AGENDA ITEMS

1. Welcome & Introductions
2. Public Comments
   *This portion of the meeting is reserved for person wishing to address the TCAG TFMTAC Advisory Committee on items within its purview but not on this agenda. Unscheduled comments are limited to 3 minutes. Note: Prior to the action by the Committee on any item on this agenda, the public may comment on that item.*
3. Approval of Meeting Minutes of September 21, 2016 (Pages 1-2)
4. Sample Development Model Run
5. 2018 RTP/SCS – SB375 Target Setting (Pages 3-61)
6. 2018 RTP/SCS Population trends and projections
7. TFMTAC Member Q/A Discussion
8. Schedule Next Meeting
9. Adjourn
# Transportation Forecasting Model

## Technical Advisory Committee (TFMTAC)

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
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<tbody>
<tr>
<td>Vacant, City of Dinuba</td>
<td>Member</td>
</tr>
<tr>
<td>Lisa Wallis-Dutra, City of Farmersville</td>
<td>Member (Chair)</td>
</tr>
<tr>
<td>Nick Mascia, City of Visalia</td>
<td>Member (Vice-Chair)</td>
</tr>
<tr>
<td>David Berggren, Caltrans District 06</td>
<td>Member</td>
</tr>
<tr>
<td>Mike Reed, City of Porterville</td>
<td>Member</td>
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<tr>
<td>Roberto Brady, TCAG</td>
<td>Staff</td>
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<tr>
<td>Mark Hays, TCAG</td>
<td>Staff</td>
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<tr>
<td>Derek Winning, TCAG</td>
<td>Staff</td>
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<tr>
<td>Philip Shabanov, TCAG</td>
<td>Staff</td>
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</tbody>
</table>

Tulare County Association of Governments  
210 N. Church St., Suite B  
Visalia, CA 93291  
559-623-0450  
http://www.tularecog.org/
ITEM: 3
Tulare County Association of Governments (TCAG)
Transportation Forecasting Model Technical Advisory Committee
September 20, 2016

TCAG Staff: Philip Shabonov, Alyssa Unti

Summary Meeting Minutes

1. Welcome & Introductions
The Transportation Forecasting Model Technical Advisory Committee (TFMTAC) was opened by Lisa Wallis-Dutra at 2:03 p.m. at the Tulare County Association of Governments, 210 N. Church Street, St. B, Visalia, CA 93291.

2. Public Comments
Chair Wallis-Dutra opened and closed the Public Comments at 2:05 p.m. No comments received.

3. Action: Approval of Minutes-Meeting for September 20, 2016
Upon Motion by Member Berggren, and seconded by Member Mascia, Transportation Forecasting Model Technical Advisory Committee (TFMTAC) unanimously approved the June 21, 2016 Summary Meeting Minutes.

4. Sample Development Model Run
Mr. Shabanov provided members with handouts for the Sample Development Model Run and reviewed the runs with various 2040 scenarios for Spruce and SR137. Mr. Shabanov informed the committee that SR137 is being considered in place of the Spruce project as Spruce is becoming an expensive proposition.

Mr. Winning stated TCAG is currently focusing on the two corridors and sharing the types of analysis available to help the committee understand the demand in our County. Mr. Winning stated more analysis would need to take place before any decisions are made and TCAG has not given up on the Spruce project, however affordability is a factor and SR137 may be more cost effective.
5. 2018 RTP/SCS Population, Housing and Employment trends and projections
Mr. Winning provided committee with a handout for a household project model that was developed for the Valley Counties, which TCAG has updated with current data up to 2015.

Mr. Winning stated in the handouts there were comparisons for populated projections for several different projections with focus on: population forecast projection, household projections, household trend projection, housing unit trends, construction, employment, and the cohort connection.

Mr. Winning discussed the importance of focusing on housing projections as they can determine economic growth by indicating there is job activity, household incomes, available credit, and that construction is happening. Mr. Winning also stated another important projection to look at is the increase in farm employment.

Mr. Winning informed the committee there would be more information to come as TCAG is continuing to review the trends and projections for 2018.

6. TFMTAC Member Q/A Discussion
None

7. Adjourn
The Transportation Forecasting Model Technical Advisory Committee (TFMTAC) Meeting adjourned at 2:50 p.m. The next meeting will be scheduled in January 2017.
SB 375 Target Setting Recommendations
For the San Joaquin Valley’s Metropolitan Planning Organizations
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I. BACKGROUND

Metropolitan Planning Organizations (MPOs) across the state are currently undergoing the target-setting process required by California Air Resources Board (ARB) for SB 375, the Sustainable Communities and Climate Protection Act of 2008. MPOs utilize current data and assumptions on demographics and travel behavior in order to forecast regional per capita greenhouse gas emissions reduction in future years such as 2020 and 2035. The ARB reviews target recommendations and adopts greenhouse gas emissions reduction targets for each MPO every four to eight years, which are then set as goals to achieve in the future Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS). For the eight MPOs in the San Joaquin Valley (herein referred to as the “Valley”), this new round of target-setting will provide targets that are effective as of January 1st, 2018, in time for the 2018 RTP/SCS.

A. Recent Valley Performance with Targets

ARB finalized the first targets for all MPOs on February 17, 2011. One set of uniform targets for the 2014 RTP/SCS was assigned for all eight Valley MPOs: the greenhouse gas emissions target for the year 2020 was a 5 percent per capita reduction, and the target for the year 2035 was a 10 percent per capita reduction. Since the adoption of the 2014 RTP/SCS, the Valley MPOs have been actively implementing strategies identified in the long-term plans to reduce greenhouse gas (GHG) emissions and vehicle miles traveled (VMT) in the region.

Table 1 below summarizes the most recent GHG reduction targets, and the demonstrated reductions per capita, for all MPOs across the State.

As shown in the table, the eight Valley MPOs are making a significant contribution toward attaining the SB 375 GHG reduction goals; as shown in the 2014 RTP/SCS, the Valley MPOs demonstrate achieving some of the highest GHG reductions per capita from throughout the state. All eight Valley MPOs have been able to demonstrate that their 2020 target of a 5 percent reduction goal can be met, with the Valley as a whole achieving a 13.9 percent CO2e reduction on average. Similarly, the Valley MPOs have demonstrated that they will surpass the 2035 target of a 10 percent reduction goal, and are achieving an average reduction of 16.3 percent.
Table 1: Summary of Recent GHG Reductions

<table>
<thead>
<tr>
<th>California MPO</th>
<th>Most Recent CO2e 2020 &amp; 2035 Targets</th>
<th>Demonstrated Year 2020 CO2e Reductions per Capita</th>
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<td>-12.1%</td>
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</tr>
</tbody>
</table>

Notes:  
(1) ARB Technical Evaluation for GHG Reductions Web Page Nov 2014  
(2) MCTC staff - 11/3/16  
(3) MCAG 2014 RTP Amendment 1  
(4) ARB SCS Fact Sheets.  
(5) SLO Adopted RTP Website  
(6) ARB Technical Evaluation from Shasta Website

B. Valleywide Efforts in the Spirit of SB 375

In addition to the San Joaquin Valley’s extensive efforts to comply with state climate change goals via each agency’s 2014 Sustainable Communities Strategy, the San Joaquin Valley is committed to accomplishing multiple Valley-wide initiatives as well as local projects and policies to demonstrate progress toward achieving SB 375 goals. By collaborating with various regional agencies and local partners, the Valley MPOs are able to assist in developing and implementing successful sustainable programs in all eight counties.

i. UC Davis Institute of Transportation Studies – Rural Transit Alternatives Study

One such initiative is the Valley-wide study of rural transit, which includes a partnership with the UC Davis Institute of Transportation Studies to examine if shared access services (car, bike, and ridesharing) can provide an alternative for meeting transportation needs in rural areas of the Valley. Traditional fixed route rural transit has been found to not be cost effective, which
contributes to the limitation of services available to residents in rural areas. The Valley along with the UC Davis Institute of Transportation Studies is exploring whether shared access services may be a better alternative at reducing VMT/GHG, costs, and inefficiencies. The Institute is currently developing a pilot project to test innovative transit solutions in a disadvantaged community, and have this serve as a model for other areas. A primary outcome of the study will be to establish a replicable transit model that can be used throughout the Valley, thereby decreasing the amount of passenger vehicle trips that occur in rural areas and across county lines. The strategies developed through this study will be incorporated into upcoming Valley Sustainable Communities Strategies, depending on cost and funding availability.

ii. San Joaquin Valley Sustainable Goods Movement Strategy

The San Joaquin Valley Goods Movement Sustainable Implementation Plan (SJVGMSIP) is a valley-wide effort between Caltrans and the MPOs in building upon the previously completed San Joaquin Valley Interregional Goods Movement Plan. The previous plan identified first- and last-mile connectivity issues from freight hubs, truck routing and parking needs, rural priority corridors, and included a goods movement performance and modeling framework for the Valley. The SJVGMSIP aims to prioritize goods movement investments for the multimodal infrastructure of the entire San Joaquin Valley – including its highways and roadways, rail facilities, air cargo facilities, intermodal centers, and ties to inland and marine ports. A critical outcome of the Plan will be the development of prioritized investments of project improvements and strategies to increase the efficiency and reliability of the region’s goods movement system, and reduce the impact of goods movement on Valley air quality.

iii. Air District Initiatives

The San Joaquin Valley Air Pollution Control District (SJVAPCD) develops and administers various grant and incentive programs for public agencies, residents, businesses, and technology advancement in the San Joaquin Valley. These successful programs include providing funds for those looking to electrify their fleet or vehicles, resources for alternative fuel training, vanpool vouchers, agricultural and goods movement vehicle replacement, and many more additional benefits.

One of the grant and incentive programs that the San Joaquin Valley Air Pollution Control District offers is the Drive Clean! Rebate Program. The Program allows residents, businesses, non-profit organizations, and government entities to apply for rebates of up to $3,000 for the purchase or rebate of eligible new clean-air vehicles. This benefit is provided in addition to vehicle rebates provided by ARB to allow for disadvantaged communities and individuals to more easily purchase clean-air vehicles. To combat the air pollution problems in the Valley, the District also encourages businesses and transit fleets to purchase new hybrid and electric truck and buses. These incentives, in addition to educational resources such as the Plug In Electric Vehicle Resources Center, lower the total amount of greenhouse gases emitted through travel by impacting driving behavior and fleet mixes.

For the 2018 RTP/SCS, the MPOs will continue to collaborate with the SJVAPCD to further reduce air pollution throughout the eight Valley counties. By coordinating with the Air District, the MPOs can use these incentive programs in tandem with other GHG reduction policies if additional funding becomes available.
iv. Contributions from Other Sectors

The San Joaquin Valley is one of the top agricultural regions in the United States, producing more than double the amount of agricultural products than the rest of California combined, including crops and livestock. The agricultural industry accounts for 12% of the Valley’s jobs, whereas the industry only accounts for 3% and 2% of the state’s and nation’s jobs, respectively. According to the ARB Scoping Plan, the agriculture sector represents 8% of total California greenhouse gas (GHG) emissions due to methane emitted from livestock, enteric fermentation, and manure management. Agriculture also accounts for most N2O emissions that come from soil fertilizer. In addition, ARB’s Discussion Draft of the 2030 Scoping Plan states, “California’s climate objective for natural and working lands is to maintain them as a resilient carbon sink (i.e., net zero or even negative GHG emissions) to 2030 and beyond…” Implementation of this goal will require many policy and program pathways, in addition to partaking in activities related to sustainable agricultural practices and lands protection.

As such, the San Joaquin Valley is anticipated to play a significant role in meeting the state’s agricultural and lands preservation GHG reduction goals concurrent to SB 375 goals. Strategies include investment in anaerobic digesters and manure management in dairies to curb methane, as well as optimization of fertilizer application to reduce N2O emissions and protect water quality. SCS strategies that increase density, thus preserving agricultural lands, provide significant co-benefits in this area. Not only do the SCS strategies reduce transportation related GHG emissions, but they minimize the conversion of valuable agricultural land to more intensified uses enhancing the resiliency of and potential for carbon sequestration on those lands.

Portions of the Valley continue to be major oil and gas producers, particularly Kern County. The refineries and oil production facilities are subject to strict national and state “greening” requirements, which may include GHG performance standards in the future. Currently, the Valley oil and gas business are participating in the California’s cap-and-trade program, and implementing energy efficiency and sequestration projects measures in order to continue to comply with the annually declining GHG cap. The SJV counties are dedicated to supporting state GHG reduction goals across many sectors, and will continue to partner with state and local agencies to ensure the implementation of sustainable projects and programs.
2. PRELIMINARY ANALYSES AND VALLEYWIDE CHALLENGES FOR TARGET SETTING

Despite ongoing SB 375 efforts, there exist outstanding variables that will negatively affect the extent to which the Valley can expand upon previously set targets. The outstanding variables outlined in this section present challenges for not only this the region, but also for other regions in the state; these variables present an obstacle for MPOs to be able to match the per capita greenhouse gas reductions achieved with the previous RTP/SCS. Specifically, these variables include:

- Impact of model improvements from the San Joaquin Valley Model Improvement Plan (VMIP), phase 2;
- Impact of updated emissions calculation tool (EMFAC2014);
- Impact of an increased rate of economic recovery on VMT;
- Challenges associated with interregional travel; and
- Impact of lower automobile operating costs on VMT.

The extent to which these factors affect the Valley’s target recommendations is described in this section.

A. Impact of Software Improvements – VMIP2

The San Joaquin Valley Model Improvement Plan (VMIP) began in 2010 and made substantial enhancements to the modeling capabilities of the Valley MPOs. Due to the timing of the original VMIP, many data sources necessary to understand and model travel behavior were not available. As such, older sources were used to supplement data for the base year, making calibration and validation difficult due to the economic downturn relative to the 2001/2003 CHTS and 2000 Census which were collected before the calibration efforts began. In the technical evaluations of the Valley’s SCS documents, ARB staff identified areas of improvement, including updates to the travel demand model. The Valley has responded to this feedback through the development of the San Joaquin Valley Model Improvement Plan, Phase 2 (VMIP2).

VMIP2 utilizes the most recent Census, American Community Survey, California Household Travel Survey data, and the model structure enhancements developed as part of the VMIP. In addition to the updated data, VMIP2 implements changes to the model structure based on ARB feedback received. Key enhancements to model sensitivity and usability include:

- **Land Use**: simplified residential and employment categories
- **Socio-economic**: employee salary and household income relationship for home-work trips
- **Interregional Travel**: updated based on the newly released California Statewide Transportation Demand Model, and based on place and purpose, rather than having internal and interregional travel combined and distributed based on time/cost of travel
- **Modified Assumptions**: adjustments to employment density, intersection density, and access to jobs and houses
The combination of these updates amount to substantial changes to current planning assumptions, and have resulted in different interactions between land use location, demographics, trip purpose, built environment, and travel compared to the existing VMIP models. In some cases, the same input data as analyzed in the 2014 RTP/SCS is producing higher VMT levels when entered into VMIP2, as opposed to the original VMIP. This type of result does suggest that it will be challenging for Valley MPOs to be able to match the per capita GHG reductions achieved with the previous RTP/SCS.

It should be noted that VMIP2 validation is preliminary at this time, and may be subject to changes as the model validation is finalized. As a result, model output discussed in this report is also subject to change. Valley staff has been in regular contact with ARB staff to discuss VMIP2 progress, and in recent discussions it has been established that Valley MPOs may refine their target recommendations based on the finalized model validation in early 2017.

B. Impact of Software Improvements – EMFAC2014

On December 14, 2015, the Environmental Protection Agency announced the availability of the latest version of the California emission factor model, EMFAC2014, for use in State Implementation Plan development in California. EMFAC2014 will be required for conformity analysis on or after December 14, 2017. However, since Valley MPOs will be required to use EMFAC2014 for their 2018 RTP/SCS, the new model will also be used to develop numeric target recommendations.

Valley MPOs have conducted preliminary tests of the impacts of EMFAC2014 on their SB 375 GHG reductions adopted as part of their 2014 RTP/SCS. The results revealed significant differences in GHG emissions in both the SB 375 2005 base year, and analysis years 2020 and 2035. The primary reason for the observed differences appears to be in the light-duty vs. heavy-duty vehicle distribution between the two models. Table 2 summarizes VMT and GHG results for base year 2005 under EMFAC2011 and EMFAC2014 for all Valley MPOs.

Table 2: EMFAC2011 vs. EMFAC2014 Comparison

<table>
<thead>
<tr>
<th>County</th>
<th>Light Duty VMT (Miles, in thousands)</th>
<th>Light Duty CO2 Emissions (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EMFAC1</td>
<td>EMFAC4</td>
</tr>
<tr>
<td>Fresno</td>
<td>14,868</td>
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<tr>
<td>Kern</td>
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<td>Merced</td>
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<tr>
<td>San Joaquin</td>
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<tr>
<td>Stanislaus</td>
<td>8,451</td>
<td>8,271</td>
</tr>
<tr>
<td>Tulare</td>
<td>7,209</td>
<td>7,157</td>
</tr>
</tbody>
</table>

As shown, differences in light-duty VMT and CO2 emissions from EMFAC2011 to EMFAC2014 range from 13% less to 8% more, and they vary by county. Given the observed differences, the Valley MPOs plan to use EMFAC2014 to update the 2005 base emission levels to account for the
vehicle distribution inconsistencies. In order to produce comparable GHG emission reductions that are calculated as a reduction from 2005 levels for target setting purposes, Valley MPOs have concluded that this is the only technically correct approach to arrive at a meaningful and real SB 375 target number. Although emission model changes did not produce the same level of impact on all Valley counties, all eight agencies plan to use EMFAC2014 to model SB 375 base and analysis years for target recommendation and demonstration purposes in order to employ a consistent technical quantification methodology across all Valley MPOs.

C. Economic Recovery

The recovery rate and economic forecasts in the Valley’s 2014 Regional Transportation Plans and Sustainable Communities Strategy were developed prior to the recovery from the recession, and with the best information at the time. Leading up to the development of the RTP/SCS, the Valley had been slow to recover from the 2008 Recession, and this was forecast to continue in the development of the housing and employment represented in the future scenarios. The region has experienced relatively high unemployment, slow growth in jobs and rapid growth in housing. Depending on the individual county, this has resulted in a large number of residents commuting outside of the region in order to achieve or retain employment, high household vacancy rates, and lower job salary.

The Valley expects economic recovery to occur at a faster rate than previously assumed in 2014 RTP/SCS documents. As such, the potential exists for substantial increases in employment and income levels, as well as a revised distribution of low, medium, and high paying jobs. The Valley’s models can be applied to forecast of future conditions that reflect real world employment and income. In order to understand the influence of these factors on travel and greenhouse gas emissions, the Valley MPOs have prepared an economic recovery test that supposes valley employment levels and household income levels approaching state averages by 2035.

