB 32. The County's reduction strategy, as described in Section 4 herein, is predicted to meet the State reduction goal. Table 5-8, presented and discussed previously, gives evidence that the County's proposed can achieve its stated goals. Reduction measures provided herein will ensure that Riverside County meets the AB 32 reduction target of reducing to 15% below 2008 levels (reduced down to 6,091,732 MT CO<sub>2</sub>e) by 2020. Such programs include strengthening the County's existing ordinances, as well as implementing energy efficiency programs, solar rebates, conservation

programs, incentives and ordinances. In some cases, implementation will require the cooperation of other agencies, private businesses, and residents. The success of these measures will be tracked using indicators and targets such as those described in this report. Even with the continued growth expected in Riverside County, the reduction measures outlined in this report are anticipated to reduce the County's 2020 emissions by 4,288,894 MT CO<sub>2</sub>e compared to 2020 BAU. Therefore, the implementation of the State (R1) measures, combined with the County's implementation measures, will reduce annual GHG emissions to 6,091,732 MT CO<sub>2</sub>e by year 2020. This reduces emissions below the AB 32 reduction target (6,091,940 MT CO<sub>2</sub>e) by 208 MT CO<sub>2</sub>e.

## Section 7    References

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**Appendix A: Greenhouse Gas Emissions Inventories**

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**RIVERSIDE COUNTY**  
**Greenhouse Gas Emission Inventory**  
**Climate Action Plan Comparison Summary**

|                             | 2008             | 2020              | Reduced<br>2020  |
|-----------------------------|------------------|-------------------|------------------|
| <b>Transportation</b>       |                  |                   |                  |
| Mobile Source Emissions     | 2,829,359        | 4,929,135         | 2,508,105        |
| Jet Fuel                    | 17,721           | 17,721            | 17,721           |
| Aviation Fuel               | 3,441            | 3,441             | 3,441            |
| <b>Sub Total</b>            | <b>2,850,520</b> | <b>4,950,296</b>  | <b>2,529,266</b> |
| <b>Energy</b>               |                  |                   |                  |
| Electrical Consumption      | 1,075,316        | 1,930,555         | 842,728          |
| Natural Gas                 | 510,249          | 906,740           | 642,400          |
| <b>Sub Total</b>            | <b>1,585,565</b> | <b>2,837,295</b>  | <b>1,485,129</b> |
| <b>Area Sources</b>         |                  |                   |                  |
| Landscaping                 | 150,639          | 250,426           | 126,465          |
| Woodburning                 | 118,543          | 191,607           | 103,725          |
| <b>Sub Total</b>            | <b>269,181</b>   | <b>442,033</b>    | <b>230,190</b>   |
| <b>Water and Wastewater</b> |                  |                   |                  |
| Water consumption           | 152,473          | 175,344           | 109,021          |
| <b>Sub Total</b>            | <b>152,473</b>   | <b>175,344</b>    | <b>109,021</b>   |
| <b>Solid Waste</b>          |                  |                   |                  |
| Landfill Offgasing          | 209,097          | 335,336           | 168,325          |
| Onsite Equipment            | 5,052            | 5,810             | 5,810            |
| <b>Sub Total</b>            | <b>214,149</b>   | <b>341,145</b>    | <b>174,134</b>   |
| <b>Agriculture</b>          |                  |                   |                  |
| Enteric Fermentation        | 115,584          | 86,688            | 80,051           |
| Manure Management           | 199,873          | 149,905           | 140,938          |
| Rice Cultivation            | 0                | 0                 | 0                |
| Agriculture Residue Burning | 166              | 124               | 124              |
| Animals and Runoff          | 235,565          | 176,674           | 176,674          |
| Fertilizer Use              | 246,162          | 184,621           | 184,621          |
| Crop Growth                 | 1,233,081        | 924,811           | 924,811          |
| <b>Sub Total</b>            | <b>2,030,431</b> | <b>1,522,823</b>  | <b>1,507,220</b> |
| <b>TOTAL</b>                | <b>7,102,319</b> | <b>10,268,937</b> | <b>6,034,960</b> |

| Source                       | 2008             | 2020              | Reduced<br>2020  |
|------------------------------|------------------|-------------------|------------------|
| Transportation               | 2,850,520        | 4,950,296         | 2,529,266        |
| Energy                       | 1,585,565        | 2,837,295         | 1,485,129        |
| Area Sources                 | 269,181          | 442,033           | 230,190          |
| Water and Wastewater         | 152,473          | 175,344           | 109,021          |
| Solid Waste                  | 214,149          | 341,145           | 174,134          |
| Agriculture                  | 2,030,431        | 1,522,823         | 1,507,220        |
| <b>Total</b>                 | <b>7,102,319</b> | <b>10,268,937</b> | <b>6,034,960</b> |
| <b>2020 Reduction Target</b> | <b>6,036,971</b> | <b>6,036,971</b>  | <b>6,036,971</b> |

