APPENDIX B. MPO Scenario and Data Submittals
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May 1, 2017

Mary Nichols, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: MTC, SACOG, SANDAG, and SCAG Joint Submittal SB 375 Target Recommendation

Dear Chair Nichols,

We want to first express our appreciation for your leadership in addressing climate change and air quality challenges for our state. We also want to thank you and your staff for the outreach efforts to MPOs regarding the SB 375 target update.

This joint target recommendation is submitted by the four largest MPOs (MTC, SACOG, SANDAG, and SCAG) and represents almost 85 percent of the state’s population. Our starting premise in this process has been that the ARB targets should remain ambitious, but at a level that MPOs can meet with a Sustainable Communities Strategy (SCS) – not an Alternative Planning Strategy (APS). We have also committed to a joint target as a means of improving our own commitment to sharing information and achieving ambitious reductions.

Our March stress test results provide insight into opportunities and challenges for setting stronger targets across our respective regions. These stress tests informed our target recommendations and also highlighted several supportive state strategies that will be needed to meet the state’s ambitious 2030 and 2050 climate change goals.1

As a result of our coordinated stress test efforts, we are pleased to submit this joint target recommendation for ARB’s consideration. Each of the four MPOs recommend a 2035 SB 375 target of -18% per capita from 2005 levels based on a partnership with the state as described later in this letter.

Attached to this letter, you will find the individual MPO target recommendations as approved by our respective Boards.

1. Value of this Joint Recommendation

This joint recommendation represents a maturing of the target setting process. This joint recommendation does more than hold each MPO accountable to a target under the SB 375 process. It increases our accountability to each other. We had to work together and coordinate a great deal

1 For test results see: https://www.arb.ca.gov/cc/sb375/sb375_target_update_analysis_mtc_sacog_sandag_scag_030617.pdf.
on data and modeling assumptions in order to reach this joint recommendation—and we are committed to maintaining that coordination and information sharing as we move forward with development and implementation of our plans. For the state, we believe that this will bring more predictability and understanding to the process. The real differences and variations across our regions will always mean that the same or similar strategy may have different outcomes in different regions—but through closer collaboration we should be able to explain those differences with more accuracy and transparency. And from that, all California will benefit.

1. Ambitious but Achievable Target Recommendation

This recommendation reflects ambitious but achievable targets that support achievement of SB 32 goals. Considering the GHG reductions achieved by MPOs in the previous two rounds of their RTP/SCSs, the “Stress Test” results, and the VMT/GHG rebound effect, target recommendations from the four major MPOs for 2035 are predicated upon commitments from the state as indicated in section number two below.

All four MPOs have adopted SCSs, instead of APSs. In addition, for our currently adopted SCSs, all have met or exceeded the 2035 regional GHG targets established by ARB in 2010. Each regional plan has gone through extensive stakeholder engagement and public participation. They are all ambitious and push the envelope. Each is effecting change within its region and is shaping new planning efforts to be more sustainable.

Nevertheless, all four MPOs have similar challenges in implementing the adopted SCS, including a lack of financial resources (particularly at the city/county levels), loss of revenues due to increasing fuel efficiency, and dissolution of redevelopment agencies.

2. State Leadership with Supportive Policies and Funding

Our ambitious joint target recommendation is predicated on a partnership with the state and ARB on several critical issues that are largely outside of an MPO’s authority to implement. This foundational assumption is consistent with Scoping Plan acknowledgement that SB 375 alone will not provide all the VMT growth reductions required to meet the State’s 2030 and the Administration’s 2050 Executive Order goals. We have identified five areas where state leadership with supportive policies will be necessary. Our joint target recommendation is based upon the assumption that the state will take meaningful action in each of these areas.

- **Offsetting VMT Rebound.** Clean vehicle and fuel efficiency programs are the most effective strategies to reducing GHG emissions, but also make driving more economical and thereby generate additional VMT. MPOs lack authority to implement road and parking pricing strategies that might be the most effective means to offset this effect. As a result, additional state policies will need to be developed that discourage growth in VMT.

- **User Fees to Offset Declining Revenues as Soon as Possible.** We are all grateful for the passage of SB 1 and the funding gap it fills as it relates to the maintenance needs of current transportation infrastructure, but it did not fix the longer term problem: that gas tax revenues will continue to decline as California changes to a fleet of cleaner, more efficient fossil-fuel
vehicles, and more electric and other non-fossil fuel vehicles. The recommended targets presented here assume that the state takes leadership in offsetting the decline of fuel excise tax revenues by transitioning to mileage-based user fees as soon as possible. Changing the funding model to a mileage-based user fee reduces the dependency on fuel consumption to fund the system and yields new opportunities to both manage demand and reduce GHG emissions. But the policies needed to implement a mileage-based user fee requires action by state government. Though some regions implement regional user fees like tolls, it’s often on special authority and limited to specific corridors.

- **Dedicated Funding to Support Transit, Ridesharing, and Non-Motorized Transportation.** The recommended targets also assume the state moves to provide dedicated funding to support transit, ridesharing, and non-motorized transportation from user fees, pricing mechanisms, and new state programs. Again, this is an area where SB 1 has made good progress, but much more will be needed to support these services to the extent that will be needed under SB 32.

- **Direct Support for SCS implementation.** The recommended targets assume the state provides additional funding to ensure the implementation of RTP/SCSs. Given that the funding contained in the recent transportation legislation largely focuses on maintaining and rehabilitating the existing transportation system, the state also should recognize the lasting impacts of the elimination of redevelopment funding and provide additional funding to support SCS implementation, including funding to incentivize infill and compact residential development and policies to encourage a better job/housing match.

- **Normalization of Exogenous Modeling Factors.** A commitment from ARB to address/normalize changes to exogenous factors affecting the calculation of the target achievement by MPOs, including iterations of the EMFAC model and long range fuel forecasts of fuel price. This is an important issue to the extent that we all rely on modeling to measure our progress.

3. **MPO Commitment to Aggressively Push the Envelope of SB 375 Emissions Reductions.**

With state action and achievement in the above five areas, our commitment is to continue to do our utmost to accelerate implementation of our SCS’s and continue to find new ways to reduce single occupant vehicle travel and greenhouse gases to support the state’s climate change goals. We will continue to collaborate and share information to improve consistency and predictability to the process, and maintain the partnership with the state and ARB to generate additional policy changes and revenues needed to push the envelope of SB 375 GHG emissions reductions through innovative strategies. Examples of how we may achieve this include:

- Incentivize early development of infill and transit-oriented development areas.
- Increase transit and active transportation mode investments to provide more and better options to single occupant vehicle travel.
• Prioritize early state-of-good-repair investments, in order to realize long-term savings on maintaining the system. Studies show deferring maintenance of the transportation system increases costs.
• Invest in innovative programs and services to generate additional GHG savings.
• Continue to assess Title VI and environmental justice needs throughout the planning process, especially as it relates to the more aggressive transportation and land use strategies that will be necessary to meet tougher GHG emissions reduction targets.