Approach

Specifically, after comparing households by the income ranges, demographic data for each of the Valley counties were modified to reflect the statewide average percentage. Although the magnitude varies by county, the representation of low income households was reduced, and the representation of medium and high income households was increased. The distribution of salary between the high, medium, and low income jobs was similarly adjusted to represent statewide employment trends. In addition to the income of jobs being reallocated to match statewide average, the total jobs per household was also increased from approximately 0.8 (Valleywide average) to 1.28 (Statewide average). The reallocation of jobs by salary and the increase in jobs per household was implemented uniformly across all geographies.

Data was gathered from the following sources to establish household income and industry of employment in all eight counties in the region:

- U.S. Census 2010

The LODES data was broken down into average salary by job sector, then household income ranges and the job salary types were compared to determine low, medium, and high income and salary. LODES data was also used to establish how many jobs were offered in each industry. This
data was used to translate reported salaries by industry into income levels for both 2005 and 2014 LODES data. This breakdown was applied to 2005 and 2035 employment outputs from the base Valley models to determine how many jobs are offered in each income category.

No land use, transportation network, or population adjustments have been assumed as part of this analysis. This exercise has been prepared solely to understand how adjustments to employment and income may affect travel and emissions in the Valley.

**Results**

Model runs for the year 2035 were performed with shifted economic inputs to represent economic recovery to a state-average level. The model output was processed and compared with the 2014 RTP/SCS model output for the year 2035 to see the effects of the potential economic recovery on mode share, interregional travel, VMT per capita, and GHG per capita. Table 3 summarizes the impacts on GHG and VMT by county for the year 2035.

<table>
<thead>
<tr>
<th>County</th>
<th>Change in VMT per Capita</th>
<th>Change in GHG per Capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresno</td>
<td>+6.8%</td>
<td>+7.4%</td>
</tr>
<tr>
<td>Kern</td>
<td>+0.5%</td>
<td>+0.7%</td>
</tr>
<tr>
<td>Kings</td>
<td>+13.4%</td>
<td>+14.1%</td>
</tr>
<tr>
<td>Madera</td>
<td>+0.2%</td>
<td>+0.2%</td>
</tr>
<tr>
<td>Merced</td>
<td>+3.0%</td>
<td>+2.8%</td>
</tr>
<tr>
<td>San Joaquin</td>
<td>+4.6%</td>
<td>+4.8%</td>
</tr>
<tr>
<td>Stanislaus</td>
<td>+6.7%</td>
<td>+6.3%</td>
</tr>
<tr>
<td>Tulare</td>
<td>+1.1%</td>
<td>+1.1%</td>
</tr>
</tbody>
</table>

Although the results may vary in intensity, this economic recovery test indicates that the application of these hypothetical economic adjustments to the existing model inputs does produce higher VMT and GHG emissions results. As shown in the table, increases in VMT for year 2035 forecasts range from 1–13 percent, and increases in light-duty vehicle CO2 per capita emissions range from 1–14 percent.

Though Valley staff does not anticipate economic recovery to occur at a level such that the Valley is on par with State averages for income and employment, it is clear that the level of economic recovery realized in the Valley will have a direct impact on the extent to which VMT and GHG can be reduced. The impact of economic recovery on the Valley will be captured through the use of VMIP2, with updated 2015 baselines.

**D. Challenges Associated with Interregional Travel**

The unique characteristics of the San Joaquin Valley, including socioeconomic conditions, travel behaviors, and geography all greatly impact long-term transportation planning in the region. Forecasted 2035 daily interregional trips through the Valley region averages much higher than the respective counterpart statistics from other regions in the State. Further, the proportion of commuter trips to interregional travel is also higher in the Valley on average than other regions in the State. The calculated “In and Out” commute trips in Valley is approximately 16.1 percent of interregional travel, whereas the same commute trips only account for 3.4 percent and 9.3 percent of total interregional travel in the largest four MPOs in the State (SACOG, MTC, SCAG,
SANDAG) and Northern/Coastal California regions, respectively. These “In and Out” trips represent a challenge with respect to GHG reduction, as these trips neither originate nor terminate within a given County in the Valley. As the economy recovers and employment becomes increasingly available, residents will continue to travel long distances in order to secure jobs.

E. Automobile Operating Costs

The Valley will utilize the methodology previously established by the “Big Four” California MPOs (Sacramento Area Council of Governments, Metropolitan Transportation Commission, Southern California Association of Governments, and San Diego Association of Governments) to revise its assumptions regarding automobile operating costs in the VMIP2 models. That methodology for calculating perceived automobile costs consists of two separate components: fuel costs and non-fuel-related costs. Calculating fuel costs requires using a consistent growth in fuel price between the SB 375 base year of 2005 and the forecast years 2020 and 2035 based on Department of Energy annual forecasts. For non-fuel-related operating costs, consistent data sources for the price of car maintenance and tires are utilized. Additionally, the Valley MPOs will use a representative fleet-wide fuel efficiency estimate in computing operating costs. Based on recent trends in fuel costs, current fuel price estimates for future years are considerably lower than those assumed as part of prior SB 375 Target Setting efforts.

Lower fuel prices have certain impacts on travel behavior, which are then reflected in the travel demand models. As single-occupancy vehicle driving is seen as an economically feasible alternative to riding the bus or carpooling, many choose to commute or travel alone in their cars due to convenience.

A decrease in automobile operating cost will directly contribute to higher levels of VMT, and will have a negative impact on the extent to which GHG per capita can be reduced. To understand the magnitude of this impact, the Valley has prepared an “Automobile Operating Cost” test to examine the difference in percentage change in CO2 emissions per capita (from 2005 to 2035), between what was reported during the 2014 RTP/SCS cycle and new estimates that factor in a change in auto operational cost methodology and changes to base year assumptions. The results of this test are summarized in Table 4 below. It should be noted Madera and Merced counties have not been included in this summary, as these regions have had either substantial land use adjustments, or base year model adjustments after the 2014 RTP/SCS adoption that do not allow for a direct comparison of scenarios.
Table 4: Impact of Revised Automobile Operating Costs

<table>
<thead>
<tr>
<th>County</th>
<th>Change in CO2e per Capita from 2005 to 2035</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2014 RTP/SCS (Old Baseline, EMFAC2011)</td>
</tr>
<tr>
<td>Fresno</td>
<td>-11.0%</td>
</tr>
<tr>
<td>Kern</td>
<td>-16.6%</td>
</tr>
<tr>
<td>Kings</td>
<td>-12.1%</td>
</tr>
<tr>
<td>San Joaquin</td>
<td>-23.7%</td>
</tr>
<tr>
<td>Stanislaus</td>
<td>-22.0%</td>
</tr>
<tr>
<td>Tulare</td>
<td>-19.6%</td>
</tr>
</tbody>
</table>

Notes: *Madera and Merced do not have exact comparisons between the two scenarios due to changes in land use modeling and base year adjustments after the 2014 RTP/SCS adoption. Please see specific MPO sections for more detail on changes that have been made to their modeling process.

As shown, with calibrated base years and renewed auto operating cost assumptions, the change in CO2 per capita from the base year 2005 to 2035 is significantly different than the results reported on last round. With the revised automobile operating cost methodology, the degree to which Valley MPOs can reduce GHG emissions has been lessened by 1-7 percent by the year 2035. Again, it should be noted Madera and Merced counties were not included in this summary due to land use and/or modeling adjustments that do not allow for a direct comparison of scenarios; however, the negative impact of adjusted automobile operating costs would have a similar impact on all Valley MPOs. In fact, this impact will result in MPOs and local agencies needing to pursue additional reduction strategies to simply match the demonstrated GHG reductions per capita as reported previously in the 2014 RTP/SCS.

The effects of increased VMT from current assumptions are compounded with the economic recovery process that the Valley is currently undergoing. During the 2014 RTP/SCS development, assumptions on job growth and fuel prices were made in the wake of nationwide recession and emission reductions were forecasted based on the best information at the time. The Valley had been slow to recover from the recession and this was projected to continue in the development of the housing and employment represented in future scenarios. The region has experienced relatively high unemployment, slow growth in jobs, and rapid growth in housing. Depending on the individual county, this has resulted in high household vacancy rates, lower job salaries, and a large number of residents commuting outside of the region in order to achieve or retain employment. As such, when considering the effect of lower automobile operating costs, it must also be understood that an increased rate of economic recovery will compound the overall impact on VMT and GHG generation.
3. INDIVIDUAL VALLEY MPO EFFORTS AND TARGET RECOMMENDATIONS

A. Fresno Council of Governments

In 2010, The California Air Resources Board set the greenhouse gas emission reduction targets for Fresno COG and the other seven COGs in the San Joaquin Valley at 5% per capita reduction by 2020 and 10% reduction by 2035. Fresno COG’s 2014 RTP/SCS demonstrated that Fresno region would be able to exceed the targets by achieving 9% reduction by 2020 and 11% reduction by 2035 if the SCS was implemented.

i. Fresno COG SCS Implementation Programs

Since the adoption of the 2014 RTP/SCS, Fresno COG, its member agencies and other local and state partners have been working closely on the implementation of the land use and transportation strategies identified in the 2014 RTP/SCS. Fresno COG Policy Board directed COG staff to develop three SCS implementation programs, among which two have been completed and one is undergoing committee and community process.

The Transportation Needs Assessment Program, which was completed in September 2016, evaluated the transportation needs and gaps in the region, especially in the disadvantaged communities. The Program incorporated the health assessment at census tract level developed by the Fresno County Public Health Department, which provided a solid base for planning for healthy communities. The study identified a list of inter-city/community bike and pedestrian projects that aim to improving inter-city connectivity by closing the gaps and providing continuity for bike/pedestrian travel. The study also recommended improvements of accessibility and connectivity of 10 regional/sub-regional facilities that provide basic services such as health care, grocery, etc. to the residents in the region. The Needs Assessment study provided detailed project information and cost estimates that can be directly applied in funding applications.

The Agricultural Land Mitigation Program, another Fresno COG’s SCS implementation program, made a policy recommendation that construction of transportation projects in Fresno County should minimize the loss of farmland. It also recommended that member agencies shall indicate that they will address the COG farmland mitigation policy when transportation projects are submitted for consideration in the RTP process. In addition, Fresno COG shall address agricultural land impacts by establishing scoring criteria (established within the appropriate scoring committee) to minimize the loss of prime farmland, unique farmland, farmland of statewide importance and farmland of local importance consistent with the recommended policy.

The Sustainable Infrastructure Grant Program is the third SCS implementation program, and is currently going through committee process to identify goals and objectives for the program, have a healthy discussion about funding opportunities and develop potential program policies and guidelines. The original intent of this requested program from the community groups was to establish a special funding program that will fund sustainable transportation projects after the transportation needs, especially in the disadvantaged communities are studied and identified.

ii. Land use: General Plan Activities
While the 2014 SCS was being developed, the City of Fresno was going through a comprehensive update process for its general plan. The City of Fresno’s new general plan was adopted in December 2014, 6 months after COG Policy Board approved the region’s first SCS. The new Fresno General Plan envisions a balanced city with an appropriate proportion of its growth and reinvestment focused in the central core, Downtown, established neighborhoods and along BRT corridors. The City sets a goal of directing approximately 50% of new growth towards infill area within existing city limits, and the other half within the existing sphere of influence area by 2035. Around 20% of entire region’s housing growth and 36% of new employment by 2035 is planned to take place within ½ mile of the BRT corridors inside the City of Fresno. In December 2015, the City of Fresno approved a new Development code/Zoning Ordinance, which is an essential tool to implement the 2014 General Plan.

The City of Clovis also adopted a new general plan in the summer of 2014 right after the adoption of the first SCS. Clovis’ new general plan also set “goals and policies to seek to foster more compact development patterns that can reduce the number, length, and duration of auto trips.” The Clovis General Plan introduced the concept of urban centers that require higher density and more mixed use around the community centers and such requirement for density gradually decreases as the development is further away from the center. The master-planned urban centers are also required to provide bike/trail connection within the communities.

Since the adoption of the 2014 SCS, City of San Joaquin has also completed the general plan update, and Fresno County and City of Sanger have started their general plan review/update process.

### iii. Affordable Housing and Sustainable Communities (AHSC) Funded Projects

The Fresno region has been working diligently on putting together projects that would provide affordable housing, minimize vehicle miles traveled and greenhouse gas emission, improve the air quality and contribute to the sustainable growth in the region. Under the AHSC program, 3 Fresno projects have been funded with a total of $25 million in the first two cycles. CalVans, a vanpool program that provides vanpool services to farmworkers and commuters in the rural counties including Fresno County also received $3 million from the AHSC program.

**Hotel Fresno:** The Hotel Fresno Apartments Development was awarded $4.8 million by the AHSC program. With a density of 96 units/acre, the project will convert the vacant commercial Hotel Fresno building in Downtown Fresno into a 79-unit new multifamily residential rental housing development. Forty of the units will be affordable housing units, 38 will be market rate, and 1 unit will be reserved for an on-site manager office. The project also includes common areas, office space on the ground floor and construction of a new parking garage with 81 parking spaces.

**Kings Canyon Connectivity Project:** The Kings Canyon Connectivity Project was awarded $15 million by the AHSC program. The project consists of 135 affordable multi-family units. The proposed project provides improved walking paths and dedicated bike paths and crosswalks, which connect residents to services and amenities such as retail, social service, education, employment and planned BRT stations. It also contains a workforce training and employment strategies program which will offer construction apprenticeships in addition to a career training and placement program.
South Stadium Phase I TOD: The South Stadium Phase I was awarded $5.7 million. The project consists of a five-story, mixed use structure with 51 residential units and about 10,000 square feet of retail/office space in Downtown Fresno. 20% of the housing units will be exclusively for households making 50% or lower of local median income. This infill project also includes active transportation components including wider sidewalks, Class II and IV bike lanes and additional pedestrian lighting and smart meters.

Vanpool Expansion Project: CalVans received $3 million from the AHSC program for the Vanpool Expansion project, which will provide farmworkers located in the rural areas with a van to travel between home and work. The counties that will be covered by the project include Merced, Madera, Fresno, Tulare, Kings, Kern, Monterey and Imperial.

iv. Transit Activities

Bus Rapid Transit: With a Very Small Starts funding from FTA and other supplemental funding from the State and local sources, City of Fresno has started constructing its first Bus Rapid Transit in 2016, and is expected to launch the BRT service in late 2017. The Fresno BRT features 10 minute peak time service, off-board fare collection, traffic signal prioritization, fewer stops, etc. The Fresno BRT’s initial route spans 15.7 miles on Blackstone Avenue, from North Fresno Street to downtown, then out to Venture Avenue/Kings Canyon Road to Clovis Avenue. The project includes 51 stations, two terminal stations and one transit center with a shared platform station. The BRT will serve major shopping centers, hospitals and other significant destinations.

FCRTA New College Routes: The Fresno County Rural Transit Agency (FCRTA) has started 3 brand new college routes since the adoption of the 2014 RTP/SCS. As a new part of the Sanger Transit subsystem, Sanger Express began service in August 2014 to provide inter-city services between Sanger and Reedley College. The Kingsburg-Reedley College route started in January 2016 with fixed routes service at the Reedley College via city of Kingsburg, Fowler and Selma, and Parlier. In addition to providing students in the small communities with a transit option for their daily trips to school, this route will also open the door to educational and economic opportunities for these communities by providing access not only to Reedley College but also other services in Reedley. The West Hills/Firebaugh College route also started in early 2016 and provides fixed routes service to college students, staff and the general public. The West Hills/Firebaugh College routes starts in city of Kerman to City of San Joaquin to Tranquility to Mendota with a final destination of Firebaugh North District Campus.

Transit Services to the National Parks: FCRTA started a demonstration project, Big Trees Transit, during 2015-2016 that provided bus service from Fresno, Sanger and Squaw Valley to Kings Canyon and Sequoia National Parks in the summer. The Big Tree Transit stopped at the major destinations such as the Fresno Yosemite International Airport, Fresno State University, Fresno Greyhound/Amtrak Station, Sanger Depot Museum, etc. and took the riders directly into the breathtaking outdoors inside the Kings Canyon and Sequoia National Parks.

Transit service to the Yosemite Nation Park has also been launched in 2015. Funded by Fresno COG and operated by the Yosemite Area Transportation System or YARTS, the transit service on SR 41 from the Fresno region to the Yosemite National Park provides tourists and employees easy access to the world-known national park. The YARTS are connected with other local and intercity transit services such as the airport, Amtrak station, Greyhound station, Fresno Area Express (FAX) and FCRTA. The YARTS service to Yosemite will be provided daily in the summer from May 15 to September 15 in 2017.
**Clovis Transit Center:** City of Clovis is breaking ground in early 2017 to construct a multi-modal transit center in downtown Clovis. The transit center will be used as a route transfer center and easy-to-access outlet for the public to purchase transit passes and get transit information. As part of the project, a senior activity center and a new county public library branch will be built at the project site. The Transit Center will provide the seniors and the general public with easy access to the Senior Activity Center, the new library, and the many amenities in Downtown Clovis.

**Fresno County Regional Long Range Transit Plan:** Fresno COG has been persistently seeking funding to develop a regional long range transit plan to guide the future transit investment in the Fresno Region. In 2016 $370,000 was awarded to Fresno COG by Caltrans through the Sustainable Transportation Planning Funding Program to develop the region’s first regional long range transit plan. A long range vision for a sustainable and efficient transit system will be developed; a preferred transit scenario will be presented to the public and the elected officials; a list of long range transit improvement projects will be recommended as part of the transit strategies for the future RTP/SCS; strategies will be developed for the efficient collaboration and coordination of the three major transit operators in the region. The Regional Long Range Transit Plan project will be completed in early 2019, and will be able provide guidance for long term transit improvement in the region.

**v. Active Transportation**

**Transportation Needs Assessment:** As discussed under the SCS Implementation, the Transportation Needs Assessment study evaluated and identified the transportation needs and gaps in the region, especially in the disadvantaged communities. A list of gap projects to address inter-city/community connectivity for bike/ped. activities was identified; another list of recommended improvement to 10 major regional/sub-regional facilities that provide basic services to residents was also provided by the study. The study also provided project specific information for the priority projects that can be directly utilized in the funding applications.

**City of Fresno ATP:** After 10 months of intensive public outreach, committee process and technical analysis, City of Fresno’s ATP was presented to the City Council on December 15th, 2016. The draft plan calls for adding 937 miles of new bike facilities and 805 miles of sidewalks to significantly improve safety and connectivity in City of Fresno. The Plan prioritized a priority network that features 24 miles of Class I bike paths and 55 miles of sidewalks for the next 10 years. Building out the entire proposed network would cost a total of $1.4 billion. The final plan is scheduled to go to the City Council for adoption in January 2017.

**City of Clovis ATP:** With a vision for a “connected and complete network of trails, walkways, and bikeways that provides safe, convenient, and enjoyable connections to key destinations and neighborhoods around the City”, the City of Clovis adopted their Active Transportation Plan in October 2016 that proposed to add 140 miles of bike facilities and 33 miles of sidewalks, which will bring the total miles of bike/pedestrian (including existing) in City of Clovis close to 1000 miles. Costs to implement the entire network are estimated to be around $42 million. The proposed network includes Class I bike paths (trails & paseos), Class II bike lanes, Class III bike routes and sidewalks.