**RIVERSIDE COUNTY**  
**Greenhouse Gas Emission Inventory**  
**Climate Action Plan Comparison Summary**

|                             | 2008             | 2035              | Reduced<br>2035  |
|-----------------------------|------------------|-------------------|------------------|
| <b>Transportation</b>       |                  |                   |                  |
| Mobile Source Emissions     | 2,829,359        | 6,440,572         | 3,352,570        |
| Jet Fuel                    | 17,721           | 17,721            | 17,721           |
| Aviation Fuel               | 3,441            | 3,441             | 3,441            |
| <b>Sub Total</b>            | <b>2,850,520</b> | <b>6,461,733</b>  | <b>3,373,731</b> |
| <b>Energy</b>               |                  |                   |                  |
| Electrical Consumption      | 1,075,316        | 2,467,202         | 1,037,785        |
| Natural Gas                 | 510,249          | 1,150,615         | 796,543          |
| <b>Sub Total</b>            | <b>1,585,565</b> | <b>3,617,816</b>  | <b>1,834,327</b> |
| <b>Area Sources</b>         |                  |                   |                  |
| Landscaping                 | 150,639          | 302,489           | 152,757          |
| Woodburning                 | 118,543          | 226,906           | 103,725          |
| <b>Sub Total</b>            | <b>269,181</b>   | <b>529,395</b>    | <b>256,482</b>   |
| <b>Water and Wastewater</b> |                  |                   |                  |
| Water consumption           | 152,473          | 293,083           | 182,543          |
| <b>Sub Total</b>            | <b>152,473</b>   | <b>293,083</b>    | <b>182,543</b>   |
| <b>Solid Waste</b>          |                  |                   |                  |
| Landfill Offgasing          | 209,097          | 418,315           | 209,268          |
| Onsite Equipment            | 5,052            | 5,810             | 5,810            |
| <b>Sub Total</b>            | <b>214,149</b>   | <b>424,125</b>    | <b>215,077</b>   |
| <b>Agriculture</b>          |                  |                   |                  |
| Enteric Fermentation        | 115,584          | 86,688            | 80,051           |
| Manure Management           | 199,873          | 149,905           | 140,938          |
| Rice Cultivation            | 0                | 0                 | 0                |
| Agriculture Residue Burning | 166              | 124               | 124              |
| Animals and Runoff          | 235,565          | 176,674           | 176,674          |
| Fertilizer Use              | 246,162          | 184,621           | 184,621          |
| Crop Growth                 | 1,233,081        | 924,811           | 924,811          |
| <b>Sub Total</b>            | <b>2,030,431</b> | <b>1,522,823</b>  | <b>1,507,220</b> |
| <b>TOTAL</b>                | <b>7,102,319</b> | <b>12,848,975</b> | <b>7,369,381</b> |

| Source                       | 2008             | 2060              | Reduced<br>2060  |
|------------------------------|------------------|-------------------|------------------|
| Transportation               | 2,850,520        | 6,461,733         | 3,373,731        |
| Energy                       | 1,585,565        | 3,617,816         | 1,834,327        |
| Area Sources                 | 269,181          | 529,395           | 256,482          |
| Water and Wastewater         | 152,473          | 293,083           | 182,543          |
| Solid Waste                  | 214,149          | 424,125           | 215,077          |
| Agriculture                  | 2,030,431        | 1,522,823         | 1,507,220        |
| <b>Total</b>                 | <b>7,102,319</b> | <b>12,848,975</b> | <b>7,369,381</b> |
| <b>2020 Reduction Target</b> | <b>6,036,971</b> | <b>6,036,971</b>  | <b>6,036,971</b> |



**RIVERSIDE COUNTY**  
**Greenhouse Gas Emission Inventory**  
**Climate Action Plan Comparison Summary**

|                             | 2008             | 2060              | Reduced<br>2060   |
|-----------------------------|------------------|-------------------|-------------------|
| <b>Transportation</b>       |                  |                   |                   |
| Mobile Source Emissions     | 2,829,359        | 10,317,711        | 5,422,162         |
| Jet Fuel                    | 17,721           | 17,721            | 17,721            |
| Aviation Fuel               | 3,441            | 3,441             | 3,441             |
| <b>Sub Total</b>            | <b>2,850,520</b> | <b>10,338,872</b> | <b>5,443,323</b>  |
| <b>Energy</b>               |                  |                   |                   |
| Electrical Consumption      | 1,075,316        | 4,176,892         | 1,671,654         |
| Natural Gas                 | 510,249          | 1,907,473         | 1,286,674         |
| <b>Sub Total</b>            | <b>1,585,565</b> | <b>6,084,365</b>  | <b>2,958,328</b>  |
| <b>Area Sources</b>         |                  |                   |                   |
| Landscaping                 | 150,639          | 425,224           | 214,738           |
| Woodburning                 | 118,543          | 296,172           | 103,725           |
| <b>Sub Total</b>            | <b>269,181</b>   | <b>721,397</b>    | <b>318,463</b>    |
| <b>Water and Wastewater</b> |                  |                   |                   |
| Water consumption           | 152,473          | 382,871           | 238,612           |
| <b>Sub Total</b>            | <b>152,473</b>   | <b>382,871</b>    | <b>238,612</b>    |
| <b>Solid Waste</b>          |                  |                   |                   |
| Landfill Offgasing          | 209,097          | 698,077           | 347,305           |
| Onsite Equipment            | 5,052            | 5,810             | 5,810             |
| <b>Sub Total</b>            | <b>214,149</b>   | <b>703,887</b>    | <b>353,115</b>    |
| <b>Agriculture</b>          |                  |                   |                   |
| Enteric Fermentation        | 115,584          | 86,688            | 80,051            |
| Manure Management           | 199,873          | 149,905           | 140,938           |
| Rice Cultivation            | 0                | 0                 | 0                 |
| Agriculture Residue Burning | 166              | 124               | 124               |
| Animals and Runoff          | 235,565          | 176,674           | 176,674           |
| Fertilizer Use              | 246,162          | 184,621           | 184,621           |
| Crop Growth                 | 1,233,081        | 924,811           | 924,811           |
| <b>Sub Total</b>            | <b>2,030,431</b> | <b>1,522,823</b>  | <b>1,507,220</b>  |
| <b>TOTAL</b>                | <b>7,102,319</b> | <b>19,754,215</b> | <b>10,819,060</b> |