CONCLUSION.
In closing, we encourage ARB to continue to set ambitious but achievable targets that can be met with an SCS. The achievement of GHG emission reductions under SB 375 is a cooperative partnership between local governments, MPOs, ARB, and other state agencies. Thank you for the opportunity to provide our target setting recommendations. We look forward to working with you to ensure a sustainable future for our state.

Sincerely,

HASAN IKHRATA  
Executive Director, SCAG

GARY GALLEGOS  
Executive Director, SANDAG

STEVE HEMINGER  
Executive Director, MTC

JAMES CORLESS  
Chief Executive Officer, SACOG

Attachment: MPO Target Recommendations
Target Recommendation

Metropolitan Transportation Commission
May 1, 2017

Mary Nichols, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: MTC SB 375 Target Recommendation

Dear Chair Nichols:

On April 26, 2017, the Metropolitan Transportation Commission (MTC) approved MTC Resolution No. 4271, which recommends the greenhouse gas reduction target for the 2021 Bay Area Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and beyond. This resolution is attached, along with the memorandum to the Planning Committee with additional considerations and detail.

We are joining our three largest peer MPOs (SACOG, SANDAG, and SCAG) in recommending a target of 18% reduction in greenhouse gas emissions per capita by 2035 compared to 2005 levels. Our resolution includes the conditions outlined in the joint letter but also emphasizes additional conditions including that the state strengthen mandates and incentives to align housing production and employment center proximity as a key strategy for reducing greenhouse gas emissions caused by added vehicle miles traveled when there is a significant mismatch in housing and jobs locations.

Thank you for considering MTC’s target-setting recommendations.

Sincerely,

Steve Heminger
Executive Director

Attachments:
MTC Resolution No. 4271 approving Greenhouse Gas Target Update
Memorandum of Background and Considerations to MTC Resolution No. 4271: Greenhouse Gas Target Update
This resolution approves the recommendation to the Air Resources Board of an 18% per capita greenhouse gas reduction target for 2035 compared to 2005 levels for the 2021 Bay Area Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and beyond.

Discussion of this resolution is contained in the Executive Director’s Memorandum to the Planning Committee dated April 7, 2017.
RE: Resolution to recommend to the Air Resources Board a conditional 18% per capita greenhouse gas reduction target for 2035 from 2005 levels to the Air Resources Board for the 2021 Regional Transportation Plan/Sustainable Communities Strategy and beyond

METROPOLITAN TRANSPORTATION COMMISSION
RESOLUTION NO. 4271

WHEREAS, the Metropolitan Transportation Commission (MTC) is the regional transportation planning, financing and coordinating agency for the San Francisco Bay Area pursuant to Government Code Section 66500 et seq.; and

WHEREAS, the Sustainable Communities and Climate Protection Act of 2008 ((Chap. 728, Stats. 2008) Senate Bill 375, or SB 375, as amended) requires each California Metropolitan Planning Organization (MPO), as part of its Regional Transportation Plan (RTP) planning process, to develop a Sustainable Communities Strategy (SCS) or an Alternative Planning Strategy (APS) that meets regional greenhouse gas (GHG) emission reduction targets (targets) set by the Air Resources Board (ARB);

WHEREAS, SB 375 also recognizes ARB’s target-setting responsibility as a recurring process, requiring ARB to update the targets every eight years and permits target updates every four years;

WHEREAS, low fuel prices and increased fuel efficiency is resulting in reduced auto operating costs, which is resulting in California residents driving more (the rebound effect), making it more challenging for MPOs to achieve GHG reduction targets;

WHEREAS, ARB Board Member, UC Davis Professor Daniel Sperling will convene a best practices roundtable to include representatives from ARB, the MPOs and other entities to identify and define new initiatives, incentives and regulations for achieving the RTP/SCS targets, including: 1) potential regulations requiring that autonomous vehicles and Transportation Network Company (TNC) fleets such as Uber and Lyft be electric; 2) enabling the reduction of emissions related to school and public transit trips through accelerating the turnover of these fleets to electric; 3) potential to strengthen requirements to site public facilities/state-funded facilities (state agency
offices, hospitals, etc.) in transit-served locations; 4) potential to increase enforcement of California's Parking Cash Out law; 5) expand the availability of efficient first and last mile transit solutions to provide for more carbon efficient commuting; 6) in partnership with the state's air districts, consider advancing the development of an Indirect Source Review (ISR) rule or similar mechanism to mitigate emissions from larger employment centers located in areas with high levels of vehicle miles traveled due to inadequate transit service and/or a lack of workforce housing; 7) the development of zero emission vehicles and alternative transportation fuel systems that should be promoted and incentivized.

WHEREAS, conditional upon the state granting pricing authority to MPOs to bring user auto operating costs back to levels commensurate with 2008 levels (the conditions under which SB 375 was enacted);

WHEREAS, conditional upon the state dedicating funding to support transit, ridesharing, and non-motorized transportation from pricing mechanisms and new state sources and programs;

WHEREAS, conditional upon the state provide additional funding to ensure implementation of regional plans/sustainable communities strategies, on a scale commensurate with the defunct redevelopment law;

WHEREAS, conditional upon the Bay Area Air Quality Management District developing and implementing an Indirect Source Review rule to require developers to mitigate greenhouse gas emissions caused by vehicle miles traveled linked to their projects;

WHEREAS, conditional upon ARB committing to address issues resulting from any update to the Emission Factor emissions model for target setting and target compliance, including any model-related impacts on target attainment; now, therefore, be it

RESOLVED, that the Metropolitan Transportation Commission hereby recommends an 18% per capita greenhouse gas emissions reduction target for 2035 from 2005 levels for the third round of RTP/SCS and beyond.
METROPOLITAN TRANSPORTATION COMMISSION

Jake Mackenzie, Chair

The above resolution was entered into by the Metropolitan Transportation Commission at a regular meeting of the Commission held in San Francisco, California on April 26, 2017
Memorandum

TO: Planning Committee

FR: Executive Director

RE: MTC Resolution No. 4271: SB375 Greenhouse Gas Target Update

Background

The California Air Resources Board (ARB) released the draft Scoping Plan Update in January 2017 and is scheduled to release draft SB 375 GHG targets in late spring/early summer. Each California Metropolitan Planning Organization (MPO) is required to meet the new ARB targets for the years 2020 and 2035 in the upcoming third round of Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) plans. MTC is currently in the midst of the 2017 RTP/SCS (Plan Bay Area 2040) process for which the first and second round targets apply, so these new third targets will be applicable to the 2021 RTP/SCS.

For the first and second RTP/SCS rounds, ARB set targets for the ABAG/MTC region of a 7 percent per capita reduction from 2005 levels by 2020, and a 15 percent per capita reduction from 2005 by 2035. These targets were exceeded in the 2013 RTP/SCS, which was forecast to reduce per capita greenhouse gas emissions by 10 percent by 2020 and by 16 percent by 2035. We are on track to exceed these targets by comparable margins in Plan Bay Area 2040 as well.