**City of Coalinga ATP:** The City of Coalinga envisions a safe and efficient multi-modal transportation system that meets the needs of all users. The Plan provides a strategy for the development of a comprehensive bicycle and walking network to provide access to schools, jobs and downtown as
well as strategies for support facilities and education, encouragement, enforcement and evaluation programs. The Plan recommended addition of a total of 20 miles of bike facilities. Locations for sidewalk improvement were also identified in this Plan as well as in the City’s ADA Transition Plan. The Coalinga ATP is in the public process, and is expected to be adopted soon.

**Fresno COG Regional ATP:** Fresno COG has successfully secured funding to develop a regional Active Transportation Plan that covers the County areas and other small cities that don’t have their own ATPs. The RFP for the regional ATP is expected to be released in the early Spring of 2017, and the prospective projects from the Regional ACT as well as projects from other ATPs, will be incorporated into the future RTP/SCS.

**FHWA Pedestrian/Bicycle Counter Count Pilot Program:** In order to support the active transportation activities in Fresno region, Fresno COG sought and received a grant funding from the FHWA to be part of the FHWA’s Bike/Pedestrian Count Pilot Program. Under the program, Fresno COG purchased portable bike/pedestrian counters, which were used by the member jurisdictions to take bike/pedestrian counts at various locations. Fresno COG and the member jurisdictions also participated in a series of technical trainings on bike/pedestrian counts. The portable bike/pedestrian counters will be used in taking before/after counts for project funding purpose. In addition to the counts taken by the member agencies for funding purposes, Fresno COG will be collecting more bike/pedestrian counts under COG’s Traffic Monitoring Program. All the bike/pedestrian counts collected will be used in supporting the development of the bike/pedestrian trip assignment in Fresno COG’s Activity-based Model. Fresno COG is taking steps to develop modeling tools to forecast bike/pedestrian activities in hopes that the benefits of the planned aggressive investment in active transportation in the region can be measured, and the investment can be justified to the public and the elected officials.

**Cycle Track Feasibility Study:** Fresno COG has funded a Cycle Track Feasibility Study that has kicked off in the spring of 2016. The studies will examine the existing street conditions and evaluate options for potential routes for the Class IV separated bikeways. It will also provide cost estimate for construction and maintenance for the selected route options. An extensive outreach will be conducted for public input on the potential route options. A demonstration project will be identified by the study.

**Bike & Walk Trip Assignment in Fresno COG’s Activity-based Model:** Fresno COG is investing in an activity-based model that contains a bike/walk trip assignment component. The 4-step model that Fresno COG currently runs does not have the capability to assign bike/pedestrian trips to the network. It is not sensitive to the bike/pedestrian activities despite of the large investment in active transportation in the region. When completed, the Fresno ABM will have the capability of forecasting bike/pedestrian activities based on the infrastructure improvement. A true-shape bike/pedestrian network will be applied, and a skim matrix for the bike/ped trips will be created in the ABM.

**vi. CalVans**

CalVans provide vanpool services to farmworkers and commuters in the rural counties. The counties that are currently served by Calvans are: Fresno, Kern, Kings, Madera, Merced, Monterey, San Benito, Santa Barbara, Santa Cruz, Tulare, Imperial and Ventura. In year 14/15, vans out of Fresno County traveled 29 million passenger miles; in 2015/16, the vans (out of Fresno County) traveled a total of 2.6 million miles with total 528,510 passengers, and the passenger miles for the vans reached 28.8 million, which is equivalent to 13,459 MT CO2e reduction.
vii. Electric Vehicle

The Fresno County Rural Transit (FCRTA) has set a goal of converting 100% of its fleet into electric vehicles by 2025 and has been working diligently towards achieving the goal.

Four Zenith 10 passenger vans which are 100% electric with a battery range of 110 miles have been purchased and delivered to the FCRTA. A total of $368,000 for the 4 electric vans are funded by the Caltrans LCTOP program, the San Joaquin Valley Air Pollution Control District and Fresno County’s ½ cent sales measure, Measure C.

In addition, six 35-foot electric buses have been ordered by FCRTA, which will serve the inter-city and intra-city routes in Fresno County. These buses have extended range capability of 165-185 miles and will serve the outer rural cities in the Fresno County. This effort has been funded by the California Air Resources Board, the Air District and Measure C with a total amount of $5.8 million.

To complement the electric vans and buses that have been purchased, FCRTA has secured $830,000 to install thirteen level-two solar charging units in the municipal yards of the thirteen incorporated cities that are served by the FCRTA. Each of the charging units has two charging stations, one for the general public and the other for the transit buses and city vehicles.

For the near term, FCRTA is actively seeking funding to install level three solar trees and direct level three charging units, and build a central maintenance facility for the electric vehicles on their fleet.

viii. Public health

Integrated Transport and Health Impact Model (ITHIM): Since 2015, Fresno COG has been working with Dr. Neil Maizlish, the developer of ITHIM California models and formerly epidemiologist at the State Public Health Department, on developing a Fresno COG ITHIM model. The ITHIM model can estimate the health benefits generated from increased physical activities such as biking and walking. It also measures the fatality/injuries from transportation activities. The Fresno COG ITHIM model is completed and ready for application in the 2018 RTP/SCS.

Fresno County Health Improvement Partnership (FCHIP): The FCHIP is a region-wide community effort to try to improve the health conditions in the Fresno region through collaboration, alignment and leveraged resources. It brings together leaders and professionals from health care, education, housing, business, law, community planning, transportation and other fields to build a cohesive Fresno County health improvement plan that is focused on achieving measurable improvements in public health in the region. Fresno COG is an active participant of the FCHIP effort, and has been working with the Fresno County Public Health Department closely on various projects.

ix. EJ Advisory Committee

In the spring of 2016, the Environmental Justice Advisory Committee was approved by Fresno COG Policy Board. This is a standing committee that reports directly to the Transportation Technical Committee (TTC) on environmental justice issues. In the past, the Environmental Justice Task Force was formed only during the early stages of the RTP to serve in an advisory fashion for
development of the Environmental Justice Plan, as is common practice amongst MPOs. The EJ Advisory Committee has a representative at the TTC, and the TTC’s recommendation on the environmental justice issues would be referred to the Policy Advisory Committee and the Policy Board as needed. There are nine membership positions on the EJ Advisory Committee: local agency urban, east side cities rural, west side cities rural, 3 minority representatives (Hispanic, African American & Asian), 2 low income representatives, one senior, and one person with disability.

x. Target Recommendation

As is the case with each of the Valley MPOs, Fresno COG is working towards finalizing its model validation. Specific numerical targets will be submitted to the ARB in early 2017 as an addendum to this report. This target recommendation documentation will include target scenario and process discussion, land use & transportation strategies in the target scenario and a discussion of technical methodology applied in the target recommendation including off-model GHG quantification methodologies. Based on the information currently available, and the nearly finalized VMIP2, it is expected that Fresno COG will be able to recommend strengthened targets that are higher than the 9% and 11% reduction achieved in the first SCS.

B. Kern Council of Governments

Kern COG has been implementing regional strategies identified in the adopted 2014 RTP/SCS to reduce GHG and passenger-related vehicle miles traveled (VMT). ARB staff concluded that the 2014 Kern COG RTP/SCS, if implemented, would meet the ARB Board-adopted reduction targets in both 2020 and 2035. In a technical evaluation of the Kern COG SCS, ARB staff identified areas in the plan development process that could be improved, such as updates to the travel demand model, methods, and data inputs. Kern COG has responded to this feedback by improving its modeling assumptions and analysis tools. The results and associated challenges can be found in the “Proposed Targets” section below. Kern is making good progress toward the current targets and is proposing new targets significantly higher than the existing targets based on improved, but still preliminary modeling. Kern COG will be providing updates to ARB the current range of targets by the end of February 2017.

i. Kern’s Technical Modeling Methodology Overview

Kern COG’s modeling methodology for calculating emissions uses a three-model process shown in Figure 1. This is the same process that was thoroughly evaluated and approved by ARB for SB 375 target demonstration in 2015.1 Kern’s models are updated every four years and are in the process of being updated for the 2018 RTP/SCS. Kern’s complete modeling methodology and updates documentation are made available on Kern COG’s website.2

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ii. Kern’s Unique Circumstances

It is important that ARB targets reflect each MPO’s unique characteristics. One size does not fit all for SB 375 target setting, and modeling methods and techniques need to be custom tuned to local situations. Kern COG agrees with ARB that each MPO receive a target based on the latest available modeling and assumptions for that MPO, and not a multi-MPO target as ARB adopted in 2011.

The San Joaquin Valley is located between the two largest regions in the state -- Bay Area and Southern California -- and has the greatest percentage of through County trips which are not counted using the SB 375 methodology. Even with all the through travel, Kern County has seen the second greatest reduction for an MPO in per capita VMT at minus 4.4%. During that time Caltrans reported observed total VMT in Kern increasing 57% from 14.3M to 22.5M miles traveled while population increased 38% from 537,000 to 872,000.

With only a small percentage of workers commuting outside the county, Kern is unlike most regions in the San Joaquin Valley. Two-thirds of Kern's population reside in metropolitan Bakersfield at the heart of the county, which only makes up 1/20th of the county’s geography. The metropolitan Bakersfield area has an ex-urban commute pattern to jobs in outlying resource areas within the MPO boundary. So, unlike other MPOs, the Kern model captures more of the full commute travel distance for more than 90% of households in the region.

This ex-urban commute pattern makes infill housing projects in downtown Bakersfield less effective at reducing VMT than might be seen in larger metropolitan areas with major employment and transit hubs downtown. This is because in Kern, downtown housing is further away from outlying resource job centers such as the renewable energy, agriculture processing and logistics industries. Still, infill housing is a moderately effective strategy in Kern because it reduces travel to shopping and recreation; just not as effective as in larger metropolitan areas. The Kern 2014 SCS included a unique strategy that addresses this issue by encouraging balanced future employment, shopping and housing -- especially in outlying communities closer to the numerous outlying jobs of the county.

Note that like other regions in the Valley, Kern is proposing changes to the target that not only reflect the latest planning assumptions, but changes and improvements to modeling that affect the base line. Four major changes in modeling have occurred since the 2014 RTP/SCS, and reflect recommendations by ARB staff as part of their Technical Evaluation of Kern COG 2014 SCS.

1) Revisions to ARB’s EMFAC Model – ARB periodically updates EMFAC to account for the latest state/national policy changes and to update local vehicle mix information affecting the vehicle fleet forecast. The model is used to estimate vehicle emissions for
both SB 375 and federal conformity. The new version is EMFAC 2014. Another update is just starting but will not be ready in time for the 2018 RTP/SCS.

2) Revisions to the Regional Growth Forecast – Kern’s base year forecast has been updated from 2010 to 2015, making it some of the most up-to-date modeling assumptions in the state.

3) Revisions to Auto Operating Cost (AOC) Assumptions – Methodology updated by the eight San Joaquin Valley MPOs in coordination with the Big Four MPOs to include tire, insurance and other costs.

4) Revisions to the Regional Travel Demand Model – The travel model was updated to include improved network, speed data, income balanced home/work trip distribution and improved auto operating costs. However, the model validation is preliminary and may be subject to changes as the model validation is refined.

These modeling changes do not affect Kern’s aggressive commitment to the strategies in the SCS, but merely update them to incorporate the latest planning assumptions and data. The changes do NOT alter strategy commitments in the 2014 Kern RTP/SCS.

iii. Kern SCS Progress, and Efforts Above and Beyond

SB 375 encourages MPOs to work with local jurisdictions to achieve state greenhouse gas reduction goals. Kern COG has collaborated with local agencies by encouraging land use and transportation decisions that minimize GHG emissions. In partnership with the MPO, member agencies and regional transit providers have pursued smart-growth land-use planning, transit system maintenance and upgrades, Greenhouse Gas Reduction Funds (GGRF) and Active Transportation Program (ATP) funds, as well as local alternative vehicle technology adoption. Kern COG plans to build upon these ongoing efforts in the upcoming 2018 RTP/SCS to continue encouraging sustainable communities. Examples of more than 45 success stories (included in Attachment D) clearly demonstrate how state visions and goals are realized on a local and regional level. The following section includes examples from the success stories.

2014 RTP/SCS

Many of the projects in the 2014 RTP/SCS have been completed or are in construction. These projects showcase Kern’s commitment to create vibrant neighborhoods and a sustainable future.
- **Kern Highway Projects Advancing Complete Street Strategies** – Thomas Roads Improvement Program (TRIP) includes: SR 58 Centennial Corridor; State Route (SR) 46 Segment 4A; SR 14 Segment 1; SR 58 Rosedale Highway; SR 178 & the Morning Drive Interchange; SR 99 Hosking Interchange; SR 178/24th Street Improvements. The projects include the following complete street facilities:
  - More than 21 miles of new bike lanes
  - More than 18 miles of new sidewalks
  - More than 120 new ADA curb cuts
  - Three new interchanges with ramp metering

TRIP is an example of just one program that is implementing Kern COG’s Complete Streets Study recommendations from 2012. Other programs include: the Metropolitan Bakersfield Traffic Impact Fee Program; County of Kern’s Land Division Ordinance and; private sector investment in active transportation projects in disadvantaged communities, such as Lost Hills.

- **Rail Transit**
  - Additional service and improvements: The San Joaquin Joint Powers Authority (SJJPA) added a seventh round-trip train per day to the Amtrak San Joaquins in 2016, which connect Bakersfield to Oakland/Sacramento.
  - The City of Bakersfield is expanding overnight parking availability at the Bakersfield Amtrak Station, including solar/electric vehicle charging using Proposition 1B bond funds.
  - Kern Transit is adding two electric buses that connect east Kern to the Metrolink station in Lancaster, providing service to L.A.’s Union Station.

- **Active Transportation Planning** - Kern COG is developing a countywide, collaborative Active Transportation Plan that is scheduled to be completed in 2017. The Plan will include an inventory of existing active transportation infrastructure, identify deficiencies in the system and prioritize new facilities that will

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### Kern’s 45 SCS Success Stories

1. City of Tehachapi General Plan (Form-Based Code, Transect Zone, Mobility Element, Town Form Element)
2. Infill Incentive – Lower Transportation Impact Fee Core Area
3. City of Taft General Plan – Sustainability Principles
4. City of Ridgecrest General Plan and Multi-Modal Circulation Element
5. General Plan Sewer Policy – Hook-up required for less than 6 acres
6. City of Bakersfield Required Lot Area Zoning Strategies
7. San Joaquin Valley Air District’s Indirect Source Review
8. City of Bakersfield Redevelopment Projects – Mill Creek and Baker Street
9. Transit Priority Areas in the Kern COG SCS
10. Metropolitan Bakersfield General Plan Centers Concept – Transit Priority & Strategic Employment Place Types
11. Commuter Rail Feasibility Study
12. Rideshare Program – Commute Kern
13. Three New Park and Ride Lots
14. GET Short-Term Service Plan (2012–2020)
15. GET X-92 Commuter Express bus service to Tejon Industrial Complex
16. Dial-A-Ride and Local Transportation Services
17. Kern County Bicycle Master Plan & Complete Streets Recommendations/City of Tehachapi Bicycle Master Plan
18. City of Bakersfield Bicycle Facilities
19. Westside Station Multi-modal Transit Center
20. Kern511 – Traveler Information System
21. San Joaquin Valley Vanpool Program (CalVans)
22. San Joaquin Valley Blueprint Integration Project
23. Caltrans Vehicle Detection System – State Route 43 Intersection Improvements and East Bakersfield Vehicle Detection Systems
24. California Highway Patrol’s Safety Corridors
25. Kern County Wind Farm Areas (Largest in U.S.)
26. Purchase of CNG Buses (80+ bus fleet)
27. The Electric Cab Company of Delano
28. City of Shafter Container Yard and Intermodal Rail Facility Expansion
29. Downtown Elementary School Expansion (Bakersfield)
30. Intersection Signalization/Synchronization
31. Traffic Control Devices
32. Kern Region Energy Action Plans (Kern REAP) and Kern Energy Watch Goal 3
33. Tejon Ranch Conservation and Land Use Agreement
34. Kern County Community Revitalization Program
35. Bakersfield High Speed Rail Station Area Plan
36. City of Bakersfield 4 New Downtown Infill Housing Projects
37. Bakersfield Bus Stop Improvements Collaboration
38. Cities of McFarland and Shafter – Conversion of transit fleet to electric vehicles
39. Golden Empire Transit – Purchase of 2 Electric Buses
40. Kern COG Active Transportation & Demand Management
41. Kern Active Transportation Plan
42. Lost Hills Wonderful Park and Communitywide Improvements
43. Kern Transit – Route Connection with Antelope Valley Transit Authority
44. Wasco Active Transportation Project
45. Taft Transit Center
improve system safety, connectivity and user convenience. Further, with financial assistance from both Golden Empire Transit District and the County of Kern’s Regional Transit, the active transportation/public transit interface will be examined to improve transit opportunities to active transportation users. These improvements will be included in the 2018 RTP/SCS.

Above and Beyond: Efficient and Equitable Development

- **General Plan Updates**: The City of Tehachapi completed the first form-based code general plan in the state in 2012, with significant development driven by the world’s largest renewable energy wind and solar fields. This general plan implements the 2014 RTP/SCS policy 29.1, which encourages form-based codes, transit-oriented place types and centers.

The cities of Taft and Ridgecrest have also completed general plan updates referencing the regional SCS principles for growth and providing a commitment to participate. In addition, all 12 of Kern’s local jurisdictions have now updated their general plan housing elements to be consistent with the SCS as well as their circulation elements to include multi-modal/complete-street circulation plans. The housing element updates were supported by the regional housing data book developed by Kern COG, and many of the circulation plan updates were funded by Kern COG’s technical assistance grant program.

In addition, the City of Bakersfield is scheduled to complete the High-Speed Rail Station Area Plan in 2017 and anticipates adopting a specific plan for the downtown area surrounding the station. The draft plan calls for diverting 8,500 housing units and balanced number of jobs from being built on the periphery of the city to a vibrant downtown station area that promotes active transportation and transit modes.

Kern County’s general plan update (now under way) is addressing farmland and habitat conservation planning efforts. The County is already requiring farmland preservation easements to offsets farmland lost to solar projects, and is also developing or implementing 29 habitat conservation plans and natural communities’ conservation plans. Just one of these efforts -- the Tejon Ranch Conservancy -- is the largest of its kind in the state, setting aside 375 square miles for habitat preservation, and is representative of the Kern region’s commitment to open space preservation.

Above and Beyond: Infrastructure Investment Consistent with the State’s Conservation, Development, and Health Goals

- **Affordable Housing and Sustainable Communities (AHSC) Program**: The AHSC program is a competitive, statewide funding source for housing and transportation projects that work toward reducing GHG. The program receives its budget from California’s Cap-and-Trade Program, one of the state’s major initiatives for reducing climate change impacts. AHSC awards projects that can demonstrate emissions reductions through active transportation improvements, increasing housing density, and/or encouraging alternative transportation options. To date, two projects in Kern (Bakersfield Mill Creek Senior Housing and the Wasco Farmworker Housing Project) have received AHSC funding as examples of how the State envisions new growth and sustainable developments. Kern COG found that both developments aligned with the 2014 RTP/SCS goals and policies.