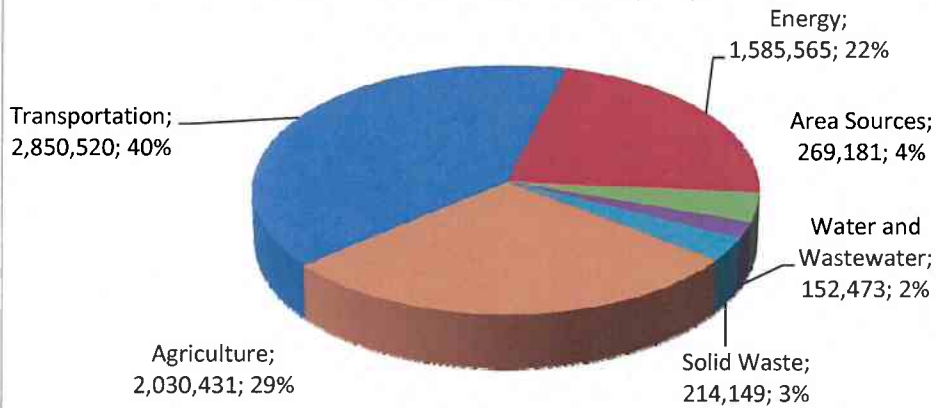
| Source                       | 2008             | 2060              | Reduced<br>2060   |
|------------------------------|------------------|-------------------|-------------------|
| Transportation               | 2,850,520        | 10,338,872        | 5,443,323         |
| Energy                       | 1,585,565        | 6,084,365         | 2,958,328         |
| Area Sources                 | 269,181          | 721,397           | 318,463           |
| Water and Wastewater         | 152,473          | 382,871           | 238,612           |
| Solid Waste                  | 214,149          | 703,887           | 353,115           |
| Agriculture                  | 2,030,431        | 1,522,823         | 1,507,220         |
| <b>Total</b>                 | <b>7,102,319</b> | <b>19,754,215</b> | <b>10,819,060</b> |
| <b>2020 Reduction Target</b> | <b>6,036,971</b> | <b>6,036,971</b>  | <b>6,036,971</b>  |

2008

| Net Total Emissions  |                                  |
|----------------------|----------------------------------|
| Category             | Metric tons of CO <sub>2</sub> e |
| Transportation       | 2,850,520                        |
| Energy               | 1,585,565                        |
| Area Sources         | 269,181                          |
| Water and Wastewater | 152,473                          |
| Solid Waste          | 214,149                          |
| Agriculture          | 2,030,431                        |
| <b>Total</b>         | <b>7,102,319</b>                 |

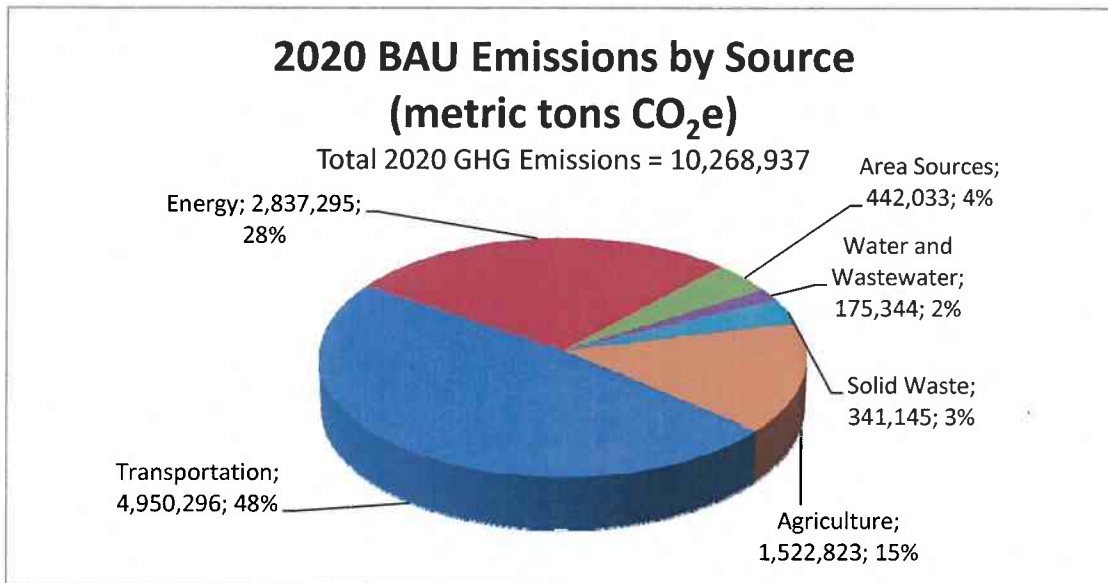
### 2008 Emissions by Source (metric tons CO<sub>2</sub>e)

Total 2008 GHG Emissions = 7,102,319



2020 BAU

| Net Total Emissions  |                                  |
|----------------------|----------------------------------|
| Category             | Metric tons of CO <sub>2</sub> e |
| Transportation       | 4,950,296                        |
| Energy               | 2,837,295                        |
| Area Sources         | 442,033                          |
| Water and Wastewater | 175,344                          |
| Solid Waste          | 341,145                          |
| Agriculture          | 1,522,823                        |
| <b>Total</b>         | <b>10,268,937</b>                |