Bay Area Greenhouse Gas Target Considerations

On March 23, 2017, Executive Directors from the other large California Metropolitan Planning Organizations (MPOs) along with MTC Planning Director Ken Kirkey presented challenges and stress test results to the ARB board. During this presentation, MPO staff emphasized that:

- MPOs continue to push the envelope in terms of focused growth in land use, but feasible land use strategies are not sufficient to achieve the needed reductions in GHG emissions.
- Low fuel prices and increased fuel efficiency is resulting in reduced auto operating costs. This, in turn, is causing California residents to drive more (the rebound effect), making it more challenging for MPOs to achieve greenhouse gas emissions reduction targets based on less driving (see chart on next page).

1 March 2017 Planning Committee memo on stress test results:
MPOs need more state funding to incentivize focused growth and transit connectivity to support state climate goals.

In studying aggressive policies to lower GHG emissions, we are concerned about the equity impacts of both displacement as well as roadway pricing, which has a greater proportional impact on lower income travelers.

Despite these challenges, and given the urgency of reducing the impacts of climate change, we believe that it is very important to reduce GHG emissions related to metropolitan growth and transportation. To further California’s leadership in this effort, the four largest California MPOs — Southern California Association of Governments (SCAG), San Diego Association of Governments (SANDAG), Sacramento Area Council of Governments (SACOG) and MTC — aspire to make our Regional Transportation Plans/Sustainable Communities Strategies both “ambitious and achievable.”

Bay Area Greenhouse Gas Target Reduction Recommendation

With these considerations in mind, MTC staff recommend increasing the 2035 target to 18% per capita reduction in GHG from 2005 levels for the 2021 RTP/SCS and beyond. This recommendation has been developed in coordination with the other three largest California MPOs, which are also recommending a standard 18% per capita reduction for their regional plans based on similar experiences with reductions in previous RTP/SCS rounds, stress test results and rebound effect challenges. This recommendation is conditional on several factors that we believe are critical to achieving this target:

- The state will grant pricing authority to MPOs so they can bring user auto operating costs back to levels commensurate with 2008 levels (the conditions under which SB 375 was enacted). Because roadway pricing is regressive, equity exemptions and mitigations should be included.
- The state will dedicate funding to support transit, ridesharing, and non-motorized transportation from pricing mechanisms and new state sources and programs.
The state will provide additional funding to ensure implementation of regional plans/sustainable communities strategies, on a scale commensurate with the defunct redevelopment law.

ARB will commit to address issues resulting from any update to the Emission Factor emissions model for target setting and target compliance, including any model-related impacts on target attainment.

In addition to the factors above, during the March 23rd Air Resources Board meeting, ARB Board Member and UC Davis Professor Daniel Sperling proposed a best practices roundtable to include representatives from ARB, the MPOs and other entities to identify and define new initiatives, incentives and regulations for achieving the RTP/SCS targets. We foresee the following strategies being part of this discussion:

- Potential regulations requiring that autonomous vehicles and Transportation Network Company (TNC) fleets such as Uber and Lyft be zero emissions.
- Enabling the reduction of emissions related to school and public transit trips through accelerating the turnover of these fleets to electric.
- Potential to strengthen requirements to site state-funded and state-licensed facilities (state agency offices, hospitals, etc.) in transit-served locations. These are large job centers and the destinations for many trips, so locating them in transit-accessible areas would reduce their impact on GHG emissions and provide significant equity benefits to low income/transit dependent individuals. (See attachment A for San Francisco Hospital Transportation Challenges and Impacts.)
- Potential to increase enforcement of California’s Parking Cash Out law\(^2\). Parking Cash Out refers to the California’s 1992 legislation requiring that employers who subsidize parking for workers must also offer them the option to take an equivalent cash allowance instead of the parking subsidy. This law only applies to larger employers (50 or more employees) that rent the parking spaces they provide to their workers free or below cost.
- Expand the availability of efficient first and last mile transit solutions to provide for more carbon efficient commuting.
- In partnership with the state’s air districts, consider advancing the development of an Indirect Source Review rule or similar mechanism to mitigate emissions from larger employment centers located in areas with high levels of vehicle miles traveled due to inadequate transit service or a lack of workforce housing.

With these measures in place, we believe the proposed target will be achievable in the third (2021) RTP/SCS. In short, we believe that continued progress on achieving tougher GHG targets will require a new funding and policy partnership between the state and its major metropolitan regions.

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Next Steps

Upon Commission approval, MTC staff will issue a report to the Air Resources Board recommending the 18% per capita greenhouse gas emissions reduction target from 2005 levels for 2035 for the next round of RTP/SCSs, conditional on the factors outlined in this memo. ARB will release a Draft Staff Report and Environmental Document in late spring/early summer 2017 including updated targets for California MPOs. Following a set of CEQA workshops in the summer, ARB plans to adopt final targets in fall 2017 and update their technical methodology for reviewing MPO SCS greenhouse gas quantification. MTC staff will engage with ARB, other MPO staff and additional participants in the best practices roundtable to advance successful attainment of the GHG targets.

Recommendation

Staff recommends that the Planning Committee refer Resolution No. 4271 to the Commission, which sets forth the conditional “Bay Area Greenhouse Gas Target Reduction Recommendation” to inform and guide ARB in setting these targets for the Bay Area.

[Signature]

Steve Heminger

Attachment:

- Attachment A: SF Hospital Transportation Challenges & Impacts

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SF Hospital Transportation Challenges & Impacts

- Hospitals are dense employment centers and are not located near regional transit stations
- Many employees (48%*) live outside SF (23% East Bay*)
- Working and middle class employees can’t afford to live close to best employment opportunities
- High turnover of frontline employees who transfer to jobs closer to home
- High cost of recruiting and training new employees

* UCSF Mt Zion Campus, 2013 Transportation Impact Study - Employee Survey
Target Recommendation

Sacramento Area Council of Governments
April 13, 2017

Approve SB 375 Greenhouse Gas Emissions Reduction Target Setting

Issue: What SB375 greenhouse gas (GHG) emissions reduction target for 2035 should be recommended to the Air Resources Board?

Recommendation: The Transportation Committee unanimously recommends that the Board of Directors recommend an increase of 2035 GHG emissions reduction target from 16 to 18 percent, conditional on: 1) the State taking actions outlined below to facilitate reaching a greater GHG emissions reduction; and 2) SACOG taking actions outlined below through the next update of the MTP/SCS.

Committee Action/Discussion: The action on SB 375 targets contains two decision points:
1) Should SACOG take the opportunity to comment to the ARB on the resetting of the targets?
2) If SACOG decides to take this opportunity, what should the recommendation be?

Staff recommends that the Board take the opportunity to recommend our own target. The ARB is authorized by SB 375 to set GHG emissions reduction targets, and will do so absent a recommendation. However, the ARB was very cooperative and inclusive of SACOG in setting the current targets. Additionally, several other MPOs have indicated they will recommend targets to the ARB, and staff recommends that the SACOG Board add its voice to this dialog, particularly to ensure that the target remains ambitious but achievable. Finally, in forming our own recommendation on a reset of the target, SACOG can identify and include in the recommendation key issues of concern regarding State policy and actions, and can identify key assumptions and expectations about State actions needed to support SACOG, as well as other MPOs, in reaching higher GHG emissions reduction targets. This opportunity to attach assumptions and expectations to SACOG’s target would be missed if a recommendation were not made.