- **Reduced Traffic Impact Fee Infill Incentive**: The joint City of Bakersfield, County of Kern, Metropolitan Bakersfield Transportation Impact Fee incentivizes residential and non-residential development projects in the core area of Bakersfield by reducing fees to half that of developing on the periphery of the city. Not only is this program in line with state
goals for infill but is promoting growth in the HSR station area prior to the system’s completion through Bakersfield. The City of Tehachapi has a similar incentive program for its core area.

Above and Beyond: Pricing Policies

- **Parking** - In 2016 the City of Bakersfield approved an increase in the parking cost at the city owned downtown parking structure, and downtown parking is being evaluated as part of the HSR Station Area Plan.

- **HOT Lanes** - New FastPass lanes on I-5 and SR 14 are planned to be extended through Santa Clarita towards Kern County. These corridors are used by more than 10,000 Kern commuters per day and will likely benefit vehicle occupancy in Kern as well as Southern California. Interestingly, not many people commute from Kern. Over 90% of Kern workers both live and work in Kern County and most make occasional trips to Southern California.

Above and Beyond: Transportation System Efficiency

- **Commuting Services**: Commuting accounts for a large share of VMT in Kern County. Kern COG is working to improve the mass transit experience and encourage ridership. Increasing the options and efficiency of alternative transportation is key to reducing single-passenger vehicle trips. According to the latest household travel survey and regional travel model, since 2005 single occupancy vehicles (SOV) are down 4.1% to 41.6%, compared to 49.5% in the Bay Area. Historically, van and carpools are the primary contributor to low SOV Kern COG and local transit providers are implementing projects and policies that offer commuters with more eco-friendly travel options.
  - Regional rail in Kern County includes the Amtrak San Joaquins which is seeking funding for capital improvements for an 8th round trip (FY 18-19).
  - Improving the consistency and reliability of public transit travel times encourages riders to take a bus over driving a personal vehicle. The Golden Empire Transit District (GET) has added three express bus corridors including the employer subsidized X-92 run, a daily commuter bus service, fueled by CNG, with an average annual ridership of 19,000 passengers. GET also operates 2 rapid bus corridors with 15 minute headways, and is in the process of upgrading them to electric Bus Rapid Transit (BRT) routes in Bakersfield through funding from multiple sources.
  - In 2015-16, the CommuteKern’s TDM Program was enhanced through an online multimodal trip planner and Guaranteed Ride Home program. CommuteKern initiated the development of a marketing plan to assist large employer groups with their Rule 9410 compliance with the San Joaquin Valley Air Pollution Control District while also maintaining the program’s website and social media platforms. The program has added 1,610 new members to the trip planning database and added 65 new vanpools in the past year. In addition, Rideshare Week attracted nearly 1,220 participants with more than half of them participating in ridesharing for the first time. Increasing the number of participants enrolled in carpool and vanpool allows for an immediate and long-lasting reduction of VMT and associated greenhouse gas emissions with a cost effectiveness of $56 per lb. and a reduction of up to 125,000 vehicle miles travelled that year.
  - Since 2014, the Kern region has been gradually installing High-Occupancy Vehicle (HOV) lane ramps and metering on all interchanges in Metropolitan Bakersfield to better control stop & go vehicle emissions during peak congestion on the
freeways while providing a greater incentive for vanpooling and carpooling. In addition, the 2014 RTP/SCS has identified funding for two HOV lane projects. Also, Southern California is extending its HOV/toll lanes closer to Kern County, which is anticipated to improve vehicle occupancy in Kern for those traveling to Southern California during peak periods.

- **Above and Beyond Sustainable Transportation Solutions:** Kern COG is implementing an aggressive plan to promote alternative technology vehicles in the 2018 RTP/SCS. Starting with the 2015-16 Overall Work Program, Kern COG is coordinating with local non-profit Project Clean Air and the San Joaquin Valley Electric Vehicle Partnership to find funding for 4,000 electric vehicle charging stations in Kern County by 2025. The program will leverage existing grant sources with emerging local funding from development mitigation and a new County oil & gas drilling permit fee ordinance. We are also increasing the region’s alternative fueling stations and working with the San Joaquin Valley Air Pollution Control District to address obstacles in implementing the Plug-in Electric Vehicle Readiness Plan. In 2016, the City of Shafter officials purchased four electric vans for their dial-a-ride system, making it the first fully electric municipal transit system in the state. In addition, GET is purchasing five electric buses for the BRT system, and Kern Regional Transit has partnered on a grant with Antelope Valley Transit to purchase electric buses that will serve as feeder buses between the Metrolink rail station in Lancaster and communities in East Kern.

- **Active Transportation Program (ATP)** – Kern COG and its members have been aggressive and successful with the highly competitive Active Transportation Program (ATP). That success is due in part to Kern COG requiring its member agencies to compete for statewide funds first, and then using unfunded projects from the same prioritized list to which regional share funds are applied. The City of Wasco has already successfully completed two projects from the first round of grants. Between ATP and AHSC, Kern County has already been awarded more than $50 million in state grants. These funds, combined with local private sector funding, are resulting in sustainable projects completed earlier than anticipated by the 2014 RTP/SCS. In addition, Kern COG has the highest percentage of funds going to active transportation projects in the state, at 7 percent of available funding.

**Co-benefits**

- **Benefitting Disadvantaged Communities** - There are numerous short- and long-term co-benefits associated with the ongoing projects and SCS policies in Kern County. According to CalEnviroScreen, the City of Bakersfield has the second highest number of disadvantaged census tracts in the State -- in the 95th percentile. In addition, Arvin, Buttonwillow, Lamont, Lost Hills, Delano, Greenfield, McFarland, Shafter, Wasco and Weedpatch rank among the most disadvantaged communities in California. Kern’s member agencies have been very aggressive and successful in applying new programs such as ATP and AHSC for these communities.

- **Making Healthier Communities** - According to the Robert Woods Johnson Foundation, Kern County ranks last in the state for weighted key health factors, with the lowest scores in health behaviors (weighted 30 percent, ranked 57th out of 57 counties); social & economic factors (40 percent, 54th); best scores in physical environment (10 percent, 45th) and; available clinical care (20 percent, 50th). Unfortunately, part of Kern’s success in competitive grant programs such as ATP, has been its disadvantaged region status. The

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region’s best score was in its physical environment, which measures air & water quality, housing and transit. This reflects our region’s low housing cost and the 80 percent improvement in air quality over the last 30 years—thanks to the most stringent regulations in nation. Health behaviors and social/economic factors need to remain a primary focus of our RTP/SCS -- areas where active transportation and goods movement projects play an important role. These two areas are the highest priority in Kern’s adopted RTP/SCS.

iv. Kern Target Recommendation

Balancing technical justification and accomplishments – As with any forecast, travel modeling forecasts beyond 5 years are a challenge. SB 375 provides for regular updates to the targets and modeling forecast using the latest planning assumptions. These updates provide important course corrections as progress is made toward the goals. Even with model limitations, Kern’s modeling passed one of the most rigorous and lengthy modeling evaluations performed by ARB. The resulting document was twice the size of the Kern COG 2014 SCS chapter to the 2014 RTP.

In addition to the technical justification, it is important to take into account the aggressive turn in the region towards more sustainable growth and transportation projects. Kern’s member agencies have 45 success stories demonstrating the region’s grass roots commitment toward meeting both the goals of SB 375 and federal Clean Air Act standards. It is these accomplishments that were the real intent behind SB 375. Things are clearly no longer business as usual in Kern. Balancing modeling results in light of the real world success stories is a key element to the success of SB 375.

Kern COG staff recommends that the targets be set for 2020 and 2035 consistent with the modeling provided in Attachment A and Table 5 below. The increase is based on Kern’s aggressive, successful implementation of the SCS to meet both state climate change goals and the federal health based criteria pollutant standards. Also included are adjustments of off-model reductions and preliminary validation. It is also important to note that early reductions have the greatest potential for combating the effects of climate change.

Table 5: Proposed 2020 & 2035 Percent Per Capita GHG Reduction Target for Kern

<table>
<thead>
<tr>
<th>Scenario</th>
<th>2020 Percent Per Capita GHG Reduction</th>
<th>2035 Percent Per Capita GHG Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current ARB Targets for Kern 2014 RTP/SCS</td>
<td>-5%</td>
<td>-10%</td>
</tr>
<tr>
<td>Proposed Targets for Kern 2018 RTP/SCS</td>
<td>-9 to -12%</td>
<td>-13 to -14%</td>
</tr>
</tbody>
</table>

Note: Values in this table are preliminary, subject to future model run updates.

C. Kings County Association of Governments

In its analysis of the 2014 Kings County RTP/SCS, ARB staff concluded that if implemented, it would meet the ARB Board adopted reduction targets in both 2020 and 2035. In a technical evaluation of the Kings County SCS, ARB staff identified areas in the plan development process that could be improved upon such as updates to the travel demand model and data inputs. KCAG
is responding to this feedback by improving its assumptions and analysis tools. For the next RTP update KCAG plans to continue to refine its travel demand model to better estimate trips and VMT in the region. The immediate and ongoing model improvement efforts include using the latest regional or local demographic data and using the 2010 Census, 2012 American Community Survey (ACS), and the 2012 California Household Travel Survey (CHTS) travel data for model recalibration and revalidation. These model improvements will increase the accuracy of estimates and forecasts of external trips, trip modes, distribution for internal and interregional travel, and vehicle speeds. These model improvements are still in the process of being completed and the updated model was not available for use in developing a target recommendation, but will be used in evaluating scenarios for the 2018 RTP/SCS process.

i. SCS Implementation, and Efforts Above and Beyond

KCAG has been collaborating with local agencies to ensure that the region is working toward the State’s 2030 and 2050 climate change goals by encouraging land use and transportation decisions that minimize greenhouse gas emissions. The adopted scenario within the 2014 RTP/SCS incorporated land use policies from recently updated general plans and transportation policies that were included in the Transit Development Plan. KCAG plans to build upon these ongoing efforts in the upcoming 2018 RTP/SCS.

Our member agencies and regional transit providers have already begun taking several proactive steps by implementing additional sustainability measures. These include the investment of alternative fuel vehicle fleet replacement and installation of charging stations; pursuing competitive grant funds to build active transportation projects to further incentivize the use of bicycle and pedestrian trips; enhanced existing transit service with additional routes of the regional bus transit system; an additional Amtrak San Joaquin’s round trip passenger train that will increase ridership from the Hanford station; consideration of smart growth strategies in local agency General Plan updates and in planning for new residential and commercial development that embrace complete streets transportation strategies.

In planning for the 2018 SCS, KCAG is dedicated to identifying additional measures that will reduce greenhouse gas emissions while simultaneously decreasing our vehicle miles traveled. These strategies include looking for opportunities that are financially sound and that fit into the context of our local communities.

2014 RTP/SCS

Many of the projects listed in the 2014 RTP/SCS under the preferred scenario have been successfully completed, or are currently in the process of implementation. In fact, transit projects included in the enhanced alternative scenario have also been implemented. The following projects highlight the efforts that Kings County is pursuing as part of the SCS implementation that clearly demonstrates how state visions and goals are realized on a local and regional level.

Transit

- KART Service improvements: Additional transit service and operational improvements were implemented for the Kings Area Rural Transit (KART) system as part of the 2014 RTP/SCS. An additional morning route for the Hanford to Avenal fixed route was added in 2014, an additional morning route was added to the Hanford to Corcoran fixed route, and a bus intelligence system was deployed that provides transit location and schedule information
through a mobile app to increase operational efficiency and increase ridership. In June of 2016 a new fixed route within the City of Lemoore was implemented. Existing fixed routes within the City of Hanford will be modified in early 2017 to accommodate service to a new commercial development and a new courthouse, which will also provide service to several environmental justice communities. As with all new transit services, they are being evaluated to determine if the services are cost effective and if any modifications are necessary. The Kings County Area Public Transit Agency (KCAPTA) is proposing to start a pilot Flex Route in Avenal that operates similar to a demand response system, but instead of picking up an individual at their home they would be directed to a general pickup location. This would allow residents to get to the neighboring City of Coalinga in Fresno County for college classes and medical appointments. The planned construction of a new transit hub within the City of Avenal will support these expanded transit services.

- **Transit Marketing Plan:** In September 2016, a KART Marketing Plan was adopted to increase transit ridership using measures that are actively being implemented.

- **Electric Buses and Infrastructure:** KCAPTA is constructing a new transit hub within the City of Avenal that will include solar panels and two public electric vehicle charging stations. Construction is expected to start in early 2017. Although most KART buses currently operate on CNG fuel, in an effort to convert transit buses to electric, an electric charging station at the bus maintenance facility will be constructed in 2019 to accommodate this planned conversion of the bus vehicle fleet, as funding becomes available.

**Intercity Rail**

- **Additional Trains:** The Amtrak San Joaquins inaugurated their 7th Daily Round-Trip on June 20, 2016. The additional daily round-trip train service is being added between Bakersfield and Oakland and deploying the “Early Morning” schedule, making it more convenient for passengers to travel between the Bay Area, San Joaquin Valley cities, and other destinations throughout California. This is the first expansion of train service on the San Joaquins in over 14 years. Providing increased frequency of service is essential to the continued growth of ridership and revenue for the San Joaquins. It is also a high priority to work with the State to secure the funding necessary for the capital improvements and the additional operating funds to enable the deployment of the 8th Daily Round Trip between Oakland and Bakersfield within the next three years. Initiating early San Joaquin trains mid-corridor and having the last San Joaquin trains end mid-corridor may result in substantial increases in ridership and revenue. By making this route a viable commuting alternative, congestion on major Valley roadways such as SR 99 or I-5 will decrease and bring down the levels of air pollution emitted through interregional passenger vehicle travel.

**Mobility Enhancements**

- **SR 198/12th Avenue:** The purpose of this project was to improve traffic operations and safety at an existing interchange on SR 198 at 12th Ave., a major north/south collector street within the City of Hanford. This interchange was previously a modified partial diamond configuration with ramps controlled by signals. The completed project modified the interchange to a partial cloverleaf configuration including a loop on-ramp. The project was completed and open to traffic in Spring of 2016.
• **SR 198/19th Avenue:** The SR 198/19th Ave. interchange project in the City of Lemoore provides route continuity, increases capacity, improves local access to the regional highway system, and improves safety on SR 198 by upgrading a segment of expressway to freeway between the SR 41/198 separation and the Lemoore Ave. interchange and eliminated two uncontrolled at-grade crossings within the project limits where accident rates are above the expected levels. The project included the conversion of an at-grade access to SR 198 at 19th Ave. to a partial cloverleaf interchange and was completed in 2015.

**Vanpools**

• **CalVans Growth:** In 2012, the California Vanpool Authority (CalVans) was established as a joint powers agency, of which KCAG is a member, and currently operates within 17 counties. CalVans is able to provide safe, affordable vans to eligible agricultural farmworkers traveling to the field and general vanpools for employment destinations and for students. CalVans' general and agricultural vanpools show a trend in growth over a 5 year period, and as a result, CalVans is planning to increase the number of available vans in its fleet. In FY 15-16 there were approximately 150 vanpools operating within Kings County with a reported 368,358 vanpool passengers that drove a total of 1.6 million miles annually; the expansion of CalVans has resulted in a significant amount of GHG emission reductions.

• **AHSC Grants:** The California Vanpool Authority (CalVans) was awarded a $3 million Affordable Housing and Sustainable Communities (AHSC) grant for the Agricultural Worker vanpool expansion project that would provide increased access to clean transportation vanpools for agricultural workers in the San Joaquin Valley’s disadvantaged communities. A total of 80 vehicles were purchased in 2015 using the award and are being placed into service.

• **AQIP Grants:** ARB has committed $3 million each year for 3 years in funding from the Air Quality Improvement Program’s (AQIP) Low Carbon Transportation allocation in support of additional vehicles for the agricultural worker vanpool program. The funds will be used to purchase zero-emission, plug-in hybrid, or hybrid passenger vans and installation of electric charging equipment at multiunit dwellings and other appropriate locations in disadvantaged communities, providing increased access for lower-income consumers to clean transportation.

**Active Transportation**

• **Cinnamon Drive Bicycle/Pedestrian Project:** Cinnamon Drive is a busy collector roadway that is a common route used to access schools, parks, and a major city community recreational facility. The area attracts all ages of pedestrians and bicycle riders that previously had no designated areas to travel on. This project constructed a Class 2 bicycle facility in the roadway and ADA compliant pedestrian facilities off the roadway. The project was completed in 2016.

• **Kettleman City:** The County of Kings was awarded Safe Routes to Schools grants for the unincorporated disadvantaged community of Kettleman City. The project involves improving pedestrian facilities through constructing new sidewalk and curb/gutters within a 2 block radius of Kettleman City Elementary School. Bicycle racks and a lighted in-ground crosswalk are also included in this project in order to increase the safety of the students. Construction on this project will begin soon and is expected to be completed by March of 2017.
• **Home Garden:** The County of Kings was awarded a Safe Routes to Schools grant for the unincorporated disadvantaged community of Home Garden. The completed project involved the construction of pedestrian and bicycle improvements along the central roadway of Garden Drive and Shaw Place. The improvements included new sidewalk curb/gutter and some drainage improvements to provide children with safe access to Gardenside Elementary School.

• **Hanford Active Transportation Plan:** The city recently adopted its Active Transportation Plan with a principal goal to provide the means to support bicycling and walking as an alternative mode of transportation for work, daily activities, and recreational trips. The Plan includes a prioritized list of bicycle and pedestrian projects on numerous streets and in close proximity to various local school sites. KCAG has programmed these projects in the Federal Transportation Improvement Program utilizing $500,000 in FY 2016-17 Congestion Mitigation and Air Quality funds.

• **Avenal Active Transportation Plan and Safe Routes to School Plan:** The City of Avenal adopted their Active Transportation Plan and Safe Routes to School Plan in December 2016. These plans are intended to promote Avenal to become a more sustainable community. The goals of the Active Transportation Plan and Safe Routes to School Plan are to 1) encourage Avenal residents to walk and bike more; 2) create a safer walking and biking environment that results in lower pedestrian- and bicyclist-related collision rates; and 3) reduce automobile use and consequently reduce air pollution.

• **Regional Active Transportation Plan:** KCAG is developing a countywide, collaborative Active Transportation Plan that is scheduled to be completed in early 2018. The Plan will include an inventory of existing active transportation infrastructure, identify deficiencies in the system and prioritize new facilities that will improve system safety, connectivity and user convenience.