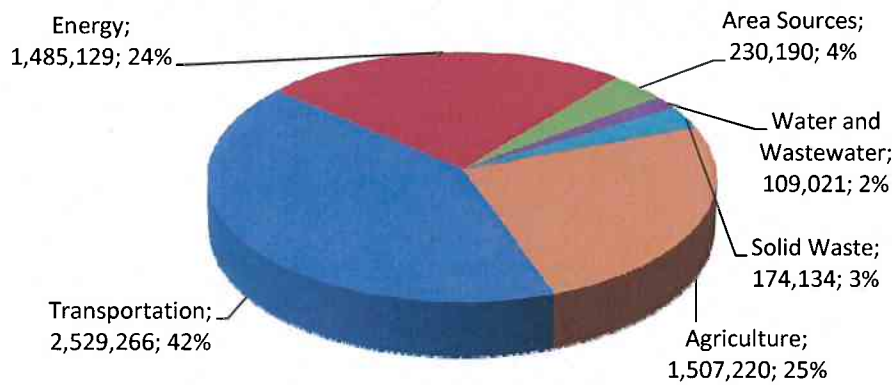


2020 Reduced

| Net Total Emissions  |                                  |
|----------------------|----------------------------------|
| Category             | Metric tons of CO <sub>2</sub> e |
| Transportation       | 2,529,266                        |
| Energy               | 1,485,129                        |
| Area Sources         | 230,190                          |
| Water and Wastewater | 109,021                          |
| Solid Waste          | 174,134                          |
| Agriculture          | 1,507,220                        |
| <b>Total</b>         | <b>6,034,960</b>                 |

### 2020 Reduced Emissions by Source (metric tons CO<sub>2</sub>e)

Total 2020 Reduced GHG Emissions = 6,034,960



## **Appendix B: Modeling Assumptions**

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**RIVERSIDE COUNTY**  
**Greenhouse Gas Emissions Inventory**  
**Modeling Assumptions**

**Assumptions**

- <sup>1</sup> Electricity providers for Riverside County unincorporated are Southern California Edison and Imperial Irrigation District. Both companies provided electricity usage organized by rate code for accounts within the unincorporated areas.
- <sup>2</sup> Natural gas is serviced to Riverside County by the Southern California Gas Company. The Gas Company provided annual totals of residential, commercial, and industrial natural gas use for the unincorporated areas of Riverside County for the year 2008.
- <sup>3-11</sup> Riverside County receives water from a number of agencies and water districts, however, all of the water comes from either local sources (groundwater, surface water, or recycled water) or imported sources (The State Water Project or Colorado River Water). The energy associated with local sources is already included in the electricity data provided by the utilities. Imported water data was collected from Coachella Valley Water District, Desert Water Agency, Eastern Municipal Water District, Western Municipal Water District, Rancho California Water District, Palo Verde Irrigation District, Elsinore Valley Municipal Water District, and San Geronio Pass Water Agency.
- <sup>12</sup> Riverside County Waste Management operates six active landfills: Badlands, Blythe, Desert Center, Lamb Canyon, Mecca II, and Oasis. El Sobrante Landfill is privately operated in the County. There are also closed landfills that continue to off gas methane as the waste decomposes. Waste Management provided fugitive methane emissions and onsite equipment fuel usage data for each active and closed landfill.
- <sup>13</sup> Annual VMT for Riverside County accounts for miles traveled on trips with at least one end point in the unincorporated areas of the County. For this analysis, the total miles traveled for trips with both end points in the County was added to half of the miles traveled for trips with one end point in the County since those miles are shared with another jurisdiction.
- <sup>14</sup> Emissions from aviation activities were based on aviation and jet fuel consumption from airport fueling stations in the unincorporated areas of Riverside County.
- <sup>15</sup> Population, housing, and land use data was used to estimate landscaping and woodburning emissions, project future business as usual emissions, and categorize emissions as residential vs. non-residential.
- <sup>16</sup> Emissions from agricultural activities vary depending on the type of crop or animal managed on the land. Southern California Association of Governments prepared CA GIS data detailing the acreage of each type of agricultural land use for the unincorporated areas of Riverside County.

**Data Sources**

- <sup>1</sup> Source: Southern California Edison, *Electricity Use Report for the Unincorporated Area of Riverside County, July 2009-June 2010*.
- <sup>2</sup> Source: Imperial Irrigation District, *kWh Billing Summary, 2008*.
- <sup>3</sup> Source: Southern California Gas Company, *Riverside County Summary Data, 2008*.
- <sup>4</sup> Source: Coachella Valley Water District, *Urban Water Management Plan, 2005 (Appendix E)*.
- <sup>5</sup> Source: Desert Water Agency, *Urban Water Management Plan, 2005*.
- <sup>6</sup> Source: Eastern Municipal Water District, *Urban Water Management Plan, 2005*.
- <sup>7</sup> Source: Western Municipal Water District, *Integrated Regional Water Management Plan, May 2008 (Section 4.1.2.2)*.
- <sup>8</sup> Source: Western Municipal Water District, *Comprehensive Annual Financial Report, 2009*.
- <sup>9</sup> Source: Western Municipal Water District, *Urban Water Management Plan, 2005*.
- <sup>10</sup> Source: Rancho California Water District, *Urban Water Management Plan, 2005*.
- <sup>11</sup> Source: Elsinore Valley Municipal Water District, *Financial Report 2007-2008*.
- <sup>12</sup> Source: San Geronio Pass Water Agency, *Supplemental Water Supply Planning Study, October 2009*.
- <sup>13</sup> Source: Riverside County Waste Management, 2008.
- <sup>14</sup> Source: Riverside County Transportation and Land Management Agency, *RivTAM Base Year Model for 2007 Socio-Economic Data*.
- <sup>15</sup> Source: Riverside County Economic Development Agency, *airport fuel records, 2008*.
- <sup>16</sup> Source: CA Department of Finance, *Population and Housing Estimates, 2008*.
- <sup>17</sup> Source: CA Department of Conservation, Division of Land Resource Protection, 2008 farmland GIS data. Prepared by Southern California Association of Governments (SCAG).