Staff recommends an increase in SACOG’s 2035 GHG emissions reduction target from 16 to 18 percent, conditioned on assumptions outlined below.

Required Future Actions by SACOG to Support Achievement of Higher GHG Emissions Reductions and Implementation of SCSs

The actions described below list the major steps needed to reach a higher target. However, there is a range of options available within each action, and different levels of implementation could be combined to reach the recommended higher target. All the actions are consistent with policy priorities in the current MTP/SCS, although the specific implementation strategies are variable and would be up to the discretion of the Board and implementing agencies. Note that many of
these actions require additional funding, over and above the revenues currently projected; this issue will be addressed below, in a section describing required actions by the state to achieve higher GHG emissions reductions.

- **Incentivize early growth in infill and transit-oriented development (TOD) areas.**
  Residents of infill and TOD areas tend to have shorter vehicle trips, and more trips by transit, biking, and walking, than residents of other areas. Finding ways to create incentives for growth in those areas will assist in meeting higher GHG targets. The stress tests done for the ARB included a scenario which shifted modest growth into infill and TOD areas in the early years (before 2035) of the next plan (6 percent of total dwelling unit growth), added more transit service to those areas, and added more pedestrian and bicycle facilities. The scenario generated 4 percent more GHG emissions reductions. The full extent of this scenario *would not* need to be implemented, but some pieces of it would. Examples include:
  - Accelerating development in TOD areas like the Downtown/Riverfront Streetcar corridor and the Folsom corridor in Rancho Cordova;
  - Accelerating employment growth in centers serving housing-rich areas (e.g., El Dorado County and the City of Elk Grove); and
  - Early implementation of maintenance and rehabilitation projects in infill areas, where a single project can both advance goals on state of good repair (SOGR), and complete street projects, which will encourage alternative modes of travel and activate infill development.

- **Increase transit service and modernize deployment of transit services.** In concert with acceleration of growth in infill and TOD areas, additional transit service both supports growth and provides options for residents to shift out of vehicle modes. Over the last 10 years, we have all observed what happens to transit ridership as major cuts in service are made. To reach higher GHG emissions reduction targets, this trendline needs to be reversed. Additionally, disruptive changes in transportation services and new mobility options have created an imperative to reinvent transit to focus on travel markets it can efficiently serve, and to find ways to leverage new mobility options to provide better access to and from fixed-route/fixed-schedule corridors. Examples include:
  - Elk Grove Transit’s “Comprehensive Operational Analysis”; and
  - Regional Transit’s “Station Link” partnership with Uber, Lyft, and Yellow Cab.

- **Continue to prioritize maintenance and state of good repair.** Through the development of the current MTP/SCS, fix-it-first, SOGR, and addressing a long-term backlog in infrastructure maintenance was a high priority. The adopted plan shifted $2 billion from other expenditures to maintenance and rehabilitation, relative to the 2012 MTP/SCS. However, fully addressing the maintenance backlog would have required significantly more funding (estimated at $4 billion based on the currently adopted MTP/SCS). Additionally, the potential for long-term net savings through early spending on the maintenance backlog, totaling up to $10 billion, was presented and discussed in the development of our current MTP/SCS. These long-term net savings result from the avoided cost of future major maintenance projects (e.g., doing earlier and cheaper roadway resurfacing and other maintenance on a regular schedule to avoid major
reconstruction at a much higher cost later). This condition aligns with similar provisions related to cost savings and efficiencies in SB 1/AB 1 and the 2016 Sacramento Measure B proposal.

- **Innovation and investment in specific programs that generate additional GHG emissions reductions.** The stress tests prepared by SACOG and the other MPOs looked at the potential effect of locally-initiated programs to accelerate the rate of electric vehicle market penetration. Our ability to reach higher GHG emissions reductions will require continued exploration of new ideas and investments in expanding deployment of successful programs. Examples include:
  - SMUD, PG&E, and El Dorado County all provide vehicle purchase incentives to local residents, over and above the state and federal purchase incentives;
  - The much-publicized Volkswagen settlement could fund a significant expansion of local, supportive EV infrastructure (e.g., public charging stations), which could significantly expand on SACOG’s current EV infrastructure program; and
  - SACOG’s own TDM Innovation Grant Program is intended to inspire new ideas for providing mobility and managing the impact of transportation, which could provide significant GHG reductions if successful pilot programs are scaled up.

**Required Future Actions by the State to Support Achievement of Higher GHG Emissions Reductions and Implementation of SCSs**

The actions described below are necessary for the state to lead to offset some of the unintended consequences of policies on vehicles and fuels, and to support the MPOs’ ability to reach higher GHG emissions reduction targets.

- **Offsetting the long-term decline in driving cost.** By our estimates, the average cost of driving will decline by 17 percent per mile over the long term, in part due to state policy initiatives on vehicle efficiency and fuels. This decline results in a “VMT rebound,” which, while very positive, adversely impacts SACOG’s ability to reach higher GHG emissions reduction targets.

- **Offsetting the loss of fuel-based tax revenues.** The flip side of the decline in driving cost is a decline in fuel sales and taxes on a per-mile traveled basis. This is a historic trend, which will be exacerbated by the more aggressive state policies implementing SB 32. This would result in $1-2 billion in reduced fuel tax revenues for our next MTP/SCS update, relative to the current MTP/SCS.

The ARB has recognized both concerns in staff conversations, and most recently in a hearing of the Board in March. The ARB also has acknowledged that these concerns might be addressed by transitioning from the current fuel-sourced taxes to a mileage-based user fee. Such a fee addresses the first concern, in part because the fee is more directly tied to actual use of the roadway than the current fuel-based taxes. Second, such a fee would broaden the base of drivers paying for the use of roadways by including non-fossil fuel powered vehicles. Finally, a mileage-based user fee would not be subject to the erosion of revenues caused by vehicles becoming more fuel efficient over time.
The State has already begun steps to address these two concerns. The California Road Charge Pilot Test explicitly recognizes the concerns and is exploring options, including changes to vehicle license fees, tolling, increases to the fuel tax, and mileage-based user fees (or “road charges”). SB 1, approved by the legislature on April 6, increases fuel taxes, but also includes a vehicle charge for ZEVs to offset partially the loss of revenue from ZEV roadway users.

State action on these two concerns would both address the VMT rebound issue and provide additional revenues for transportation-related investments. For those investments to generate additional GHG emissions reductions, and to achieve other policy goals of the MTP/SCS, such as investments in system maintenance and rehabilitation, the state would also need to support and promote use of additional revenues for those purposes.