**Electric Vehicle Infrastructure**

• **Local Agency Implementation:** KCAG supports the development of infrastructure for the use of alternative fuel vehicles in government and private business. Local agencies have applied for and received grant funds from the San Joaquin Valley Air Pollution Control District and Southern California Edison to purchase electric vehicles and install electric vehicle charging stations. The County of Kings will be installing 9 electric vehicle charging stations at the County Motor Pool for their electric vehicle fleet of which they will be purchasing 6 electric vehicles in FY 2016-17. The City of Hanford installed electric vehicle charging stations at two city locations with one that is open to the public, purchased 5 electric vehicles and will soon be purchasing more. The City of Corcoran purchased 2 electric vehicles in FY 2016-17 and participates in the HERO program that will enable property owners to finance electric vehicle charging infrastructure on their properties.

• **Regional Electric Vehicle Readiness Plan:** KCAG will be preparing a Regional Electric Vehicle Readiness Plan in FY 2017-18 to facilitate additional implementation of electric vehicle charging stations to encourage the continuing growth of electric vehicle use throughout the County.

**Efficient and Equitable Development**

• **City of Hanford General Plan Update:** The City of Hanford is currently undergoing the process of updating its General Plan. The draft 2035 Hanford General Plan released in July of 2016 includes many proactive smart growth strategies that encourage both compact and infill
development designed to minimize resource consumption and reduce automobile dependency. A lower growth rate is being projected and the average housing units per acre has increased resulting in increased densities. The Hanford General Plan directs growth toward walkable and mixed-use areas that are planned to integrate housing with regional transit, employment, service, and amenities. In addition, several new community design policies have been developed that propose to increase mixed use within residential zoning, and transit oriented development within the central business district and mixed use corridors. Two targeted transportation corridor planning areas have been identified that will be revitalized to accommodate a mix of nonresidential and residential uses. Four new growth areas have been established which will be guided by policies that will encourage higher density residential uses, decrease automobile dependency and allow more people to walk, bike, or take transit for daily trips by encouraging new growth within compact, walkable neighborhoods.

- **City of Lemoore General Plan Update:** The 2040 Lemoore General Plan update process recently got underway in November of 2016 with community meetings and focus group sessions designed to provide visioning for how the citizens want the city to develop in the future. It is assumed that the updated General Plan will continue and expand upon the many smart growth principles adopted within the current General Plan that were utilized in the 2014 RTP/SCS.

- **City of Avenal General Plan Update:** The City of Avenal received a Sustainable Communities Planning grant to develop a series of “Sustainability Implementation Programs” that will facilitate the implementation of the General Plan goals and policies and allow Avenal to become a more sustainable community. The Sustainability Implementation Programs include two planning documents, an Active Transportation Plan and a Safe Routes to School Plan. Adoption of the updated General Plan is scheduled for February of 2018.

- **Climate Action Plan (CAP):** The cities of Avenal and Hanford collaborated to develop a Regional Climate Action Plan (CAP) in 2014 that identifies voluntary, cost effective measures to reduce GHG emissions. It includes measures to encourage low carbon and alternative fuel vehicles, electric vehicle readiness, and employer-based transportation demand management. The CAP also includes performance criteria for transit ridership and infill and mixed use development. Elements of the CAP are being incorporated into the Avenal and Hanford General Plan updates.

- **Public Health:** KCAG, in collaboration with other Kings County organizations, is involved in the Kings Partnership for Prevention efforts to develop a County Nutrition Action Plan in a way to achieve health equity through climate action. The goals are to promote active transportation, prioritizing infill and transit-oriented development, encourage local food systems and healthy diets, and green the built environment to provide access to trees, parks, and open spaces. Surveys during the community needs assessment process identified the lack of transportation as a barrier to eating healthy foods, participating in active living, access to health care, and having a healthy environment. We hope to work together to identify transportation alternatives in order to remove these barriers to increase physical activity, improve health, and improve air quality.

ii. **Target Recommendation**
Despite the ongoing efforts in implementing measures in the 2014 RTP/SCS in support of SB 375, there exist outstanding variables beyond the control of KCAG that negatively affect the extent to which targets can expand beyond previously set targets. Specifically, these variables include:

- Transition to EMFAC2014 emissions model – testing with the latest version of the California emissions factor model required to be used suggests that it is calculating higher GHG levels in the future than were calculated with the previous EMFAC2011 version used.
- Impacts of automobile operating costs on vehicle miles of travel (VMT) and emissions – revised assumptions in the growth of fuel prices show that estimates for future years are considerably lower, and as a result there is an increase in VMT and GHG associated with the reduced cost of automobile operation.
- Impact of economic recovery on VMT and emissions – it is expected that economic recovery will occur at a faster rate than previously assumed in the 2014 RTP/SCS and an increase in employment will result in an increase in VMT and GHG.

As stated previously, the model improvements are still in the process of being completed and the updated model was not available for use in developing a target recommendation. Preliminary testing of the KCAG model used in the 2014 RTP/SCS effort by applying the EMFAC2014 emissions model and revisions to the auto operating costs assumptions shows that the GHG reductions will be less than the 12% achieved previously. However, given the efforts underway and those committed to above and beyond those previously identified in the 2014 RTP/SCS, reaching the previously achieved GHG reductions may be accomplished utilizing off-model adjustments to estimate GHG emissions reductions from strategies to which the travel model and land use model are not sensitive. These off-model adjustments would be based on evidence from studies and research which demonstrate the potential for GHG emissions reductions from several SCS strategies, including ride-sharing (i.e. carpool, vanpool), employer-based commute strategies, active transportation and complete streets, Intelligent Transportation System (ITS) deployment, electric vehicle purchase incentives, transit and rail, and eco-driving.

**KCAG recommends that the ARB establish an SB 375 target equivalent to the per capita GHG reductions previously achieved with the 2014 RTP/SCS at 5% for 2020 and 12% for 2035.**

### D. Madera County Transportation Commission

Development of the 2014 Madera County RTP/SCS was a collective effort, which required meaningful collaboration with each of the three local governments (cities of Chowchilla and Madera and Madera County), State and federal agencies, local tribal governments, community interest groups, and public stakeholders to identify land-use and transportation opportunities within the region that will address the needs of the growing population and ensure compliance with State and federal requirements. As a result of this effort, MCTC developed varying planning scenarios built-up from a status quo planning assumption. Each scenario introduced new planning principles and parameters meant to address the intent of SB 375 and reduce GHG generated in Madera County. At all levels of outreach, the most aggressive planning scenario developed was received amiably and recommended to be forwarded in the process. This aggressive planning scenario would be selected as the preferred planning scenario of the 2014 RTP/SCS. The preferred scenario calls for a variety of shifts in planning parameters including, but not limited to, a demographic shift in housing share, changes to lot sizes, shift in employment share, enhancements to public transit systems, and enhancement of the non-motorized transportation...
network. These principles are most heavily emphasized in Madera County’s established or planned urban cores and less emphasized in rural areas, which lack adequate population densities.

The parameters of the preferred RTP/SCS Scenario were utilized in the then newly developed Madera County Transportation Model. Unfortunately, the technical results of the modeling effort yielded GHG reduction results opposite of their anticipated outcome. The 2014 Madera County RTP/SCS was adopted with emission results that did not meet the GHG budgets established by the California Air Resources Board (ARB).

Since the adoption of the 2014 RTP/SCS, MCTC staff has worked to amend the adopted plan and create an SCS Scenario which will meet the GHG reduction goals set in place by SB 375. This undertaking began with a thorough analysis of the technical tools utilized in the development of the RTP/SCS and requisite enhancement or upgrading of these tools to receive more accurate results.

This analysis concluded the tools used by MCTC for the RTP/SCS to account for GHG emissions could be enhanced to greatly improve accuracy in the reporting of emission results, particularly the newly developed forecasting model. An extensive effort was commenced to review the input data used in the transportation model. The bulk of the MCTC staff review focused on how land use and socioeconomic data (SED) was allocated in the model’s base years (2010) and SB 375 comparison years (2005, 2020 and 2035 respectively), the composition of significant roadway network utilized in the model, and the boundaries of traffic analysis zones (TAZs) used to distinguish individual geographic areas in Madera County.

A great amount of effort has gone into making sure MCTC possesses the most adequate and accurate planning tools possible for utilization in the RTP/SCS development process. The results of this effort have proven beneficial. All changes made to the model have been scrutinized internally and by professional traffic engineering and modeling consultants to make sure that nothing implemented is inconsistent with the established and adopted measures prescribed in the preferred 2014 RTP/SCS scenario.

As a result, MCTC is able to amend the existing 2014 RTP/SCS to show compliance with the GHG reduction targets established through SB 375. Recommendations for the current SB 375 GHG reduction target setting will be based upon the 2014 RTP/SCS Amendment work MCTC has been engaged in.

i. 2014 Madera County RTP/SCS GHG Targets

In 2010, the California Air Resources Board (ARB) issued a 5% and 10% Green House Gas (GHG) reduction target to each of the eight San Joaquin Valley Metropolitan Planning Organizations. ARB agreed that the targets would be applicable to each MPO independently of other Valley MPOs. The targets included a percentage reduction of per capita greenhouse gas emissions from 2005 of 5 percent by the year 2020 and a reduction in GHG emissions of 10 percent by the year 2035. Developing the SCS requires meaningful collaboration with each of the local agencies, as well as stakeholders to identify land use and transportation planning opportunities around the region that will address the needs of the growing population and ensure compliance with State and federal requirements.

ii. A Preferred Scenario for the Madera Region
The 2014 RTP/SCS Preferred Scenario details how the region will reduce GHG to state mandated levels over time. MCTC approached the SCS development as an opportunity to enhance integration of transportation, land use and the environment in the Madera region.

MCTC began with the land use modelling process developed under the San Joaquin Valley Blueprint process using UPLAN software. Several land use scenarios were developed ranging from status quo to a hybrid of moderate change principles from the Blueprint process.

Using the Blueprint as the foundation for scenario development, MCTC coordinated with the cities and County staffs, as well as stakeholders to ensure a realistic and implantable scenario was developed. Four distinct scenarios were developed in the Blueprint process: Status Quo, Low Change, Moderate Change and High Change.

The parameters of the Blueprint Scenarios examined demographic shifts in housing share, changes in lot size, persons and employment per household, demographic shift in employment share, changes in employment intensities, spatial shifts in jobs and household’s ratio, enhancements to the transportation system, changes in local General Plans, new infill considerations and demand characterizations. The scenarios developed were:

- **Status Quo** - No meaningful change. Consistent growth pattern based on historical trends.
- **Low Change** – Reflective of the Blueprint Low Change Scenario for the Madera Region. Applies Low Change Parameters to be used throughout the entire Madera Region with a highlight on enhancing transit.
- **Hybrid Change** – This scenario utilized Moderate Change Blueprint parameters in the most urban areas of Madera County (City of Madera and the South East County Growth Area). In the remainder for the region, Blueprint Low Change Scenario parameters were again applied. This was the most aggressive scenario developed for the 2014 RTP/SCS. Even greater enhancements to the transit system are called for in this scenario as well as higher density housing shifts in appropriate urban Areas, greater levels of infill development and shifts in socio-economic factors.

### iii. Sustainable Communities Strategy Outreach

The 2014 RTP/SCS Preferred Scenario was developed in collaboration with a large and diverse group of stakeholders. Throughout the development of the plan numerous workshops, roundtables and public hearings were held with the intent of allowing anyone who wanted to participate and contribute to the planning process to have ample opportunity to do so. Online communication also played a vital role in this plan development where it had not before.

MCTC held two series of public workshops in the various communities in the Madera Region. In total, eight public workshops were conducted, three of which were focused on environmental justice communities specifically.

Five roundtable committee meetings were held in the development of the plan. These roundtable meetings were attended by a wide variety of stakeholders including members of the public, elected officials, local agency staffs, state agency staff, community group organizers, economic development staff, farmland and farming representatives, health officials and environmental advocates.
A web survey tool was developed to gather input on developments of the plan. This tool was valuable in its opening a new door for participation not often experienced in the Madera region. The tool could ask questions in English or Spanish about different features of the 2014 RTP/SCS. The feedback mechanism was simple, it gauged how well the different ideas in the scenarios resonated with those who live, worked or travelled through the Madera Region. The tool was able to be used by 300 English speakers and 100 Spanish speakers.

Upon being presented with information regarding the SCS scenario development process and receiving meaningful commentary from outreach activities, MCTC was able to begin developing scenarios.

The selected preferred SCS scenario was met with approval from all stakeholders and voted to be forwarded for the final plan by the roundtable committee. The most aggressive planning scenario, the Hybrid Scenario, was preferred. The MCTC Policy Board approved the Hybrid Scenario for advancement as the preferred scenario for the 2014 RTP/SCS development.

iv. Off-Model Transportation Strategies

MCTC believes it has improved the technical capability of the transportation model to convey meaningful emission results based on adopted planning principles of the preferred 2014 RTP/SCS scenario; however new or previously unutilized tools also exist and are being implemented by MCTC staff for the 2014 RTP/SCS Amendment and 2018 RTP/SCS development process. As a result of legislation such as The Global Warming Solutions Act of 2006 and SB 375, great emphasis has been placed on establishing a variety of means to meet broad GHG emission reduction goals. As they pertain to transportation, not all of these measures are able to be accounted for in the Madera County Transportation Model. These strategies, as they relate to the RTP/SCS development process, are referred to as Off-Model strategies. MCTC believes it is very important to account for transportation investments capable of reducing GHG emissions that are not able to be accounted for in the Madera County Transportation Model.

v. Planning for Climate Change

The City of Madera Climate Action Plan (CAP), dated August 2015, was adopted by the City Council in September, 2015. It estimates GHG reductions from dozens of strategies and measures, including several transportation measures, four of which reduce vehicle miles traveled (VMT). As discussed below, three of these strategies represent VMT reductions that are not captured by the MCTC model because they represent local incentives for use of alternatives to driving.

The CAP first forecasts a “business as usual” (BAU) scenario for GHG emissions in two horizon years, 2020 and 2030. The year 2020 was selected for the forecast in order to maintain consistency with the AB 32 target year. The year 2030 was selected to maintain consistency with the City of Madera General Plan horizon year and to support California’s larger effort to reduce statewide emissions under Executive Orders S-3-05 and B-30-15.

The forecast is based on projected growth trends in population, jobs, and VMT. The forecast relies on population and job projections provided by the City and VMT projections provided by Fehr & Peers using the MCTC travel model. The forecast is based on the assumption that the number of drivers, electricity and natural gas consumption, solid waste tonnage, water usage, and
wastewater generation will increase over time in proportion to the growth in population, jobs, and VMT.

As noted, among other GHG reductions strategies, the CAP describes four transportation mode shift strategies to reduce per capita VMT, and identifies associated VMT reductions in the City by 2020. All of these reductions represent reductions in VMT for trips that begin or end in the City of Madera from a baseline estimate from MCTC 2020 model runs. The next section describes the transportation reduction strategies and the associated VMT reduction factors applied in the 2020 analysis. MCTC has been working to further project the results forecasted in the Madera CAP to applicable to later years such as 2035.

**vi. Vanpooling**

Vanpooling is projected to experience robust growth through cooperative efforts between Madera County governmental agencies, employers, and the CalVans Program. CalVans is sponsored by the California Vanpool Authority, a joint cooperative comprised of twelve California counties, and includes nearly 400 vanpools tailored to commuters/farm workers. Increased use of vouchers or subsidized trips is highly promoted by CalVans and is anticipated to incentivize County riders.

A reduction of 8,358 daily VMT from vanpooling is projected by 2020 based on recent historical growth trends. This projection assumes a total of 45 vans carrying 492 passengers per day. Vanpools operate six days per week traveling approximately 20 miles per round trip. Net VMT reduction calculations for vanpooling considered single-occupancy vehicle trips that would be made without vanpooling and vanpool-generated VMT including the number of miles participants drive to their vanpool pickup point. Eighty percent of CalVans participants are picked up directly at their homes while 20 percent drive less than three miles to a pick-up point. Projections for 2035 vanpooling ridership are expected to continue to see rising ridership.

The 2010 CAPCOA study cites a VMT reduction range of 2% to 20% from vanpooling (“TRT-11 Provide Employer-Sponsored Vanpool/Shuttle”). For comparative purposes, the CAPCOA study methodology for vanpooling results in a daily VMT reduction of 12,883 to 64,416 at a 2% and 10% employer participation rate, respectively. Implementation of successful voucher programs under consideration in Madera County would be expected to result in even higher VMT reductions.

**vii. Ridesharing**

Ridesharing is projected to grow through coordinated efforts with Valleyrides, a program sponsored by the Fresno Council of Governments. The 2010 CAPCOA study cites a ridesharing range of effectiveness of 1% to 15% commute VMT reduction and like reductions in GHG emissions (“TRT-3 Provide Ride-Sharing Programs”).

**viii. Active Transportation**

MCTC is currently developing a comprehensive Active Transportation Plan for the Madera Region. This plan will identify needs and where gaps can be feasible and most effectively filled in the non-motorized network. Improving health, improved access to transit and alternative modes, improved safety and improved mobility of disabled are the key areas of focus for implantation with
a lateral goal of reducing GHG in the region. The Plan is expected to be completed in the summer of 2017 and will directly apply to the greater planning effort of the 2018 RTP/SCS.

ix. Additional Considerations

Madera County is in the unique position of having been the link of the future California High Speed Rail System and the existing National Amtrak System. The pieces are already moving to see this connection become as successful as possible for local, state, national travelers as well as the many international travelers who access Yosemite National Park and the Sierra National Forrest each year. Options to achieve an array of lateral benefits to health, travel efficiency and economy are being considered including planning of a robust transit-orientated-development around the station and improving multi-modal regional access between the station and college campuses and urban cores. Additionally, MCTC and the Madera Region work closely with our partners to ensure the continued expansion of the San Joaquin Amtrak system to provide better commuter access from the Valley to Sacramento.

Installation of new electric vehicle charging stations has been taking place at an increasingly rapid rate. Corralling the data from these charging units and better understanding their benefits for the purpose of maximizing their effective use will be a new feature implemented into future transportation planning regarding Sustainable Communities in the Madera Region.

An additional measure to consider the existing technical tools will not be able to adequately account for is implementation of transit rider incentives with vouchers. New programs are expected to result in further decreases in single-occupancy vehicle usage and GHG and VMT reductions. Proposed transit improvements, including bus stop shelters, benches, and amenities; and installation of park-and-ride lots also will provide synergistic or complementary effects to transit service expansions.

It is worth noting that there are also numerous programs in the Madera region that will serve to reduce per capita GHG emissions without affecting VMT. These include City of Madera CAP strategies to improve traffic flow (reducing idling emissions) and to increase use of low-carbon fuels. As noted, there are also numerous projects incentivizing the use of emission-free electric vehicles, e.g. through provision of public charging stations.

x. Setting a Higher Target

Currently MCTC has not been able to deeply test the newest tools available in order to gauge an appropriate new GHG reduction target. The work that has been done with the 2014 RTP/SCS including the effort made towards amending the plan to be SB 375 compliant have yielded positive results towards meeting the common goal of reducing GHG emissions. MCTC is confident it can develop a plan in the 2018 RTP/SCS which will surpass the existing targets of 5% per capita in 2020 and 10% in 2035 and would recommend the ARB increase these targets to 10 percent in 2020, and between 15-20 percent in 2035. These values are subject to adjustment, as model validation is completed.