**RIVERSIDE COUNTY**  
**Greenhouse Gas Emissions Inventory**  
**Modeling Assumptions**

**Mobile Source  
Emissions**

|   | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | Not Gas Dependent |
|---|-----------------|-----------------|------------------|-------------------|
| <i>Onroad Emission Factors (g/mile)</i>       |                 |                 |                  |                   |
| Non Cat passenger Car <sup>18</sup>           | 469.64          | -               | -                |                   |
| Cat passenger Car <sup>18</sup>               | 340.71          | -               | -                |                   |
| Diesel Passenger Car <sup>18</sup>            | 359.47          | -               | -                |                   |
| Non cat light-duty truck <sup>18</sup>        | 470.04          | -               | -                |                   |
| Cat light duty truck <sup>18</sup>            | 424.04          | -               | -                |                   |
| Diesel Light duty Truck <sup>18</sup>         | 346.44          | -               | -                |                   |
| Non Cat light-duty truck 2 <sup>18</sup>      | 470.42          | -               | -                |                   |
| Cat light duty truck 2 <sup>18</sup>          | 424.09          | -               | -                |                   |
| Diesel Light duty truck 2 <sup>18</sup>       | 351.88          | -               | -                |                   |
| Non Cat Medium duty Truck <sup>18</sup>       | 580.07          | -               | -                |                   |
| Cat med duty truck <sup>18</sup>              | 580.46          | -               | -                |                   |
| Diesel Med duty truck <sup>18</sup>           | 346.44          | -               | -                |                   |
| Non Cat lite-heavy duty truck <sup>18</sup>   | 567.9           | -               | -                |                   |
| Cat Light-heavy duty truck <sup>18</sup>      | 567.9           | -               | -                |                   |
| Diesel Lite-heavy duty truck <sup>18</sup>    | 519.7           | -               | -                |                   |
| Non Cat lite-heavy duty truck 2 <sup>18</sup> | 567.9           | -               | -                |                   |
| Cat Light-heavy duty truck 2 <sup>18</sup>    | 567.9           | -               | -                |                   |
| Diesel Lite-heavy duty truck 2 <sup>18</sup>  | 528.63          | -               | -                |                   |
| Non Cat med-heavy duty truck <sup>18</sup>    | 567.9           | -               | -                |                   |
| Cat med-heavy duty truck <sup>18</sup>        | 567.9           | -               | -                |                   |
| Diesel med-heavy duty truck <sup>18</sup>     | 1505            | -               | -                |                   |
| Non cat Heavy Duty truck <sup>18</sup>        | 567.9           | -               | -                |                   |
| Cat heavy duty truck <sup>18</sup>            | 567.9           | -               | -                |                   |
| Diesel heavy duty truck <sup>18</sup>         | 1924.2          | -               | -                |                   |
| Non Cat Other Bus <sup>18</sup>               | 567.9           | -               | -                |                   |
| Cat other bus <sup>18</sup>                   | 567.9           | -               | -                |                   |
| Diesel Other Bus <sup>18</sup>                | 1505            | -               | -                |                   |
| Non Cat Urban Bus <sup>18</sup>               | 567.9           | -               | -                |                   |
| Cat Urban Bus <sup>18</sup>                   | 567.9           | -               | -                |                   |
| Diesel Urban Bus <sup>18</sup>                | 2779.2          | -               | -                |                   |
| Non cat motorcycle <sup>18</sup>              | 121.23          | -               | -                |                   |
| Cat motorcycle <sup>18</sup>                  | 138.33          | -               | -                |                   |
| Diesel Motorcycle <sup>18</sup>               | 0               | -               | -                |                   |
| Non Cat School Bus <sup>18</sup>              | 567.9           | -               | -                |                   |
| Cat School Bus <sup>18</sup>                  | 567.9           | -               | -                |                   |
| Diesel School Bus <sup>18</sup>               | 1505            | -               | -                |                   |
| Non Cat Motor home <sup>18</sup>              | 567.9           | -               | -                |                   |
| Cat Motor home <sup>18</sup>                  | 567.9           | -               | -                |                   |
| Diesel Motor home <sup>18</sup>               | 1505            | -               | -                |                   |
| CO2 to CO2e multiplier <sup>19</sup>          | -               | -               | -                | 1.0526            |
| Aviation Gasoline (kg/gal) <sup>20</sup>      | 8.32            | -               | -                |                   |
| Aviation Gasoline (gr/gal) <sup>21</sup>      | -               | 7.04            | 0.11             |                   |
| Jet Fuel (kg/gal)                             | 9.57            |                 |                  |                   |
| Jet Fuel (gr/gal)                             |                 | 0.27            | 0.31             |                   |

<sup>18</sup> Source: Emissions Factors Software (EMFAC2007), California Air Resources Board, Version 2.3, November 2006.

<sup>19</sup> Source: Bay Area Air Quality Management District Greenhouse Gas Model (BGM) version 1.1.9 Beta. April 29, 2010.

<sup>20</sup> Source: California Climate Action Registry General Reporting Protocol, Version 3.1 January 2009 (Table C.3)

<sup>21</sup> Source: California Climate Action Registry General Reporting Protocol, Version 3.1 January 2009 (Table C.6)

**RIVERSIDE COUNTY**  
**Greenhouse Gas Emissions Inventory**  
**Modeling Assumptions**

**Landscape and Wood Burning Hearth Emissions**

|   | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | Not Gas Dependent |
|---|-----------------|-----------------|------------------|-------------------|
| Mutifamily acres/property <sup>22</sup>                     |                 |                 |                  | 24.55             |
| Multifamily landscaping tons/property/day <sup>22</sup>     | 0.25            |                 |                  |                   |
| Multifamily average units/acre <sup>22</sup>                |                 |                 |                  | 24.44             |
| Single family tons/acre/day <sup>22</sup>                   | 0.0193          |                 |                  |                   |
| Single family average units/acre <sup>22</sup>              |                 |                 |                  | 3.00              |
| Non-Residential acres-to-building sq ft ratio <sup>22</sup> |                 |                 |                  | 1/2               |
| Non-Residential tons/acre/day <sup>22</sup>                 | 0.0102          |                 |                  |                   |
| Woodburning emissions (lbs/ton of wood) <sup>23</sup>       | 3400            |                 |                  |                   |
| Woodburning emissions (g/MMBTU) <sup>23</sup>               |                 | 316.000         | 4.2000           |                   |
| lbs/cord of wood <sup>23</sup>                              |                 |                 |                  | 2458              |
| Energy Intensity of wood (MMBTU/ton) <sup>23</sup>          |                 |                 |                  | 15.38             |