- **Return to source of any additional revenues.** Based on the goals of the MTP/SCS and the state imperative to play a role in achieving higher GHG emissions reductions, additional funding is needed. Although the current MTP/SCS shifted resources into maintenance and SOGR, additional progress requires greater revenues. SACOG’s stress tests demonstrated that additional GHG emissions reductions could be achieved through coordinated land use and transportation measures, but without additional funding none of that could be achieved. The GHG emissions reduction target recommendation assumes a return to source for any new revenues.

- **Additional revenues used to achieve multiple objectives.** In order for any new revenues to be available to implement multiple MTP/SCS policy priorities, including achieving higher GHG emissions reductions, SACOG needs flexibility in using the revenues. Flexibility would provide the ability to pursue projects that achieve multiple goals, such as advancing SOGR with a street reconstruction and including a complete street improvement within the project.

- **Normalization of exogenous factors related to calculation of the target reductions.** In order for the work of MPOs on SB 375 and GHG emissions reductions to focus on the combined effects of land use and transportation on vehicle travel and GHG emissions, some of the technical assumptions in SACOG’s first two SCSs, such as long-range fuel price forecasts and long-range emissions rate estimates, should be consistent with those used to set the targets.

**Framework for Reaching Higher GHG Reductions**

The key actions by the state and by SACOG outlined above are critical to achievement of higher GHG emissions reductions. However, the recommendation of 18 percent, though clearly ambitious, is achievable with a range of possible “levels” of actions by the state and SACOG. The different “levels” of aggressiveness will depend on the preferences of the Board and the state, practical constraints on their ability to take action, and the opportunities to take specific steps implementing each action. For example, if the state pursued a mileage-based user fee to both replace the existing fuel tax and offset the decline in driving cost, that action would both fully offset the “VMT rebound” and provide a significant revenue source for activating more
land use and transportation strategies. In such a case, less would be required from innovative programs to achieve the recommended 18 percent target. Other combinations of implementation levels of the key actions could result in reaching the same level of reduction. Attachment C provides a matrix of “scenarios” of differing implementation levels of these key actions, each of which could reasonably get to the 18 percent target. The main point is that though reaching 18 percent will be ambitious and challenging, the Board will have options in formulating the policy framework of the next plan.

**Potential Risks if Future MTP/SCS does not Meet the GHG Emissions Reductions Targets**

As we have discussed with the Board over the last cycles, when an MTP/SCS cannot demonstrate that the proposed plan meets the SB 375 GHG emissions reduction targets, an Alternative Planning Strategy (APS) which does meet the target must be prepared. The APS can ignore some constraints that apply to the development of the MTP/SCS. For example, additional revenues over and above those reasonably expected for the MTP/SCS could be assumed to be available and fund transportation improvements. Transportation investments and land use changes deemed to be infeasible for political or practical reasons also could be included in the APS. In effect, the APS is a separate scenario to the MTP/SCS, which identifies some of the additional steps that would be needed to meet the GHG emissions reduction targets. Development of the APS would require staff time and potentially other resources (e.g., consultants) to prepare.

To date, no MPO has prepared and relied on an APS, so the risks, beyond the extra cost of preparing it, are not known. However, some of the cap-and-trade funding programs include consistency with an SCS as one of the evaluation criteria, so there is some uncertainty around the competitiveness of a project relying upon an APS.

Attached to this item are summaries of prior information and discussion from the February and March Committee and Board meetings:

- Attachment A provides a summary of background information on:
  - State transitioning from AB 32 climate change goals to more aggressive SB 32 goals;
  - SB 375 Sustainable Communities and Climate Change Act;
  - SB 375 target metric: percent reduction in per capita GHG, compared to year 2005;
  - Current SB 375 targets for SACOG: 7 percent by 2020, 16 percent by 2035;
  - SACOG’s history on SB 375: adopted MTP/SCS in both 2012 and 2016 meets targets;
  - Dialog with ARB and other MPOs on resetting SB 375 targets—ARB expects MPOs to assist in meeting higher statewide GHG emissions reduction goals, other MPOs will be recommending higher reduction targets;
  - “Stress tests” performed by the four large MPOs (including SACOG) to help inform the target resetting;
  - “VMT rebound effect”—the expected long range decline in cost of driving, caused in part by increasing vehicle efficiency (i.e., more miles per gallon), increasing percentage of electric and hydrogen vehicles, and declining gasoline
prices, results in an increase in driving, which makes achieving GHG emissions reductions more difficult; and
  o Expected long-range decline in fuel sales and gas tax revenues—less funding for infrastructure and maintenance, and further evidence that the current excise tax will continue to fall behind needs.

- Attachment B includes responses to several key questions that were raised on issues related to the SB 375 targets.

Approved by:

James Corless
Chief Executive Officer

JC:BG:ds
Attachments

Key Staff: Kirk E. Trost, Chief Operating Officer/General Counsel, (916) 340-6210
          Matt Carpenter, Director of Transportation Services, (916) 340-6276
          Bruce Griesenbeck, Principal Transportation Analyst (916) 340-6268
SB375 Background Material
The following summarizes information provided to the SACOG Board through Committee meetings and presentations to the Board in February and March.

AB 32 and SB 32 Statewide Climate Change Policies and Goals
AB 32 was landmark legislation on climate change, and set statewide goals for greenhouse gas (GHG) emissions reductions. AB 32 set the first statewide target for GHG emissions reductions: rolling back total GHG emissions reductions from all sectors in the state to 1990 levels by the year 2020. The California Air Resource Board (ARB) has a key role in implementation of AB 32, and adopted the first “Scoping Plan,” which outlines implementing policies to achieve the AB 32 targets, in 2008.

https://www.arb.ca.gov/cc/ab32/ab32.htm

In 2015, Governor Brown signed an executive order increasing the state goals for overall GHG emissions reductions, and in 2016 those goals were adopted into law (SB 32). SB 32 added a new GHG reduction target for the state: 40 percent below 1990 levels by the year 2030. ARB is actively assessing how to set policies to implement those larger reduction goals in a major update of the “Scoping Plan.”

https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm

SB 375—Sustainable Communities & Climate Protection Act
With regard to transportation sector GHG emissions reduction, the state’s policy is often described as a “tripod” with three “legs”:

1. Vehicles: policies and regulations to increase the efficiency and reduce the tailpipe emissions of the fleet of vehicles operating within the state.
2. Fuels: promoting fuels and power sources with lower GHG emissions (e.g., lower-carbon fossil fuels, electricity, and hydrogen cell).
3. Reducing the amount of vehicle travel: promoting policies for reducing the amount of vehicle miles traveled and, by extension, the amount of GHG emissions, through better land use and transportation planning.

SB 375 is the portion of the third “leg” to be achieved by the combined effects of land use patterns and transportation investments on passenger vehicle travel. SB 375 is assigned to MPOs like SACOG for implementation, with oversight by the Air Resources Board (ARB). The “Sustainable Community Strategy” (SCS) is the land use allocation and future transportation investment strategy which achieves the GHG reduction targets for each MPO.

https://www.arb.ca.gov/cc/sb375/sb375.htm

SB 375 Targets and Target Metric
The “target” metric for GHG emissions reduction for SB 375 is stated as a percentage decrease in per capita GHG, compared to 2005. SACOG has targets for 2020 and 2035. SACOG’s SB375 targets are:

• 7 percent by 2020; and
• 16 percent by 2035.