E. Merced County Association of Governments

In response to challenges in meeting targets established for the County of Merced during the 2014 RTP development process, a Steering Committee of community organizations and stakeholders
was established to address the issue. The Steering Committee developed an outreach strategy, a survey tool, performance measures, programs, and policies to achieve the additional GHG reductions.

The hard work of the Steering Committee paid off in a recommendation to amend the 2014 RTP to meet the target reductions in the form of a SCS—rather than submitting an APS. The 2014 RTP Amendment was adopted by the MCAG Governing Board in May 2016 and achieves the reductions via:

- More Compact Growth and Infill Development
- Aggressive Transit Expansion, Express Transit, and Fare Reduction Strategies
- Substantial Increases in Bicycle and Pedestrian Infrastructure Investment
- Subsidies and Incentives for Alternative Fuel Programs and Electric/Zero Emission Vehicles
- Increases in Passenger Rail Service
- Enhanced TDM Programs (Commute Connection) through Online Multimodal Trip Planner Website
- Additional Funding Investments from CMAQ and Cap and Trade (LCTOP)

Building off the reductions achieved in the May 2016 RTP Amendment, the Merced County region is aggressively moving forward in the development and implementation of strategies to reduce VMT, enhance transportation mobility options, improve transportation system safety and efficiency, promote equitable and efficient land uses, and encourage co-benefits such as public health, clean air, vibrant neighborhoods and a sustainable future.

i. Tools to Support More Efficient and More Equitable Development

Infill Development and Land Conservation

- In May 2016, the MCAG Governing Board approved the 2014 RTP/SCS Amendment One. The amended RTP includes a Sustainable Communities Strategy that promotes a higher rate of compact growth than the previous Alternative Planning Strategy—approximately 9 units per acre of new growth instead of 7.4
- MCAG is developing a Sustainable Planning & Infrastructure Grant Program to provide incentives for Transit-Oriented Development and Infill Development
- MCAG will mitigate at a 1:1 ratio any loss of farmland or natural lands due to projects funded by MCAG

Equity

- The Sustainable Planning & Infrastructure Grant Program will provide flexibility for selected projects to be community-specific and context-sensitive. One size does not fit all—projects will reflect individual community and neighborhood needs and preferences.
- MCAG is developing a regional Complete Streets Program to improve mobility options and transportation safety in Merced County and its municipalities, including disadvantaged communities and neighborhoods.

ii. Infrastructure Investment that is Consistent with the State’s Conservation, Development and Health Goals

Performance Measures and Targets
MCAG is updating its Project Selection Policy & Criteria as part of the 2018 RTP development process. As part of this planning effort, MCAG will explore the development and adoption of project performance measures and targets to inform the selection of transportation projects.

Transit

- MCAG will provide an efficient, effective and coordinated regional transit system that increases mobility for urban and rural populations, including the transit-dependent and disadvantaged communities.
  - Aggressive transit expansion to serve both urban and rural populations. Utilize funding from recently passed Countywide Transportation Sales Tax Measure to fund expansion of transit system and infrastructure.
  - Development of express transit routes.
  - Explore transit pass subsidies and fare-reduction strategies, particularly for disadvantaged communities, students, elderly, disable riders, and other transit-dependent residents.
    - Support the California High Speed Rail planning process
    - Partner with local jurisdictions to improve bicycle and pedestrian connectivity to existing transit options (The Bus, YARTS, Amtrak, and START).
    - Support incentives and programs that promote increases in passenger rail service.

Active Transportation

- MCAG is committed to developing and implementing a regional transportation system for bicycle and pedestrians.
  - As part of the 2018 RTP planning process, MCAG is coordinating with local municipalities and community advocacy groups to develop a regional Bicycle and Pedestrian Program.
  - Through the recently passed Countywide Transportation Sales Tax Measure, MCAG will develop and promote a Safe Routes to School Program as well as additional alternative transportation/mobility choice programs.
  - MCAG will aggressively pursue state and regional funding opportunities to provide a significant increase in investment in bicycle and pedestrian infrastructure.

Shared Mobility

- MCAG is exploring shared mobility options to both increase mobility choice and to address first-last mile connection challenges in rural and disadvantaged communities.
- Bike share, ride share, and car share.
- Public-Private Partnerships.

Green Construction Practices

- MCAG is committed to working with our local, state and federal partners on exploring ways to identify and implement sustainable practices for transportation infrastructure and capital projects.

Equity

- In partnership with County Health Providers and Social Equity Advocates, MCAG is conducting a County-wide needs and opportunities assessment. The assessment will identify and catalog health indicators, housing needs, transportation and mobility infrastructure, and access to basic services necessary to ensure the health and safety of Merced County residents. The completed County-wide Needs and Opportunities Assessment will be used to inform future transportation and infrastructure investment needs in Merced County and its municipalities, including disadvantaged communities and neighborhoods.
iii. Transportation System Efficiency

**Commute Trips**
- Support and expand existing Commute Connection TDM program via online multimodal trip planner website and enhanced marketing/outreach program.
- Support the Valley Air District Rule 9410 implementation efforts as part of the Commute Connection TDM program.
- Substantially increase vanpooling through addition of CALVANS program.
- Through the recently passed Countywide Transportation Sales Tax Measure, MCAG will develop and promote incentives programs aimed at increasing ridesharing and vanpools.

**Eco-Driving**
- Build upon recent MCAG/CivicSpark Transportation and Climate Activities study to identify and implement Alternative Fuel and Electric Vehicles/Infrastructure strategies in Merced County.
- Support and implement Valley Air District ZEV and autonomous vehicles programs.

**Equity**
- MCAG, along with the seven other MPOs of the San Joaquin Valley and the Institute of Transportation Studies at UC Davis, will conduct a comprehensive assessment of transit needs in the rural, primarily disadvantaged areas of the eight-county region. The intent is to engage stakeholders in developing new, innovative, and technology driven alternatives for effectively meeting the mobility needs of our most disenfranchised residents.

iv. Target Setting – MCAG 2014 RTP/SCS Amendment #1 – May 2016

Building off the reductions achieved in the May 2016 RTP Amendment, the Merced County region is aggressively moving forward in the development and implementation of strategies to reduce VMT and GHG. However, as noted throughout this report, there continue to exist outstanding variables beyond the control of MCAG that negatively affect the extent to which targets can expand. As such, MCAG’s target recommendation for the 2018 RTP/SCS is to match the per capita GHG reductions achieved through the May 2016 RTP Amendment:

- 2020 Target -10.1%
- 2035 Target -12.7%

F. San Joaquin Council of Governments

ARB staff concluded that the 2014 San Joaquin Council of Governments (SJCOG) RTP/SCS, if implemented, would meet the ARB Board adopted reduction targets in both 2020 and 2035. In a technical evaluation of the SJCOG SCS, ARB staff identified areas in the plan development process that could be improved upon such as updates to the travel demand model and data inputs. SJCOG has responded to this feedback by improving its assumptions and analysis tools, and by finding additional projects and programs to pursue in the spirit of SB 375.

i. Individual Circumstances

SJCOG made use of the VMIP model during the preparation of the 2014 RTP/SCS. SJCOG’s modeling efforts are combined with StanCOG and MCAG, as part of a “Three-County Model.”
This model made use of the best travel behavior data available at the time of its development in 2010, including the 2000 US Census. Following the completion of the 2014 RTP/SCS, ARB prepared a sensitivity analysis which examined the impacts of more recent travel survey data on the model output, such as the 2010 Census, American Community Survey, and the California Household Travel Survey. This sensitivity analysis kept all other model inputs unchanged (such as land use, network characteristics, and socioeconomic data), in order to isolate the effect of the updated travel survey and census data on VMT and GHG results.

The ARB sensitivity analysis found that the VMT per capita reduction from the year 2005 to 2035 was 15.7 percent using the updated travel survey and census data, as compared to the 26.9 percent reduction identified in the 2014 RTP/SCS. This represents over a 40 percent difference when using up-to-date travel survey and census data. Even with this level of VMT difference, SJCOG would still exceed the GHG emissions targets of 5 percent by 2020 and 10 percent 2035 for the 2014 RTP/SCS. However, given the results of the ARB sensitivity analysis, ARB recommended that SJCOG use the most current data available in future SB 375 Target Setting and RTP/SCS efforts. SJCOG has followed through on this feedback through the implementation of the VMIP2 model, and through further quality control of model input data.

Though the GHG reduction numbers calculated as part of the 2014 RTP/SCS were accurate given the information available at the time, it is clear that with up-to-date travel survey and census data, the same model inputs will yield smaller GHG reduction numbers. Smaller GHG reduction numbers would not represent backsliding, as smaller values would simply be a more accurate representation of what was previously achieved in the 2014 RTP/SCS. As such, SJCOG anticipates that the GHG reduction levels achieved as part of the 2014 RTP/SCS will be more in line with the reductions observed in the ARB sensitivity analysis, and will fall within a range of 12-15 percent when using VMIP2. SJCOG is working to calculate what this precise value is, as it will establish a baseline for what the 2014 RTP/SCS was able to achieve. SJCOG will confirm this number upon completion of the VMIP2 model validation, which is currently in progress.

ii. 2014 RTP/SCS Implementation

SB 375 encourages MPOs to work with local jurisdictions in order to achieve greenhouse gas reductions required by state law. SJCOG has been collaborating with local agencies to ensure that the region is working toward the State’s 2030 and 2050 climate change goals by encouraging land use and transportation decisions that minimize greenhouse gas emissions. In partnership with the MPO, member agencies and regional transit providers have pursued smart growth land use planning, transit system maintenance and upgrades, GGRF and ATP funds, and alternative vehicle adoption.

SJCOG plans to build upon these ongoing efforts in the upcoming 2018 RTP/SCS in order to continue facilitating the growth of sustainable communities. Examples of such efforts clearly demonstrate how State visions and goals are realized on a local and regional level.

Many of the projects listed in the 2014 RTP/SCS have been successfully completed or are currently in the process of construction. These projects showcase the efforts that San Joaquin County is putting toward creating vibrant neighborhoods and a sustainable future.

- **Mainline Highways:**
  - SR 99 Manteca Widening: The reconstruction of Lathrop Road interchange added sidewalks to the existing infrastructure to enhance the safety of crossing
pedestrians. On Main Street, Class II Bicycle Lanes and sidewalks were added to encourage active transportation and alternative travel modes.

- SR 99 South Stockton widening: A new Park and Ride Lot was added at the Mariposa Road interchange. Pedestrian and bicycle facilities were added at the new Mariposa Road and Golden Gate Avenue interchanges, in addition to the new MLK Jr. Blvd and Main St. overcrossings.
- SR 4 Crosstown Freeway Extension: A new freeway structure was built to remove truck traffic going from the highly disadvantaged community of Boggs Tract to the Port of Stockton. Improved air quality, reduced congestion and traffic, and better public health are some of the benefits that the Boggs Tract neighborhood received through this project.
- The Boggs Tract neighborhood benefitted from this project through improved air quality and reduced congestion and traffic.

• Interchanges:
  - SR 120/Union Road: The City of Manteca is currently designing this project to reduce costs and waste by reusing the existing overpass structure and modifying it into a Divergent Diamond interchange configuration, the first of its kind in California. Reusing the existing structure decreases greenhouse gas emissions through avoiding having to demolish and recycle the concrete of the old structure, in addition to decreasing the amount of new concrete needed. The design will include a fully separated bicycle and pedestrian undercrossing and bridge to improve the safety and convenience for those traveling on foot or by bicycle.

• Regional Roadways
  - Lockeford Street Improvements: Lodi had previously planned to widen Lockeford Street from two to four lanes, but the city will instead widen the street to add a center two-way left turn lane, Class II bicycle lanes, and sidewalks. This project is a prime example of how cities in the San Joaquin County are prioritizing active transportation infrastructure and designing roadways with new goals in mind. Construction will start in FY 17/18.
  - Hammer Lane Phase III Widening: Stockton is widening a bottleneck segment of Hammer Lane from four to six lanes; this project will be complete in Fall 2017. This widening project will include adding sidewalks and filling a gap in their bicycle network by adding Class II bicycle lanes. The widening will help to improve the time performance and reliability for SJRTD’s Route 43 Metro Express BRT route.
  - Thornton Road Widening: Stockton is widening a bottleneck segment of Thornton Road from two to four lanes and adding sidewalks. The original plan was to widen to six lanes; however, using SJCOG’s traffic model the City decided the full widening was unnecessary and instead will use the space to install the first buffered green painted bicycle lanes in San Joaquin County. This will provide connectivity between two Class I Bicycle Paths to activity centers like schools, retail stores, and SJRTD’s Hammer Triangle Transfer Station. This project is scheduled for completion by Fall 2017.
  - Tracy Eleventh Street Bridge Replacement: An 80 year old bridge is being replaced with a new structure that will include wide pedestrian-friendly sidewalks and 8-foot wide Class II Bicycle Lanes.

• Maintenance Facilities:
SJRTD Regional Transportation Center Maintenance Facility: Construction began in March 2014 and was completed in Fall 2015. The Regional Transportation Center (RTC) replaced an aging and overcrowded facility originally designed for a fleet of 50 buses. The RTC will improve the operational efficiency and safety of RTD, and allows for the necessary infrastructure to expand capacity and services. Increased services will lead to more ridership on the regional public transit network.

ACE Rail Maintenance Facility: The state of the art LEED-Silver facility opened in 2014, and will allow for future ACE expansion. The facility is currently used to service and maintain the commuter trains that take daily trips from Stockton to Santa Clara, but the potential for rail service expansion may lead to increased commuters taking rail and less single-occupancy vehicles on the road.

**Rail Transit:**
- **ACEforward:** This expansion plan calls for 10 trains to San Jose and a potential direct connection to BART in Livermore. The Draft EIR is being released in Winter 2016.
- **Additional Service and Improvements:** SJJPA is coordinating with CalSTA to negotiate with Union Pacific to allow for additional trains from Fresno to Sacramento during the early morning commuter service. There are currently only two trains a day between Sacramento and Bakersfield that run at times that are not suitable for commuter service. By making this route a viable commuting alternative, congestion on major Valley roadways such as SR 99 or I5 will decrease and bring down the levels of air pollution emitted through passenger vehicle travel. SJCOG, as part of the Central Valley Rail Working Group, testified to the Senate, Assembly, and High Speed Rail Authority to advocate for near-term rail improvements between Merced and Sacramento, between Sacramento and San Jose, and Stockton and San Jose. As a result, the High Speed Rail Authority altered their 2016 Business Plan to include the connection to Merced as part of the initial Operating Segment of HSR, and committed to working with the SJJPA and SJRRC to advance the environmental review for improvements between Merced and Sacramento.
- **Grants Awarded:** ACE received a TIRCP grant for lengthened station platforms and new Tier IV low emission locomotives to allow for future expansion.

**Complete Streets:**
- **South Stockton Sidewalks Phase 2:** The County is adding sidewalks on three streets in a severely disadvantaged community in South Stockton; this project is being funded in part by CMAQ funds.
- **Cherokee Road Improvements:** The County is adding sidewalks on Cherokee Road in a severely disadvantaged community in East Stockton as part of a roadway reconstruction project; this project is also being funded in part by CMAQ funds.
- **Weber Avenue Beautification Phase 2:** Completed in 2015, this three-block road diet project added a center landscaped median, wide sidewalks with bulb outs and landscaping, benches, bicycle racks, street lighting, and street trees. This has led to increased commercial activity and events in the downtown area, which is tied with increased foot traffic and improved safety.
- **Harrison Elementary SRTS:** This project will add sidewalks and a crosswalk near a school in a severely disadvantaged community, providing safer access to and
from school for children that walk every day in the neighborhood. The City of Stockton will begin construction on this project soon.

- SJCOG is coordinating with the California Bicycle Coalition, Amador County Transportation Commission, Calaveras Council of Governments, Alpine County Local Transportation Commission, and Tuolumne County Transportation Council on Caltrans Sustainable Transportation Planning grant for an interregional study of bicycle tourism and safety improvements.

### iii. Efforts Above and Beyond the 2014 RTP/SCS

In addition to the continued delivery of the 2014 RTP/SCS in support of SB 375 mission, the San Joaquin County region is contributing positively with projects above and beyond those outlined in the 2014 RTP/SCS. Given the impacts of automobile operating costs and economic recovery on VMT and GHG levels, these efforts will be critical in allowing the region to be able to even match previously achieved GHG reduction levels. These efforts above and beyond are outlined below:

#### Above and Beyond: Efficient and Equitable Development

Changes to the built environment – such as increasing density, improving accessibility to transit, and increasing the diversity of land uses within developed areas – have been demonstrated through extensive research to be among the most significant and critical factors in achieving VMT reductions to a degree that is consistent with California’s longer-term GHG reduction goals (i.e. 2050 and beyond). SJCOG is committed to this goal, and has the following programs and projects under way, above and beyond those previously identified in the 2014 RTP/SCS:

- **General Plan Updates:** The City of Stockton is currently undergoing the process of updating its 2035 General Plan – Envision Stockton. The draft preliminary statement showcases a community that strives to be a hub for economic activity, higher education, improved public health, and cultural events by 2040. The Plan strives to promote future growth in existing urban areas, while preserving the agricultural lands near the city edges. Similarly, the County of San Joaquin is updating their 2035 General Plan, with the plan scheduled to be adopted by the Board of Supervisors by the end of the year. The San Joaquin County General Plan update also encourages infill development and land conservation, while minimizing growth in areas outside of existing communities.

- **Open Window Master Development Plan:** In addition to protecting the natural and working lands in the region, infill developments are needed in the San Joaquin Valley to reduce VMT by placing residents close to amenities and transit. The Open Window Project is an approved high-density and mixed-use development project located near major transit hubs in downtown Stockton, consisting of over 1,000 residential units, 200,000 square feet of retail space, 90,000 square feet of commercial space, and 110,000 square feet of industrial/art studio space. This development plan recently received the California Chapter of the American Planning Association’s 2016 Award of Excellence in Urban Design. The project is ready to commence construction on Phase 1 of the development, which will include 150 market-rate housing units, 62 affordable housing units, and approximately 92,400 square feet of commercial/retail space. This development ties into the Downtown Infrastructure Infill Incentive Program, a funding mechanism created by the Stockton City Council to encourage infill development and defray the costs of public infrastructure improvements in downtown Stockton.
• Cal Weber 40 Apartments: This adaptive re-use development project in downtown Stockton took two existing buildings that were in serviceable condition and transformed the space into modern affordable family housing. Adaptive re-use has the smallest carbon footprint out of all methods of development, including infill, since existing infrastructure is partially conserved and construction costs are minimized. This 40 unit apartment was able to preserve the history of the city by repurposing the 123 year-old Cal Weber Building and the 88 year-old McKeegan Building. In order to be eligible to rent units at Cal Weber 40, residents must earn between 30 and 60 percent of the Area Median Income as defined by the Department of Housing and Development, and four units were reserved for households with incomes at or below 30 percent of Area Median Income. All units are currently inhabited with a waiting list of future tenants as the apartments showcase how downtown Stockton can be revitalized with higher densities and affordable housing options.