<sup>22</sup> Source: *URBEMIS2007 Emissions Estimation for Land Use Development Projects, Version 9.2*

<sup>23</sup> Source: *EPA AP-42 Emission Coefficients, Fifth Edition, Volume I October 1996 (Section 1.10)*

**Natural Gas**

|  | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O |
|--|-----------------|-----------------|------------------|
| Natural Gas Emissions (kg/MMBtu) <sup>24</sup> | 53.06           | 0.005           | 0.0001           |

<sup>24</sup> Source: *California Climate Action Registry General Reporting Protocol, Version 3.1 January 2009 (Table C.7) - Kg/MMBtu*

**Electricity**

|   | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O |
|---|-----------------|-----------------|------------------|
| Southern California Edison 2005 (lbs/MWh) <sup>25</sup>   | 665.26          | 0.0076          | 0.0113           |
| California Average 2005 (lbs/MWh) <sup>25</sup>           | 724.12          | 0.003           | 0.0081           |
| Imperial Irrigation District 2005 (lbs/MWh) <sup>25</sup> | 612.12          | 0.0314          | 0.0064           |

<sup>25</sup> Source: *Source: EPA Emission & Generation Resource Integrated Database (eGRID) Version 1.1*

**Solid Waste**

|                                       | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O |
|---------------------------------------|-----------------|-----------------|------------------|
| Density (g/cubic meter) <sup>26</sup> |                 | 662             |                  |

<sup>26</sup> Source: *USEPA (2007). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005. United States Environmental Protection Agency. EPA 430-R-07-002. and Annex 3.10: Methodology for Estimating CH4 and N2O Emissions from Manure Management. April 15, 2007. Washington DC. [http://www.epa.gov/climatechange/emissions/usgginv\\_archive.html](http://www.epa.gov/climatechange/emissions/usgginv_archive.html)*



**RIVERSIDE COUNTY  
Greenhouse Gas Emissions Inventory  
Modeling Assumptions**

**Imported Water**

|  | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | Not Gas Dependent |
|--|-----------------|-----------------|------------------|-------------------|
| <i>Energy Intensity of Water Use (kWh/MG)</i>              |                 |                 |                  |                   |
| Water Treatment <sup>27</sup>                              |                 |                 |                  | 111               |
| Water Distribution <sup>27</sup>                           |                 |                 |                  | 1272              |
| Wastewater Treatment <sup>27</sup>                         |                 |                 |                  | 1911              |
| CA State Water Project Supply and Conveyance <sup>27</sup> |                 |                 |                  | 8325              |
| Colorado River Water Supply and Conveyance <sup>27</sup>   |                 |                 |                  | 6140              |

<sup>27</sup> Source: CAPCOA Quantifying Greenhouse Gas Emissions, August 2010. Energy Intensity of Water Use to LA Basin (TableWSW-3.1)

**Standard Conversion Rates**

|                                     | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | Not Gas Dependent |
|-------------------------------------|-----------------|-----------------|------------------|-------------------|
| gr/lb <sup>28</sup>                 |                 |                 |                  | 453.59291         |
| lbs/short ton <sup>28</sup>         |                 |                 |                  | 2000              |
| metric tons/short ton <sup>28</sup> |                 |                 |                  | 0.907185          |
| kg/ short ton <sup>28</sup>         |                 |                 |                  | 907.18474         |
| kg/metric ton <sup>28</sup>         |                 |                 |                  | 1000              |
| g/metric ton <sup>28</sup>          |                 |                 |                  | 1,000,000         |
| lbs/metric ton <sup>28</sup>        |                 |                 |                  | 2204.62           |
| therms per MMBTU <sup>28</sup>      |                 |                 |                  | 0.10              |
| kWh/MWh <sup>28</sup>               |                 |                 |                  | 1000              |
| kWh/GWh <sup>28</sup>               |                 |                 |                  | 1,000,000         |
| scf/Mcf <sup>28</sup>               |                 |                 |                  | 1,000             |
| Mcf/MMBTU <sup>28</sup>             |                 |                 |                  | 0.9649            |
| Gallons/Acre foot <sup>29</sup>     |                 |                 |                  | 325,851.43        |
| Gallons/ccf <sup>29</sup>           |                 |                 |                  | 748.00            |

<sup>28</sup> Source: California Climate Action Registry General Reporting Protocol, Version 3.1 January 2009 (Appendix B)