Through its quadrennial Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS), SACOG must demonstrate that its combined future land use and transportation plans would lead to per capita GHG 7 percent less than the 2005 level by 2020, and 16 percent less by 2035. SACOG adopted MTP/SCSs in 2012 and 2016 that achieved these GHG emissions reduction targets, and has had programs in place for supporting lead agencies in utilizing the various CEQA relief options provided by SB 375.

The ARB has the authority to reconsider SB 375 targets every 4 years. In 2014, after the first 4 years of SB 375, the ARB chose to leave the initial targets in place. Now approaching eight years in, the ARB has decided to reevaluate the SB 375 targets, with an eye toward increasing them, consistent with the intent of the SB 32.

**SACOG’s SB 375 History**

SACOG has adopted two SCSs that achieve the SB 375 GHG emissions reduction targets: the first in 2012, the second (and current) in 2016. Both SCSs were adopted as integral parts of SACOG’s Metropolitan Transportation Plan (MTP), which is updated every four years. As part of SACOG’s MTP/SCS implementation activities, SACOG provides SCS consistency findings on request to member agencies for their use in CEQA.


[http://sacog.maps.arcgis.com/apps/StoryMapBasic/index.html?appid=5a6452c96f6c4ac88c49721411a0db8b](http://sacog.maps.arcgis.com/apps/StoryMapBasic/index.html?appid=5a6452c96f6c4ac88c49721411a0db8b)

**Dialog with ARB and Other MPOs on the Target Setting**

Over a year ago, an active dialog between the four largest MPOs (Southern California Association of Governments or SCAG, MPO of the Los Angeles Basin; Metropolitan Transportation Commission or MTC, MPO of the San Francisco Bay Area; San Diego Association of Governments or SANDAG; and SACOG) and the ARB was initiated related to SB 32, the Scoping Plan, and SB 375 targets.

The ARB requested that the MPOs look at their current SB 375 targets and recommend new targets for 2035 that assist the state in achieving the higher GHG emissions reduction goals set by SB 32. In other words, in SACOG’s case, to recommend GHG reduction targets higher than the current 16 percent reduction by 2035. As part of this request, the ARB requested that the MPOs perform various “stress tests,” which may assist in identifying a higher target as well as potential means for achieving the higher target. The stress tests are NOT constrained by revenues or other practical concerns—they were intended to be speculative “what if” scenarios.

The stress tests looked at the following policies:

- Land Use—More growth in focused in compact, infill, TOD, and other lower-VMT areas.
- Transit—More transit investments and service.
• Active Transportation Projects—More investments in pedestrian and bike projects and amenities.
• Greater Zero Emission Vehicle (ZEV) Penetration—Projects and policies which accelerate penetration of ZEV’s into the passenger vehicle fleet, over-and-above the aggressive state policies in place now, or expected to be in place with implementation of SB 32.
• Pricing—Impact of transportation pricing policies, such as mileage-based user fees.
• Enhanced Mobility—These policies relate to all the new modes of travel (e.g., Uber, Lyft, car share, bike share, etc.) which actually EXIST, and are increasing in utilization and importance over time. They also include the effects of new travel modes and transportation services which either do not exist, or are not fully deployed, such as automated or connected vehicles.

The four largest MPOs agreed to evaluate the potential impact of these policies on achieving GHG emissions reductions over and above the achievement in their current adopted SCSs.

The additional GHG emissions reductions for SACOG stress tests are shown below:
• Land Use / Transit / ATP Combined: 4 percent (at a cost of $3-5 billion over life of MTP/SCS)
• Greater ZEV Penetration: 1 percent (at a cost of $100M over life of MTP/SCS)
• Pricing: 4 to 6 percent (depending on the level of user fee charged—tests assumed $0.04 to $0.08 per mile)
• Enhanced Mobility: No result provided—too early to tell how these new modes/services will affect VMT and GHG.

Other MPOs also performed the stress tests. In general, they found: less potential on Land Use / Transit / ATP (results ranging from 0-2 percent); greater potential on ZEV penetration (up to 20 percent!); similar results for Pricing (although some MPOs looked at much higher mileage fees); and agreement on Enhanced Mobility (too early to build effects into targets).

See the following for more details on the SACOG stress test results.

**Stress Test Land Use/Transit/Active Transportation Project Scenario**
The Land Use/Transit/Active Transportation Project combined scenario was based on “Scenario 3” from the alternatives analysis of the current adopted MTP/SCS. The alternatives analysis was done and presented to the SACOG Board to provide an idea of the range of potential land use and transportation scenarios, and their relative performance across a range of indicators. In the analysis, Scenario 2 was the 2012 MTP/SCS. Scenario 1, relative to Scenario 2, included slightly less compact development and growth in Centers & Corridor areas, and included less transit and more highway investments. Scenario 3, relative to Scenario 2, included more compact development and growth in Center & Corridor areas, and included more transit and active transportation projects. These alternatives were also used in the California Environment Quality Act (CEQA) analysis of the current adopted MTP/SCS. Table 1 provides a comparison of the Scenario 3 to the current adopted SCS.
Table 1. SACOG Scenario 3

<table>
<thead>
<tr>
<th>Scenario Variable</th>
<th>Adopted MTP/SCS</th>
<th>Scenario 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of 2012-2036 Dwelling Unit Growth in...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...Center &amp; Corridor Communities</td>
<td>30%</td>
<td>36%</td>
</tr>
<tr>
<td>...Established Communities</td>
<td>28%</td>
<td>27%</td>
</tr>
<tr>
<td>...Developing Communities</td>
<td>40%</td>
<td>36%</td>
</tr>
<tr>
<td>...Rural Residential areas</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Share of 2012-2036 Job Growth in...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...Center &amp; Corridor Communities</td>
<td>35%</td>
<td>35%</td>
</tr>
<tr>
<td>...Established Communities</td>
<td>49%</td>
<td>53%</td>
</tr>
<tr>
<td>...Developing Communities</td>
<td>16%</td>
<td>12%</td>
</tr>
<tr>
<td>...Rural Residential areas</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Transportation System Inputs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transit Service Hours (% change from 2012)</td>
<td>+122%</td>
<td>+143%</td>
</tr>
<tr>
<td>Major Roadway Lane Miles (% change from 2012)</td>
<td>+21%</td>
<td>+18%</td>
</tr>
<tr>
<td>Bike Lane Miles (% Change from 2012)</td>
<td>+123%</td>
<td>+137%</td>
</tr>
</tbody>
</table>


Scenario 3 was ruled out as a reasonable alternative in part because of assessments of the marketability of the location and type of development it included, and in part due to financial constraints. The MTP/SCS draft environmental impact report states that “To achieve this level of transit performance for Alternative 3, land use assumptions were made that go beyond the federal requirements of what is reasonable to assume. For instance, the alternative relies on a higher amount of attached housing, especially near transit, than the market and financial incentives currently will support. Additionally, Alternative 3 includes a high funding allocation for transit and relies on an exceptionally high farebox recovery rate, which are unlikely to occur under current operations.”