Above and Beyond: Infrastructure Investment Consistent with the State’s Conservation, Development, and Health Goals
State infrastructure investments shape land use and development patterns, contribute to the accessibility of transportation options and other services, and thus help determine to our ability to advance sustainable, equitable communities and meet our climate goals. SJCOG is committed to this goal, and has the following programs and projects under way, above and beyond those previously identified in the 2014 RTP/SCS:

• Affordable Housing and Sustainable Communities (AHSC) Program: The AHSC Program is a competitive statewide funding source for housing and transportation projects that work toward reducing greenhouse gas emissions. The Program receives its budget from the Cap-and-Trade Program, one of California’s major initiatives for reducing climate change impacts. AHSC awards projects that can demonstrate emissions reductions through implementing active transportation improvements, increasing housing density, and/or encouraging alternative transportation options. Two projects in Stockton (Anchor Village and Hunter Street Housing), one from each round of funding, were chosen to receive AHSC funding as examples of how the State envisions new growth and sustainable developments. The Hunter Street Housing project, awarded in October 2016, is estimated to reduce a total of 13,916.4 metric tons of CO2e. MPOs have a role in the AHSC process to determine whether projects are consistent with the regional SCS, and SJCOG found that both developments aligned with the 2014 RTP/SCS goals and policies.

• Jobs Balancing Investment Fund (JBIF): The SJCOG Jobs Balancing Investment Fund Program, created using Regional Transportation Impact Fees, incentivizes non-residential development projects that are considered a high priority to meet economic development policy objectives. The JBIF provides the SJCOG Board, in conjunction with the San Joaquin Partnership and other economic development specialists, with a more tactical tool to attract employers to the region. Not only is this program in line with state goals of economic prosperity in the San Joaquin Valley, but the JBIF is intended to create more jobs in the region which will ultimately decrease VMT to the Bay Area and Sacramento. The full program implementation will occur as part of the ongoing five-year update to the Regional Transportation Impact Fee plan to be completed in 2016.

Above and Beyond: Transportation System Efficiency
Maximizing the efficiency of existing transportation infrastructure is key to ensuring the effective movement of people and goods to their destinations and reducing transportation costs. SJCOG
is committed to this goal, and has the following programs and projects under way, above and beyond those previously identified in the 2014 RTP/SCS:

- **Commuting Services:** Commuting accounts for a large share of interregional VMT in the San Joaquin County as residents travel daily to their jobs in the Bay Area, Sacramento region, Stanislaus or Merced County. In San Joaquin County, we are working to improve the mass transit experience and encourage ridership. Increasing the options and efficiency of alternative transportation is key to reducing single-passenger vehicle trips. A majority of these daily commutes are single-occupancy passenger vehicle trips, so SJCOG and transit providers are implementing projects and policies that offer commuters with more eco-friendly travel options.
  
  - Regional rail in San Joaquin County include the Amtrak San Joaquins and Altamont Corridor Express (ACE) passenger rail service; both rail services are looking to increase capacity and daily trips due to the rising demands of increased passengers. Amtrak San Joaquin added an additional 7th round trip in 2016 and is seeking funding for capital improvements for an 8th round trip (FY 18-19). SJCOG coordinated with UPRR on a federal TIGER Grant that will allow for improvements to both the Amtrak and ACE service, while decreasing greenhouse gas emissions from idling freight locomotives traveling to the Port of Stockton.
  
  - Improving the consistency and reliability of public transit travel times encourages riders to take a bus over driving a personal vehicle. The San Joaquin Regional Transit District (RTD) operates a daily commuter bus service, fueled by diesel, with an average daily ridership of 800 passengers. A recent grant of $8.2 million from the Federal Transit Administration will fund the RTD Commuter Bus Replacement Project and allow RTD to purchase 10 hybrid diesel-electric buses. Not only does this reduce greenhouse gas emissions through fuel efficiency, but the hybrid buses may entice new riders and take additional personal vehicles off the road. RTD is also in the process of implementing two new BRT routes in Stockton through funding from the Transit and Intercity Rail Capital Program, bringing the total of BRT lines in the city up to five.
  
  - In 2015-16, the Commute Connection TDM Program (servicing the three counties of San Joaquin, Stanislaus, and Merced) was enhanced through an online multimodal trip planner, new vanpool voucher program, an enhanced Emergency Ride Home program and initiated the development of a marketing plan and new website. The program added 1,091 new members to the trip planning database and added 47 new vanpools. In addition, Bike to Work month attracted nearly 600 participants tracking over 21,000 miles biked/walked. Increasing the number of participants enrolled in carpool and vanpool allows for an immediate and long-lasting reduction of VMT and associated greenhouse gas emissions with a cost effectiveness of $26 per lb, below the SJCOG threshold goal of $30 per lb.
  
  - In Fall of 2016, a new High-Occupancy Vehicle (HOV) lane was opened on northbound Interstate 5 with plans for the southbound HOV lane to be completed by the end of the year. Caltrans and SJCOG collaborated to bring the first HOV lanes to Stockton, and all of San Joaquin Valley, in order to help relieve congestion for carpoolers going to and from the Sacramento region. More than 130,000 motorists use I-5 North during peak commute hours and these new HOV lanes will impact travel behavior by encouraging single drivers to carpool to work. In addition to decreasing congestion and commute times, the reduction in number of cars being driven during peak hours will allow for air quality benefits since less pollutants are being emitted.
Sustainable Transportation Solutions: SJCOG plans to include more aggressive strategies for adopting alternative fuel vehicles in the 2018 RTP/SCS. We want to increase the region’s alternative fuel stations and work with the San Joaquin Valley Air Pollution Control District to address obstacles in implementing the Plug-in Electric Vehicle Readiness Plan. In 2015, the San Joaquin Regional Transit District (SJRTD) awarded Federal Transit Administration Section 5312 funds to procure five additional zero-emission electric buses. Furthermore, member agencies have worked toward implementing active transportation projects in the region. The City of Stockton has received a considerable amount of funding from the first two cycles of the Active Transportation Program, with multiple projects being prepared for construction in the spring of 2017. Stockton is currently undergoing a Bicycle Master Plan Update and will soon begin the process to create its first Greater Downtown Active Transportation Plan.

Manteca Waste Management and Compressed Natural Gas (CNG) Fueling: The City of Manteca is planning on generating CNG by combining food waste with methane gas from a municipal wastewater treatment plant. The facility is predicted to produce 140,000 diesel gallon equivalents of CNG in the first few years of operation, with an ultimate yield of 256,000 diesel gallon equivalents on an annual basis. The compressed natural gas is slated to power the Manteca solid waste division fleet to meet tightening San Joaquin Valley air quality standards, and the remaining gas will be sold to private sector vehicle owners at the planned fueling station at the wastewater treatment plant. In addition to reducing landfill waste and repurposing food waste, the CNG facility is reducing greenhouse gas emissions through the use and production of biofuels; increasing fuel efficiency and the use of alternative fuels in the San Joaquin County are strategies being used to support sustainable communities.

iv. Target Setting Recommendation

Despite the ongoing efforts in implementing measures in the 2014 RTP/SCS, which have been successful in achieving and exceeding previously established targets, there exist outstanding variables beyond the control of SJCOG that negatively affect the extent to which targets can expand beyond previously achieved GHG reduction levels. Specifically, these variables include:

- Transition to VMIP2 – Following the completion of the 2014 RTP/SCS, ARB prepared a sensitivity analysis to examine the impacts of more recent travel survey and census data on the model output. This sensitivity analysis reported VMT per capita reduction 40 percent smaller than had been reported in the 2014 RTP/SCS. Based on this finding, ARB recommended that SJCOG use the most current data available in future SB 375 Target Setting and RTP/SCS efforts. SJCOG has followed through on this recommendation with the VMIP2 model, which is in the process of final validation.

- Transition to EMFAC2014 – testing with the latest version of the California emissions factor model suggests that it is calculating higher GHG levels in the future than were calculated with the previous EMFAC2011. In San Joaquin County specifically, EMFAC2014 is reporting 1.6 percent higher emissions than with EMFAC2011. Such a change does not represent backsliding with respect to an SB 375 target; rather, it is a more accurate representation of what had been achieved in the 2014 RTP/SCS. However, it should be
noted that this change does impact SJCOG’s ability to match the GHG reduction levels established in the 2014 RTP/SCS.

- **Automobile Operating Costs** – revised assumptions in the growth of fuel prices show that estimates for future years are considerably lower, and as a result there is an increase in VMT and GHG associated with the reduced cost of automobile operation. In San Joaquin County specifically, using 2014 RTP/SCS data, the GHG reduction value was found to drop from 23.7 percent to 17.1 percent, representing nearly a 28 percent smaller GHG reduction value as a result of using more accurate automobile operating cost assumptions. This change will substantially impact SJCOG’s ability to match the GHG reduction levels established in the 2014 RTP/SCS.

- **Economic Recovery** – it is expected that economic recovery will occur at a faster rate than previously assumed in the 2014 RTP/SCS and an increase in employment will result in an increase in VMT and GHG. Though the quantification of these increases has yet to be finalized, they are expected to impact SJCOG’s ability to match the GHG reduction levels established in the 2014 RTP/SCS.

VMIP2 model improvements are still in the process of being finalized. However, based on the discussion provided in the “Individual Circumstances” section of this chapter, it is anticipated that VMT and GHG reduction levels by the year 2035 could be lessened by approximately 40 percent, associated with the use of current travel survey and census data in VMIP2. Such a change would be in line with the reductions observed in the ARB sensitivity analysis, and the GHG reduction level would fall within a range of 12-15 percent when using VMIP2. As noted, this adjustment is actually a more accurate representation of the GHG reductions achieved in the 2014 RTP/SCS. As such, **SJCOG recommends that ARB establish SB 375 targets of 12-13 percent by the year 2020, and 14-15 percent by the year 2035 for SJCOG, which is in line with the GHG reduction levels achieved as part of the 2014 RTP/SCS.** These values are subject to adjustment, as model validation is completed.

The impact of revised automobile operating costs will be accounted for in the validated / finalized VMIP2 model. The impact of economic recovery will be understood through 2018 RTP/SCS development, and is not currently accounted for in the VMIP2 model. In each case, these impacts will cause the SJCOG GHG reduction levels to drop below the 12-15 percent range SJCOG is recommending. However, given the efforts underway as part of the 2014 RTP/SCS, those committed to above and beyond outlined in this chapter, and efforts that will come along with the 2018 RTP/SCS, SJCOG staff believes that the region can make up the difference and meet targets in line with previously achieved GHG reduction levels.

**G. Stanislaus Council of Governments**

StanCOG submitted its adopted SCS and related GHG determination to ARB for review on April 10, 2015. ARB staff conducted a technical evaluation of StanCOG's adopted 2014 RTP/SCS and affirmed that, if implemented, StanCOG’s 2014 SCS would meet ARB’s per capita GHG emissions reduction targets of 5 percent in 2020 and 10 percent in 2035. Stanislaus Council of Governments (StanCOG) and its member jurisdictions are actively working to implement strategies to reduce VMT and greenhouse gas emissions. The following paragraphs provide a description of the variety of programs and projects that are being undertaken in support of SB 375 goals.
i. Individual Circumstances

StanCOG made use of the VMIP model during the preparation of the 2014 RTP/SCS. StanCOG’s modeling efforts are combined with SJCOG and MCAG, as part of a “Three-County Model.” This model made use of the best travel behavior data available at the time of its development in 2010, including the 2000 US Census. Following the completion of the 2014 RTP/SCS, ARB prepared a sensitivity analysis which examined the impacts of more recent travel survey data on the model output, such as the 2010 Census, American Community Survey, and the California Household Travel Survey. This sensitivity analysis kept all other model inputs unchanged (such as land use, network characteristics, and socioeconomic data) in order to isolate the effect of the updated travel survey and census data on VMT and GHG results.

The ARB sensitivity analysis found that the VMT per capita reduction from the year 2005 to 2035 was 15.7 percent using the updated travel survey and census data, as compared to the 26.9 percent reduction identified in the 2014 RTP/SCS. This represents over a 40 percent difference when using up-to-date travel survey and census data. Even with this level of VMT difference, StanCOG would still exceed the GHG emissions targets of 5 percent by 2020 and 10 percent by 2035 for the 2014 RTP/SCS. However, given the results of the ARB sensitivity analysis, ARB recommended that StanCOG use the most current data available in future SB 375 Target Setting and RTP/SCS efforts. StanCOG has followed through on this feedback through the implementation of the VMIP2 model, and through further quality control of model input data.

Though the GHG reduction numbers calculated as part of the 2014 RTP/SCS were accurate given the information available at the time, it is clear that with up-to-date travel survey and census data, the same model inputs will yield smaller GHG reduction numbers. Smaller GHG reductions would not represent backsliding, as smaller values would simply be a more accurate representation of what was previously achieved in the 2014 RTP/SCS. As such, StanCOG anticipates that the GHG reduction levels achieved as part of the 2014 RTP/SCS will be more in line with the reductions observed in the ARB sensitivity analysis when using VMIP2, and will fall within a range of 12-15 percent. StanCOG is working to calculate what this precise value is, as it will establish a baseline for what the 2014 RTP/SCS was able to achieve. StanCOG will confirm this number upon completion of the VMIP2 model validation, which is currently in progress.

ii. SCS Implementation, and Efforts Above and Beyond

StanCOG’s 2014 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS) was the culmination of a nearly 3-year planning effort that was conducted with the participation of local agencies, community groups and the general public. The planning approach was one that was driven by local and public input and truly embraced the intent of Senate Bill (SB 375) to reduce Greenhouse Gas Emissions by integrating land use and transportation planning to address those issues that cross jurisdictional boundaries.

Since the completion of the 2014 RTP/SCS, StanCOG has undertaken numerous efforts in support of SB 375 goals. StanCOG is working to encourage local agency efforts to implement policies and programs that support sustainable communities through more compact, transit oriented, mixed use and infill development and more efficient development patterns that enhance a connection between land use and transportation choices, all of which are the basis of StanCOG’s 2014 RTP/SCS.
The local jurisdictions within the Stanislaus region are implementing land use and transportation strategies identified in the 2014 RTP/SCS through various efforts. In early 2016, the City of Modesto, submitted a grant application to the California Air Resources Board (CARB) through the San Joaquin Valley Air Pollution Control District (SJVAPCD) for Fiscal Year 2014-2015 and 2015-2016 funds in response to a CARB Air Quality Improvement Program and Low Carbon Transportation Greenhouse Gas Reduction Fund Investments solicitation for purchasing four zero emission buses, four bus yard chargers and two fast chargers. The application was submitted as part of the San Joaquin Valley Transit Electrification Project, which was undertaken for deployment of commercially available heavy-duty, zero-emission (battery-electric), public transit buses by the City of Modesto and the City of Visalia, the Fresno County Rural Transit Agency and the California State University Fresno. The project is anticipated to reduce greenhouse gas emissions and other criteria pollutants and demonstrate the practicality and economic viability of wide-spread adoption of zero-emission public transit buses.

Additionally, the City of Modesto has secured funding through the Low Carbon Transit Operations Program (LCTOP) for a new route that is providing additional service to a heavily travelled corridor (Route 21 and 23), cutting headways in half, increasing transit ridership by 130,000 passengers per year, and decreasing VMT and GHG emissions.

The City of Modesto submitted a project proposal in response to the recent ATP Cycle 3 Statewide Call for Projects and has been awarded funding to implement bicycle and pedestrian improvements along Paradise Road near Modesto High School. The City’s aim is to reduce VMT by encouraging an increase in walking and biking by installing a road diet, bike lanes, ADA curb ramps, bicycle storage (racks and boxes), mid-block pedestrian refuges, speed tables, and rapid flashing beacons at pedestrian crossings.

StanCOG administered the CMAQ program with funds to support a new Stanislaus Regional Transit (StaRT) commuter bus service. The service transports commuters from the west side of Stanislaus County (from the cities of Turlock and Patterson) to the Dublin/Pleasanton Bay Area Rapid Transit (BART) station. Modesto Area Express is providing a similar service from the City of Modesto to the BART station in Dublin and the ACE train station in Lathrop/Manteca.

As a member of the Stanislaus County Health Services Agency’s (HSA’s) Built Environment Committee, StanCOG participates in regular meetings of the HSA to explore opportunities to further their mission for promoting healthy lifestyles, preventing injury, and preserving access to healthcare for underserved populations within the region. It is through this partnership that StanCOG and the HSA collaborate to improve access and mobility, health and safety, environmental quality, social equity and other fundamental goals of StanCOG’s 2014 RTP/SCS. StanCOG and the HSA are coordinating to identify opportunities for joint planning and implementation projects. Most recently, StanCOG has provided input into the County’s development of performance measures for the HSA’s Framework for a Thriving Stanislaus, the County’s Public Health Improvement Plan. HSA is seeking input to assist them in their identification of bicycle and pedestrian measures to assess accessibility to opportunities for physical activity, greenspace, healthy and affordable food, and public transit.

StanCOG’s Consolidated Transportation Services Agency known as “MOVE” offers a free travel training program, which teaches seniors, persons with disabilities, and low income populations within the Stanislaus region how to independently use bus transit throughout Stanislaus County. In FY 15/16, the program provided greater independence to 157 trainees by encouraging the use of fixed route transit.
Through StanCOG’s Travel Demand Management (TDM) program ("Commute Connection"), StanCOG continues to offer commuter programs and services, such as the Ride Match (online), emergency ride home services and a recently deployed online multimodal trip planner website (mycommuteconnection.com). Commute Connection has also implemented a new vanpool subsidy program which offers $200 per month during the first year of operation for new vans and $100 per month thereafter. Commute Connection recently completed a long-term Strategic Marketing Plan, which will be rolled out in early 2017 with a re-branding strategy to broaden outreach and encourage changes in travel behavior to promote more widespread use of travel options, such as transit, ridesharing, bicycling, walking, and telecommuting, as alternatives to driving alone. Commute connection is also planning conduct an analysis of the feasibility of a Bike to School program to accompany the Bike to Work campaign and for integrating a “school pool” feature in the TDM System (trip planner, mycommuteconnection.com). Additionally, Commute Connection is launching a new recognition program to acknowledge Stanislaus County employers when they successfully implement TDM strategies.

StanCOG has started exploring available funding opportunities for increasing the penetration of plug-in hybrid electric vehicles (PHEV) and zero-emission vehicles (ZEV) through development of charging infrastructure. StanCOG is also making our member jurisdictions aware of available Federal and State funding opportunities to promote transit operators to plan and implement the use of zero or near zero emission vehicles to encourage their transition of transit fleets to ZEB technology by 2040.