<sup>29</sup> Source: <http://onlineconversion.com/volume.htm>

**RIVERSIDE COUNTY**  
**Greenhouse Gas Emissions Inventory**  
**Modeling Assumptions**

**Agricultural**

|  | <b>CO<sub>2</sub></b> | <b>CH<sub>4</sub></b> | <b>N<sub>2</sub>O</b> | <b>Not Gas Dependent</b> |
|--|-----------------------|-----------------------|-----------------------|--------------------------|
| # of hectares/acre <sup>30</sup>   |                       |                       |                       | 0.4046945                |
| Ratio CH <sub>4</sub> -C <sup>30</sup>   |                       |                       |                       | 0.005                    |
| Conversion CH <sub>4</sub> -C to Full Mol. Wt. <sup>30</sup>                             |                       |                       |                       | 1.33                     |
| Emission factor for liquid systems (kg N <sub>2</sub> O-N/kg N) <sup>30</sup>            |                       |                       |                       | 0.001                    |
| Emission factor for solid systems (kg N <sub>2</sub> O-N/kg N) <sup>30</sup>             |                       |                       |                       | 0.02                     |
| Ratio N <sub>2</sub> O:N <sub>2</sub> [C <sub>10</sub> ] <sup>30</sup>                   |                       |                       |                       | 1.5714286                |
| Volitazition percent for all non-PRP ag soils <sup>30</sup>                              |                       |                       |                       | 0.2                      |
| Volitazition percent for manure management <sup>30</sup>                                 |                       |                       |                       | 0                        |
| Rate NH <sub>3</sub> -NO <sub>x</sub> <sup>30</sup>                                      |                       |                       |                       | 0.01                     |
| Emission Factor for pastures, ranges, and paddocks <sup>30</sup>                         |                       |                       |                       | 0.02                     |
| Emission factor for ground application <sup>30</sup>                                     |                       |                       |                       | 0.0125                   |
| Cwt (hundred weight) <sup>30</sup>   |                       |                       |                       | 100 lbs                  |
| Volitazition of synthetic fertilizers <sup>30</sup>                                      |                       |                       |                       | 0.1                      |
| Volitazition of organic fertilizers <sup>30</sup>  |                       |                       |                       | 0.2                      |
| % leached from soils <sup>30</sup>   |                       |                       |                       | 0.3                      |
| Leaching Factor (kg N <sub>2</sub> O-N / kg N) <sup>30</sup>                             |                       |                       |                       | 0.025                    |
| Nitrogen Content of Non-manure Organics <sup>30</sup>                                    |                       |                       |                       | 0.041                    |
| Emission factor for soils (kg N <sub>2</sub> O-N/kgN) <sup>30</sup>                      |                       |                       |                       | 0.01                     |
| N <sub>2</sub> O Emissions from Volitazition <sup>30</sup>                               |                       |                       |                       | 0.01                     |
| N content of aboveground biomass for N-fixing crop production <sup>30</sup>              |                       |                       |                       | 0.03                     |
| Emission Factor for Temperate zone Histols (kg N <sub>2</sub> O-N / ha_yr) <sup>30</sup> |                       |                       |                       | 8                        |
| Emission Factor for Subtropic zone Histols (kg N <sub>2</sub> O-N / ha_yr) <sup>30</sup> |                       |                       |                       | 12                       |
| N <sub>2</sub> O-N Emissions Ratio [R <sub>N<sub>2</sub>O_N</sub> ] <sup>30</sup>        |                       |                       |                       | 0.007                    |
| % of target year applied <sup>30</sup>   |                       |                       |                       | 0.65                     |
| % of following year applied <sup>30</sup>  |                       |                       |                       | 0.35                     |

<sup>30</sup> Source: EPA State Inventory Tool for Agriculture, July 2008.

## **Appendix C: Data Inputs**

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**RIVERSIDE COUNTY  
Greenhouse Gas Emission Inventory  
Annual Usage and Generation**

Inventory Year: 2008

| Growth Rates    | to 2020 | to 2035 | to 2060 |
|-----------------|---------|---------|---------|
| Residential     | 62.41%  | 92.55%  | 151.70% |
| Non-Residential | 96.10%  | 165.12% | 420.72% |

**Transportation**

**On-road Transportation**

|                               |               |
|-------------------------------|---------------|
| Annual Vehicle Miles Traveled | 5,161,531,679 |
| Annual Residential Trips      | 590,542,591   |
| Annual Non-Residential Trips  | 271,942,936   |
| Average \$/gallon Gasoline:   | \$3.56        |
| Average \$/gallon Diesel:     | \$3.93        |

**Aviation**

|               | Annual Gallons | \$/gallon |
|---------------|----------------|-----------|
| Jet Fuel      | 1,832,210      | \$0.10    |
| Aviation Fuel | 404,676        | \$0.10    |

**Electricity and Natural Gas**

**Electricity**

Socal Edison Electricity

| Rate Code       | Annual kWh           | \$/kWh    | \$                      |
|-----------------|----------------------|-----------|-------------------------|
| AG TOU          | 112,208,191          | \$0.09875 | \$11,080,513.98         |
| Domestic        | 1,256,041,296        | \$0.11795 | \$148,144,544.28        |
| GS-1            | 82,884,759           | \$0.17841 | \$14,787,469.85         |
| GS-2            | 262,676,044          | \$0.08121 | \$21,332,341.81         |
| PA-1            | 16,947,950           | \$0.13312 | \$2,256,145.00          |
| PA-2            | 12,945,067           | \$0.11644 | \$1,507,266.64          |
| Street Lighting | 98,026,610           | \$0.07921 | \$7,764,923.04          |
| TOU-8           | 596,794,701          | \$0.08680 | \$51,800,825.18         |
| TOU-GS          | 154,930,764          | \$0.18348 | \$28,426,510.66         |
| <b>TOTAL</b>    | <b>2,593,455,382</b> |           | <b>\$287,100,540.45</b> |

| SoCal Edison Emission Factors |             |
|-------------------------------|-------------|
| Default (2005)                | Units       |
| 665.2607                      | lbs CO2/MWh |
| 7.5986                        | lbs CH4/GWh |
| 11.3094                       | lbs N2O/GWh |

| 2005 California Emission Factors |             |
|----------------------------------|-------------|
| Default (2005)                   | Units       |
| 724.12                           | lbs CO2/MWh |
| 30.24                            | lbs CH4/GWh |
| 8.08                             | lbs N2O/GWh |