2016 MTP/SCS DEIR:

SACOG staff has estimated the cost of additional transit service included in Scenario 3, compared to the current adopted MTP/SCS, as $2-3 billion. This additional funding would primarily be required to operate transit at higher service frequencies in areas where the underlying demographics and land uses would support high frequency transit. Further, estimates of the land-side infrastructure needed to make some of the targeted growth in Center & Corridor communities and transit-oriented development (TOD) areas are $1-2 billion over and above the current adopted MTP/SCS. These funds would be used for upgrading utilities, upgrading street and pedestrian environments, providing other lands-side infrastructure like parks, etc., in Center & Corridor communities and TOD areas. These investments would make development in these areas more likely, and, in combination with more frequent transit service in those areas, would make Scenario 3 more achievable.
VMT Rebound Effect

One key issue came up in the dialog between the ARB and the MPOs regarding the target setting. The ARB, as part of the vehicle efficiency and lower-carbon fuels policies ("legs" #1 and #2 of the state’s transportation GHG emissions reduction program) have the effect of reducing the average cost of driving over time, as vehicles become more efficient and lower-cost power sources like electricity become more prevalent in the vehicle fleet. Although the overall impact of these “legs” of the state’s program result in significant decreases in overall tailpipe emissions, the declining average cost of driving also results in a slight increase in vehicle travel. This slight increase in VMT due to declining driving costs is known as the “VMT rebound effect.” Due to the method of modeling and accounting for vehicle travel and GHG emissions from passenger vehicles in the SB 375 targets, the VMT rebound effect decreases the overall GHG emissions reductions accounted for in the SB 375 target metrics.

Table 2 provide a tally of the average driving costs (or auto operating cost) for the first two SACOG SCSs. For 2035 forecasts:

- Average driving cost decreased by 12 percent between the first SCS (adopted in 2012) and the second SCS (adopted in 2016). This decline in driving cost resulted in a 1.8 percent increase in VMT for the second SCS. This “rebound” had to be covered by a combination of slightly more compact land uses, and additional investments in supporting EV infrastructure programs. The decline in driving cost was caused by a decline in the Department of Energy long range forecast of the cost of gasoline.

- Based on the currently available projections of vehicle fleet efficiency and DOE gasoline price forecasts, the expected average driving cost will drop by 17 percent going from the second SCS to the third SCS (expected adoption in 2020). This decline in driving cost will cause a 2.5 percent increase in VMT for the third SCS. This “rebound” is a major topic of discussion with the ARB regarding the potential for getting to higher SB 375 targets.
### Table 2. Auto Operating Costs, Round 1, 2 and 3 SCS’s

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>2005</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Round 1*</td>
<td>$2.70</td>
<td>20.6</td>
<td>$0.131</td>
<td>$0.066</td>
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<tr>
<td>Round 2**</td>
<td>$2.72</td>
<td>19.5</td>
<td>$0.139</td>
<td>$0.050</td>
</tr>
<tr>
<td>2035</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Round 1*</td>
<td>$5.30</td>
<td>29.3</td>
<td>$0.181</td>
<td>$0.108</td>
</tr>
<tr>
<td>Round 2**</td>
<td>$4.68</td>
<td>28.2</td>
<td>$0.166</td>
<td>$0.088</td>
</tr>
<tr>
<td>Round 3***</td>
<td>$4.84</td>
<td>39.4</td>
<td>$0.123</td>
<td>$0.088</td>
</tr>
</tbody>
</table>

- **Round 2 Diff from Round 1 for 2035**: -12.4%
- **Round 1 to 2 VMT Rebound**: +1.8%
- **Round 3 Diff from Round 2 for 2035**: -16.9%
- **Impact on VMT**: +2.5%


Shaded are the main “drivers” of the VMT rebound. From Round 1 to Round 2, the main driver was a drop in the DOE long range forecast for gasoline. From Round 2 to the expectation of Round 3, the main driver is the major increase in average MPG.


**From SACOG 2016 SCS. Estimated from 2013 Dept. of Energy fuel price forecasts & EMFAC2011 passenger vehicle fleet efficiency projections.

***Estimated based on 2015 Dept. of Energy fuel price forecasts & EMFAC2014 passenger vehicle fleet efficiency projections. Note that 2017 Dept. of Energy fuel price forecasts will be used for 2020 SCS, and may be different than the 2015 forecasts.
Attachment B: SB375 Target Setting
Responses to Questions from March TC, LUNR and GRPA

-Won’t SB 1/AB1 offset both the user cost decline and VMT rebound, as well as the revenue decline, raised as a concern for the target setting?
The impact of SB 1/AB 1 on the per-gallon price of fuel is significant, adding $0.12 per gallon to the forecast year, which is a significant increase in the taxes paid per gallon in 2020 and 2035 (16 to 18 percent increase—see Table 1). However, that increment in taxes, once factored into the average cost of driving on a per-mile basis, is minimal (1 to 2 percent increase). Note that these figures were calculated from a draft of the bill, not the current bill language.

In terms of revenue expected over the life of the MTP/SCS, a verbal briefing will be provided at the Committee meetings based on the version of the bill passed by the State legislature.
Table 1. Effect of SB 1 / AB 1 On Fuel Prices and Driving Costs

<table>
<thead>
<tr>
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<th></th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current</td>
<td>SB1/AB1</td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td>20.0</td>
<td>$4.19</td>
<td>$0.638</td>
<td>$0.638</td>
</tr>
<tr>
<td>2020</td>
<td>AB 32</td>
<td>24.9</td>
<td>$4.33</td>
<td>$0.678</td>
<td>$0.678</td>
</tr>
<tr>
<td>2035</td>
<td>AB 32</td>
<td>28.2</td>
<td>$5.14</td>
<td>$0.737</td>
<td>$0.737</td>
</tr>
<tr>
<td>2020</td>
<td>SB 32</td>
<td>24.7</td>
<td>$4.17</td>
<td>$0.666</td>
<td>$0.786</td>
</tr>
<tr>
<td>2035</td>
<td>SB 32</td>
<td>39.4</td>
<td>$5.36</td>
<td>$0.753</td>
<td>$0.873</td>
</tr>
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</table>

SB1 / AB1 Differences

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>-0.2</th>
<th>-$0.16</th>
<th>-$0.012</th>
<th>+$0.108</th>
<th>-$0.005</th>
<th>-$0.000</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>2035</td>
<td>+11.2</td>
<td>+$0.22</td>
<td>+$0.016</td>
<td>+$0.136</td>
<td>-$0.046</td>
<td>-$0.043</td>
</tr>
</tbody>
</table>

2035 % Diff

|        | +40% | +4%  | +2% | +18% | -17% | -15% |

Notes:
/1/ Projections based on best available information on passenger vehicle fleet efficiency (ARB EMFAC 2011) and fuel prices (per Department of Energy 2013 “Outlook” report). This is the fleet efficiency and fuel price forecast used by SACOG for the 2016 MTP/SCS.