In an effort to cost effectively expand low-carbon transportation options in rural communities, StanCOG in partnership with the San Joaquin Valley MPOs is working with the Institute of Transportation Studies at UC Davis to provide assistance on a regional Rural Transit Study. StanCOG is providing support to the Study Team to develop a pilot program that leverages new technology-driven, shared access services (such as ridesharing, car-sharing, and bike-sharing) to enhance and/or complement traditional fixed-route transit serving rural communities. This rural transit planning effort is being funded by Caltrans through its Sustainable Transportation Planning Grant program. The Study seeks to identify Tech-Driven Transit Alternatives and potential pilot locations. The representatives of the Institute of Transportation Studies at UC Davis are assessing the demographic and travel characteristics of rural, disadvantaged communities in the San Joaquin Valley as well as the transit services currently available to these communities and unmet transit needs. The Study Team has also conducted interviews and has led focus group meetings with area stakeholders, with StanCOG’s support, to learn more about transportation and technology barriers facing Stanislaus County residents (e.g., access to a smart phone) and potential solutions for overcoming these barriers. The study plans to develop alternatives and potential pilot locations for testing strategies. A detailed plan for technology-driven, shared access pilot programs will be developed to address the needs, constraints and opportunities of specific communities or a sub-region in the San Joaquin Valley. This planning effort is anticipated to include an operational cost assessment and proposed funding strategy as well as estimated VMT and GHG emission reductions. The study is also anticipated to provide guidance on potential cost effective strategies for expanding low-carbon transportation options in Stanislaus County’s rural communities.

StanCOG recently applied for an Alternative Transportation Program (ATP) grant for a regional Bicycle/Pedestrian Safety and Encouragement Program that, if funded, will include open street events offering bike safety and bike repair training clinics, a safety and education advertising campaign and other activities designed to encourage the use of alternative transportation modes.
StanCOG’s application submitted in response to the 2017 ATP Cycle 3 call for projects received the highest project evaluation score. StanCOG staff will be presenting the proposal evaluation team’s findings to the StanCOG Policy Board for approval of the award at upcoming January 18, 2017 Board meeting.

StanCOG is devising its strategy for updating the Regional Non-Motorized Transportation Plan that will be updated in 2018. StanCOG envisions a planning effort that could employ bicycle and pedestrian counts collected using crowsource-based mobile applications, permanent or temporary automated counters, or manual counts collected by StanCOG staff and trained volunteers. The plan is anticipated to provide updated/revamped bike/ped maps for identifying existing and future planned and programmed improvements and for identifying gaps and planning future improvements to address needs and increase bicycle/pedestrian mode share.

On November 8, 2016, Stanislaus County voters approved a 1/2 cent sales tax measure (Measure L) initiated by StanCOG. The 1/2 cent sales tax will take effect on April 1, 2017. The tax is expected generate approximately $38 million a year with an estimated total of $958 million over the next 25 years to fund transportation improvements in Stanislaus County. With these voter-approved local transportation funds we will be better equipped to compete for funding and leveraging a larger share of state and federal dollars. A portion of the funding will be used to implement roadway operational improvements, such as the installation of ramp metering/ITS improvements along State Route (SR) 99. The revenue will also go toward funding transit operations, maintenance and infrastructure improvements and enhancing transit connectivity to regional rail services, such as ACE, BART, and AMTRAK, and enhancing bike/ped connectivity between communities, local schools, trails and recreational facilities.

This is just a sample of the numerous initiatives that are being undertaken to advance the Region’s sustainable community strategy and contribute to meeting State climate action goals to reduce VMT and greenhouse gas (GHG) emissions.

iii. Target Recommendation

Despite the ongoing efforts in implementing measures in the 2014 RTP/SCS, which have been successful in achieving and exceeding previously established targets, there exist outstanding variables beyond the control of StanCOG that negatively affect the extent to which targets can expand beyond previously achieved GHG reduction levels. Specifically, these variables include:

- **Transition to VMIP2** – Following the completion of the 2014 RTP/SCS, ARB prepared a sensitivity analysis to examine the impacts of more recent travel survey and census data on the model output. This sensitivity analysis reported VMT per capita reduction 40 percent smaller than had been reported in the 2014 RTP/SCS. Based on this finding, ARB recommended that StanCOG use the most current data available in future SB 375 Target Setting and RTP/SCS efforts. StanCOG has followed through on this recommendation with the VMIP2 model, which is in the process of final validation.

- **Transition to EMFAC2014** – testing with the latest version of the California emissions factor model suggests that the updated air quality model is calculating higher GHG levels in the future than were calculated with the previous EMFAC2011 for the majority of the MPOs that were analyzed. In contrast, for Stanislaus County, testing with EMFAC2014 showed a slight decrease in emissions of 1.2 percent when the results are compared with EMFAC2011. While a minor increase was observed as a result of transitioning to
EMFAC2014, the benefits of that transition appear to be far outweighed by the substantial negative impacts of an update of auto operating costs assumptions in the model and economic recovery, as discussed below.

- **Automobile Operating Costs** – revised assumptions in the growth of fuel prices show that estimates for future years are considerably lower, and as a result there is an increase in VMT and GHG associated with the reduced cost of automobile operation. In Stanislaus County specifically, using 2014 RTP/SCS data, the GHG reduction value was observed to drop from 22 percent to 16.5 percent, representing nearly a 25 percent smaller GHG reduction value as a result of using more accurate automobile operating cost assumptions. This change will have a significant impact on StanCOG’s ability to match the GHG reduction levels established in the 2014 RTP/SCS.

- **Economic Recovery** – it is expected that economic recovery will occur at a faster rate than previously assumed in the 2014 RTP/SCS, and an increase in employment will result in an increase in VMT and GHG. Though the quantification of these increases has yet to be finalized, they are expected to impact StanCOG’s ability to match the GHG reduction levels established in the 2014 RTP/SCS.

VMIP2 model improvements are still in the process of being finalized. However, based on the discussion provided in the “Individual Circumstances” section of this chapter, it is anticipated that VMT and GHG reduction levels by the year 2035 could be lessened by approximately 40 percent, associated with the use of current travel survey and census data in VMIP2. Such a change would be in line with the reductions observed in the ARB sensitivity analysis, and the GHG reduction level would fall within a range of 12-15 percent when using VMIP2. As noted, this adjustment is actually a more accurate representation of the GHG reductions achieved in the 2014 RTP/SCS. As such, **StanCOG recommends that ARB establish SB 375 targets of 12-13 percent by the year 2020, and 14-15 percent by the year 2035 for StanCOG, which is in line with the GHG reduction levels achieved as part of the 2014 RTP/SCS.** These values are subject to adjustment, as model validation is completed.

The impact of revised automobile operating costs will be accounted for in the validated / finalized VMIP2 model. The impact of economic recovery will be understood through 2018 RTP/SCS development, and is not currently accounted for in the VMIP2 model. In each case, these impacts will cause the StanCOG GHG reduction levels to drop below the 12-15 percent range StanCOG is recommending. However, given the efforts underway as part of the 2014 RTP/SCS, those committed to above and beyond outlined in this chapter, and efforts that will come along with the 2018 RTP/SCS, StanCOG staff believes that the region can make up the difference and meet targets in line with previously achieved GHG reduction levels.

H. **Tulare County Association of Governments**

The Tulare County Association of Governments (TCAG) region is located in the south-central San Joaquin Valley (Valley) with a population of approximately 466,339 people (DOF, 2016) concentrated on the valley floor in the western third of the county. It contains the eight incorporated cities of Dinuba, Exeter, Farmersville, Lindsay, Porterville, Tulare, Visalia, and Woodlake. These cities and numerous, mostly smaller, unincorporated communities are largely surrounded by prime agricultural land and intensive farming. The central third is foothills of the Sierra Nevada largely dedicated to extensive agriculture and grazing. The mountainous eastern third is mostly State and federal lands, including all of Sequoia and the south most portions of
Kings Canyon National Parks. Approximately 31% of the population lives in unincorporated areas. Tulare County is the top milk producer for the State of California, with a total gross value of over $1.7 billion in milk production for 2015 (Tulare County Agricultural Commissioner, 2016). The transportation system is primarily auto-dependent, although public transit ridership has increased in the last five years from 2.87 million riders in 2010 to 3.57 million in 2015. The urban pattern is more multi-centric than in most of the other valley counties. Commuter patterns are correspondingly diverse. A substantial amount of employment is scattered in agricultural areas.

i. SCS Implementation and Efforts Above and Beyond

SB 375 encourages regional planning that better integrates land use and transportation policy with the purpose of lowering greenhouse gas and air pollution emissions, reducing time spent in traffic and improving the cost efficiency of transportation infrastructure investment. Focus shifts to transportation solutions that fit the higher densities reflected in the approved RTP/SCS. TCAG’s 2018 RTP/SCS will build on the success of the previous plan that focused increased density of future development within communities, as envisioned in the 2009 Tulare County Regional Blueprint, supported by infrastructure improvements. Ongoing implementation strategies for the RTP/SCS consist of a combination of planning projects; transit incentive programs; and public information campaigns.

“Walk ‘n Bike Tulare County”, the Regional Active Transportation Plan for the Tulare County Region (RATP), was adopted in May of 2016. The RATP serves as the foundation of the pedestrian and bicycle component for the RTP/SCS update by compiling and incorporating the high-priority pedestrian and bicycle projects among TCAG’s member agencies. These high-priority projects are therefore better positioned to compete for funding from federal state and regional sources.

TCAG is also undertaking the county’s first ever Long Range Transit Plan (LRTP), called Destination 2040, with the objective of adding a comprehensive transit component to the RTP/SCS update. This is not an insignificant undertaking: nine different transit operators, as well as eight incorporated communities and other governing agencies, provide some type of fixed-route, demand response, or intercity transit service within the county. The goal of this project is to provide a development and investment plan that will result in real mobility and transit mode split gains in the near and long term. Achieving this goal will require a thoughtful and thorough strategy that addresses current needs, emerging needs and markets, and future markets.

The California High Speed Rail Authority sponsored Cross Valley Corridor Study has the potential to connect cities in Kings and Tulare Counties with the High Speed Rail (HSR) station and job centers in Visalia and NAS Lemoore. The study focuses on the Cross Valley Corridor (Corridor), an existing rail corridor between the cities of Huron and Porterville, with a proposed California High-Speed Rail Station to be located in the middle of the Corridor (east of Hanford). Other forms of transportation, such as walking, bicycling, and automobiles will be included in the planning effort to ensure that the planned Corridor and proposed High-Speed Rail Station are equally accessible for all communities and their residents. In addition to supporting planning efforts for the Corridor and the proposed High-Speed Rail Station, this planning effort will enable communities and cities in the study area to promote walkable, mixed-use (residential and commercial uses developed together) communities with easy access to public transit facilities, encourage revitalization and economic development, and facilitate growth in the region. The end result of the Plan will be to identify how transportation mobility can be improved using various modes including walking, biking, driving a car, taking a bus, or riding a train to visit surrounding communities.
Creative implementation strategies for the 2018 RTP/SCS are being considered including: matching funds for transportation investment to leverage cap and trade funds for mixed use development, transit enhancement, and active transportation projects; and an incentive program for electric vehicle (EV) charging stations for large employers, parking structures, and shopping centers will help the transition to a zero emission vehicle fleet mix envisioned by ARB. TCAG Staff is committed to RTP/SCS implementation and leveraging opportunities that transform communities and that integrate transit and active transportation accessibility.

**Efficient and Equitable Development**

- TCAG also plans to continue to expand Transit and ATP public awareness through the continued promotion of the highly successful CalVans and education programs like Bike & Stride.
- Affordable housing developments in disadvantaged communities throughout the county.
- TCAG has developed a strategic partnership with Self Help Enterprises, Inc. and CalVans to build integrated communities including affordable housing with transit and ATP enhancements and CalVans vanpool and rideshare programs with onsite electric charging stations.
- The city of Visalia’s General Plan Update, adopted in October, 2014, increased density and constricted the urban growth boundaries. These policies remain in place.
- Goshen Transportation & Community Plan Preparation- A Caltrans Transportation Grant for the community of Goshen was awarded to the County of Tulare for preparation of a Transportation and Community Plan. When completed, the plan will be used as the basis for an amendment to the current Goshen Community Plan.
- Sustainable Highway 99 Corridor Plan Preparation- A Strategic Growth Council Grant was awarded to the County of Tulare for preparation of a sustainable highway corridor plan. Planning for the 55 mile long Highway 99 corridor will affect the unincorporated communities of Traver, Goshen, Tipton, Pixley and Earlimart.
- Based upon the adopted 2030 Tulare County General Plan Update, an implementation work program for community plans is being prepared. All community plans and proposed hamlets identified in the General Plan Update are being evaluated for prioritization and eventual work initiation.
- Tulare County has adopted the following Community Plans 2014-Present (which address, among other things, complete streets implementation):
  - Traver Community Plan
  - Tipton Community Plan
  - Pixley Community Plan
  - Strathmore Community Plan
  - Terra Bella Community Plan
  - Ducor Community Plan
  - Porterville Area Community Plan

**Infrastructure Investment Consistent with the State’s Conservation, Development and Health Goals**

- TCAG Staff is committed to RTP/SCS implementation and leveraging opportunities that transform communities and that integrate transit and active transportation accessibility.
- TCAG also plans to continue to expand Transit and ATP public awareness through the continued promotion of the highly successful CalVans and education programs like Bike & Stride.
• An inter model freight facility and expansion of short haul rail spurs that connect Visalia’s west side industrial park is being planned.
• Transit incentive programs for veterans and college students have already been implemented region wide resulting in increased ridership.
• Transit EV fleet conversion is well underway with 12 electric buses recently procured.
• Downtown Woodlake has been transformed by an innovative streetscape and pedestrian access project recently completed in partnership with Caltrans.
• New transit line to major facilities in Fresno- airport, 4-year public university, and medical and government centers.

**Pricing Policies**
• The city of Visalia is studying adjustments to its downtown parking fee program.

**Transportation System Efficiency**
• TCAG’s Congestion Management Process (CMP) Committee uses a “fix it first” approach to the highway system that values operational improvements and ITS improvements over capacity enhancement.
• Transit incentive programs for veterans and college students have already been implemented region wide resulting in increased ridership.
• An update to the existing Intelligent Transportation Systems Regional Deployment Strategy is underway.
• TCAG’s transit model upgrade, including the first full transit network, allow for mode choice analysis that should produce a better integrated land use/transportation system.

**ii. Target Recommendation**

TCAG has completed an initial evaluation of the VMIP2 model that has thus far been calibrated for the 2015 base year to regional VMT for the purposes of SB 375 Target Setting. Backcast testing for the SB 375 base year 2005 produced lower VMT for 2005 than VMIP1 but that result was actually closer to the actual HPMS estimate of regional VMT. Consequently TCAG will calculate GHG reductions from reset 2005 emissions levels. This will mean that future development scenarios equivalent to those in the 2014 RTP/SCS will show less reductions.

EMFAC 2014 also impacts the results of both the base year 2005 and RTP/SCS analysis year 2035 which masks somewhat the effect of the year 2005 base reset producing an equivalent per capita GHG reduction of 10% for 2020 and 12% for the RTP/SCS analysis year 2035. Combined with 3%-4% additional off model Moving Cooler calculations to capture ongoing SCS implementation measures, **TCAG recommends ARB set the SB 375 Target for the Tulare County region for the year 2020 to 13%-14% and for the year 2035 to 15%-16% per capita GHG reductions from the reset VMIP2 2005 base year.** TCAG reserves the option to submit an updated target recommendation following the completion of final VMIP2 highway calibration.

TCAG is committed to the 2014 RTP/SCS Blueprint Scenario principles of compact development with a 25% overall increase in land use density supported by an integrated system that focuses on the user experience for all modes of transportation in a way that preserves agricultural, resource, and habitat lands for future generations.
4. SUMMARY OF SB 375 TARGET RECOMMENDATIONS

The Valley has been successful in implementing projects and programs in support of SB 375 that are making a significant contribution to air quality improvement. In addition to the implementation of these projects and programs outlined in each Valley MPO’s 2014 RTP/SCS, the Valley has initiated additional projects and programs that align with the California Air Resources Board’s recommended strategies of efficient and equitable development, transportation system efficiency, pricing policies, and infrastructure investment consistent with the state’s conservation, development, and health goals.

Nevertheless, that there exist outstanding variables beyond the Valley’s control that negatively affect the extent to which the Valley can meet (let alone expand upon) previously achieved GHG reduction levels as part of the 2014 RTP/SCS. As detailed in Chapter 2 of this report, these variables include:

- Impact of model improvements from the San Joaquin Valley Model Improvement Plan (VMIP), phase 2. VMIP2 makes use of up-to-date travel survey and census data, and allows for more sophisticated travel behavior. As a result of these changes, in some cases, VMIP2 is producing higher VMT levels as compared with the previous VMIP.
- Impact of updated emissions calculation tool (EMFAC2014). Similarly, in some cases, EMFAC2014 is calculating higher GHG levels in the future than were calculated with the previous EMFAC2011.
- Impact of an increased rate of economic recovery. With increased economic recovery comes additional VMT and GHG. Though the quantification of these increases has yet to be finalized, they are expected to impact the Valley’s ability to match the GHG reduction levels established in the 2014 RTP/SC.
- Challenges associated with interregional travel. The proportion of interregional trips through the Valley are much higher than the respective counterpart statistics from other regions in the State. The calculated “In and Out” commute trips represent a challenge with respect to GHG reduction, as these trips neither originate nor terminate within a given County in the Valley.
- Impact of lower automobile operating costs. With a reduced automobile operating cost comes additional VMT and GHG. With calibrated base years and renewed auto operating cost assumptions, the degree to which Valley MPOs can reduce GHG emissions has been lessened by 1-7 percent by the year 2035.

The Valley asserts that a combination of the projects and programs identified above and beyond those outlined in the previous RTP/SCS, off-model strategies, and efforts that will come along with the 2018 RTP/SCS will be sufficient to negate the impact of these variables. As such, Valley MPOs are recommending targets comparable to previous GHG reduction achievement levels. These target recommendations are summarized in Table 6.
Table 6: Summary of SB 375 Target Recommendation

<table>
<thead>
<tr>
<th>County</th>
<th>Percent Per Capita GHG Reduction Target Recommendation: Year 2020</th>
<th>Percent Per Capita GHG Reduction Target Recommendation: Year 2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresno</td>
<td>Anticipated to be larger than -9%</td>
<td>Anticipated to be larger than -11%</td>
</tr>
<tr>
<td>Kern</td>
<td>-9 to -12%</td>
<td>-13 to -14%</td>
</tr>
<tr>
<td>Kings</td>
<td>-5%</td>
<td>-12%</td>
</tr>
<tr>
<td>Madera</td>
<td>-10%</td>
<td>-15 to -20%</td>
</tr>
<tr>
<td>Merced</td>
<td>-10.1%</td>
<td>-12.7%</td>
</tr>
<tr>
<td>San Joaquin</td>
<td>-12 to -13%</td>
<td>-14 to -15%</td>
</tr>
<tr>
<td>Stanislaus</td>
<td>-12 to -13%</td>
<td>-14 to -15%</td>
</tr>
<tr>
<td>Tulare</td>
<td>-13 to -14%</td>
<td>-15 to -16%</td>
</tr>
</tbody>
</table>

Note: Values in this table are preliminary, subject to future model run updates.