Imperial Irrigation District

| Rate Code         | Annual kWh           | \$/kWh   | \$                     |
|-------------------|----------------------|----------|------------------------|
| Residential       | 450,673,960          | \$0.0784 | \$35,332,838.46        |
| Energy Assistance | 41,236,677           | \$0.0549 | \$2,263,068.83         |
| Mobile Home       | 37,606,910           | \$0.0676 | \$2,542,227.12         |
| Agricultural      | 62,987,028           | \$0.0618 | \$3,892,598.33         |
| Small Commercial  | 101,736,856          | \$0.0820 | \$8,342,422.19         |
| Large Commercial  | 321,462,730          | \$0.0659 | \$21,184,393.91        |
| Industrial        | 266,000              | \$0.0628 | \$16,704.80            |
| Street Lights     | 4,298,352            |          | \$0.00                 |
| Area Lighting     | 83,496               |          | \$0.00                 |
| Public Authority  | 12,398,373           | \$0.0732 | \$907,560.90           |
| Interdepartmental | 1,542,560            |          | \$0.00                 |
| <b>TOTAL</b>      | <b>1,034,292,942</b> |          | <b>\$74,481,814.55</b> |

| Imperial Irrigation District Emission Factors |             |
|---|-------------|
| Default (2005)                                | Units       |
| 612.12  | lbs CO2/MWh |
| 31.41   | lbs CH4/GWh |
| 6.37  | lbs N2O/GWh |

**Natural Gas**

|                       | therms            | \$/therms              |
|-----------------------|-------------------|------------------------|
| Residential           | 52,372,096        | \$0.80                 |
| Commercial/Industrial | 43,546,543        | \$0.61                 |
| <b>TOTAL</b>          | <b>95,918,639</b> | <b>\$68,461,068.03</b> |

## Area Source Emissions: Landscaping and Woodburning Emissions

### Landscaping Emissions

#### Land use:

|                                  |         |                  |
|----------------------------------|---------|------------------|
| Single Family Residential Units: | 112,132 | units            |
| Multi-family Residential Units:  | 48,854  | units            |
| Commercial Building Space:       | 169,585 | 1000 square feet |
| Industrial Building Space:       | 33,905  | 1000 square feet |

### Woodburning Emissions

|                         |        |                        |
|-------------------------|--------|------------------------|
| Homes with wood stoves: | 35%    | % of residential homes |
| Amount of wood burned:  | 0.80   | cords/unit             |
| Homes with fireplaces:  | 10%    | % of residential homes |
| Price of wood:          | \$3.50 | \$/cord of wood        |

## Water

### Imported Water

|  | Treated (acre-feet) |                      | Untreated (acre-feet) |                      |
|--|---------------------|----------------------|-----------------------|----------------------|
|  | State Water Project | Colorado River Water | State Water Project   | Colorado River Water |
| Coachella Valley Water District          |                     | 14,338.01            |                       |                      |
| Desert Water Agency                      |                     | 18,347.58            |                       |                      |
| Eastern Municipal Water District         | 38,396.92           | 33,412.70            | 313.27                | 272.60               |
| Elisnore Valley Municipal Water District | 7,055.06            | 6,139.26             |                       |                      |
| Rancho California Water District         | 12,311.55           | 10,713.41            | 6,484.35              | 5,642.63             |
| San Geronio Water Agency                 | 2,175.10            |                      |                       |                      |
| Western Municipal Water District         | 28,650.00           | 9,550.00             |                       |                      |
| <b>Total Imported Water</b>              | <b>88,588.63</b>    | <b>92,500.96</b>     | <b>6,797.62</b>       | <b>5,915.24</b>      |

## Solid Waste

#### Onsite Equipment

|                        |         |
|------------------------|---------|
| Total Diesel Use (gal) | 488,811 |
|------------------------|---------|

#### Waste Sources

|                   |     |
|-------------------|-----|
| % Residential     | 35% |
| % Non-Residential | 65% |

#### Fugitive Methane Emissions

|                           | Measured LFG Flow |              | Destruction Efficiency | Methane Capture in 1990? |
|---------------------------|-------------------|--------------|------------------------|--------------------------|
|                           | (SCFM)            | % LFG as CH4 |                        |                          |
| BADLANDS (flare alone)    | 639               | 43.7%        | 99.999629%             |                          |
| BADLANDS (flare w/engine) | 189               | 43.7%        | 99.999629%             |                          |
| BADLANDS (engine)         | 450               | 44.0%        | 99.700000%             |                          |
| BLYTHE                    | 20                | 8.0%         | 0.000000%              |                          |
| COACHELLA (1997)          | 346               | 36.8%        | 99.999644%             |                          |
| CORONA (1986)             | 225               | 37.6%        | 99.900000%             | Y                        |
| DOUBLE BUTTE (1994)       | 190               | 31.8%        | 99.999708%             |                          |
| EDOM HILL (1997)          | 700               | 49.7%        | 99.999785%             |                          |
| ELSINORE (1965)           | 70                | 19.3%        | 99.900060%             |                          |
| EL SOBRANTE (Total)       | 3014              | 45.0%        | 99.900000%             | Y                        |
| HIGHGROVE (1998)          | 310               | 46.7%        | 99.999781%             |                          |
| LAMB CANYON               | 642               | 37.8%        | 99.999697%             |                          |
| MEAD VALLEY (1997)        | 225               | 28.7%        | 99.999513%             |                          |
| W. RIVERSIDE (1993)       | 66                | 26.2%        | 99.999149%             | Y                        |

## Agriculture

#### Annual Crop Growth

|                               | Acres Harvested | Annual Yield (tons) |
|-------------------------------|-----------------|---------------------|
| Hay (including Alfalfa)       | 29648           | 257608              |
| Corn                          | 497             | 24827               |
| Oats                          | 1150            | 3329                |
| Sorghum                       | 3197            | 22942               |
| Wheat                         | 14817           | 55589               |
| Cotton                        | 6901            | 7073                |
| Vegetable Crops & Fruit Trees | 43898           | 289710              |

#### Annual Animal head

|           | #         |
|-----------|-----------|
| Dairy Cow | 43,773    |
| Poultry   | 5,260,914 |
| Sheep     | 12,700    |