/2/ Projections based on best available information on passenger vehicle fleet efficiency (ARB EMFAC **2014**) and fuel prices (per Department of Energy 2013 “Outlook” report). This is the fleet efficiency and fuel price forecast used by SACOG for the 2016 MTP/SCS.
Attachment B: SB375 Target Setting
Responses to Questions from March TC, LUNR and GRPA

-What share of total GHG is accounted for by passenger vehicles today? How does that share change over time to the 2035 horizon?
The ARB shows significant decrease over time in passenger vehicles by 2035 (current Scoping Plan shows decline from 112 to 78 million metric tonnes, a 30% decline in total, based on AB32 GHG emissions reduction goals). The SB32 goals will be lower still, but even these forecasts of aggressive change to vehicles, fuels, and power sources for passenger vehicles show passenger vehicles emitting a significant amount of GHG.

2014: passenger vehicles generate 111.85 MMT CO2e (25.4% of all GHG emissions)

2035 (AB32): passenger vehicles generate 78 MMT CO2e
Source: ARB, “First Update to the Climate Change Scoping Plan”, May 2014.

2035 (SB32): passenger vehicles generate 78 MMT CO2e

-Are there any estimates of how much GHG is thrown up by a forest fire?
One estimate of GHG release from fires collectively in the US is 290 million metric tonnes per year (compared to about 1,800 million metric tonnes emitted collectively by the transportation sector, and 6,870 million metric tonnes in total). If forest fires increase in frequency or severity, this share would increase, and clearly is a concern if reduction of total GHG is a goal.

Source: University of California, reported in the journal Carbon Balance and Management.

-How do tailpipe emissions for passenger vehicles compare on a per-mile and per-gallon fuel burned between 2005 and 2017?
Based on the per-mile GHG emissions rates of vehicles 2008 and earlier, compared to 2017 model year vehicles, rates have decreased by 15 to 20 percent, depending on the fuel economy of the vehicle. However, for purposes of SB 375 emissions reduction targets, the vehicle technology and fuel changes which drive this decline are largely excluded from the reduction calculation. The SB 375 target focuses on the amount of vehicle travel per capita. The reductions generated by vehicle technology and fuel are tracked and tallied as part of the state’s GHG emissions reduction programs, and are not double-counted in the SB 375 target calculation.
**Attachment B: SB375 Target Setting**

**Responses to Questions from March TC, LUNR and GRPA**

Figure 1. 2008 vs. 2017 GHG Emissions per Mile

![GHG Emissions by Model Year & MPG](http://www.epa.gov/greenvehicles/greenhouse-gas-rating)

Source: SACOG, March 2017, based on: [https://www.epa.gov/greenvehicles/greenhouse-gas-rating](https://www.epa.gov/greenvehicles/greenhouse-gas-rating)

**What is the hit on jobs and the economy of California’s GHG emissions reduction policies?**

The ARB draft Scoping Plan recognizes potential impact of GHG regulations on businesses and jobs in California, but does not put a specific number to it:

“Further, some sources may not be able to achieve a required percent reduction in GHGs each year, forcing them to cut production to meet their annual caps, potentially affecting jobs and the price of their products. This would negatively impact both the California economy and global GHG emissions. Goods that are currently produced in California would be produced elsewhere potentially reducing in-state employment. Assuming California residents still want buy these products, they would be produced out-of-state and imported in, potentially increasing GHG emissions. Under Alternative 4, there are limited mechanisms to address emissions leakage, which may increase under this scenario.”

The Scoping Plan also references potential threats of climate change to other industries within the state (e.g., impact of increasingly frequent or severe droughts on agriculture), and the effect of attracting other jobs to the state based on the same policies (e.g., alternative energy industry). All of the references at this point are not detailed or quantified.


**Is there research & development on reducing CO2 output of vehicles?**

In the meeting, the active parts of the California GHG emissions reduction policies (increasing vehicle efficiency, increasing the percentage of non-fossil fuel burning vehicles in use, reducing the carbon intensity of fossil fuels burned by vehicles) were all mentioned.
UC Davis supports two active research centers on low-carbon vehicles and fuels: Plug-In Hybrid and Electric Vehicle Research Center and the Sustainable Transportation Energy Pathways (STEPS) program.

Additionally, UC Davis supports two active research centers on sustainable transportation and land use planning: National Center for Sustainable Transportation, and the Urban Land Use and Transportation Center.

SACOG has collaborated or actively used research from all of these research programs in our planning work. For example, the Plug-In Hybrid and Electric Vehicle Research Center assisted in formulating SACOG’s Plug-In Electric Vehicle Plan.
## Framework for Higher GHG Reductions

### Potential Scenarios

<table>
<thead>
<tr>
<th>Implementing Actions</th>
<th>Going from...</th>
<th>...to</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Offset Decline in Driving Cost</td>
<td>State partially offsetting decline in cost</td>
<td>State fully offsetting decline in driving cost</td>
</tr>
<tr>
<td>New Revenues Return to Source</td>
<td>Nearly all new revenues return</td>
<td>Half or less of new revenues return</td>
</tr>
<tr>
<td>Enable/Encourage Use of New Revenues for Achieving Multiple Objectives</td>
<td>High flexibility = 20% revenue multiplier</td>
<td>Low Flexibility = no multiplier</td>
</tr>
<tr>
<td>Prioritize Maintenance and SOGR (based on share of new revenue available to maintenance)</td>
<td>80% or more of new revenue dedicated to maintenance</td>
<td>50% or less of new revenue dedicated to maintenance</td>
</tr>
<tr>
<td>Incentivize Early Growth in Infill and TOD Areas (share of new revenue available for land use activation, transit, ATP investment)</td>
<td>20% or less of new revenue to LU, transit, ATP</td>
<td>50% or less of new revenue to LU, transit, ATP</td>
</tr>
<tr>
<td>Innovative Programs (e.g. EV infrastructure, shared mobility, etc.)</td>
<td>Maximum investment in innovative programs ($200M+)</td>
<td>Minimum investment in innovative programs ($100M or less)</td>
</tr>
<tr>
<td>Potential Additional GHG Reduction:</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>GHG Reduction Target:</td>
<td>18%</td>
<td>18%</td>
</tr>
</tbody>
</table>

**Key:**
- **High**
- **Medium-High**
- **Medium**
- **Low-Medium**
- **Low**
Target Recommendation

San Diego Association of Governments
GREENHOUSE GAS REDUCTION TARGET SETTING PROCESS

Recommendation

The Board of Directors is asked to:
(1) approve the 2035 per capita greenhouse gas (GHG) emission reduction target recommendation for the San Diego region of 18 percent; and (2) authorize the Executive Director to submit the proposed target to the California Air Resources Board pursuant to Senate Bill 375 for its use in the GHG emissions reduction target setting process.

Introduction

The next update of the Regional Plan will include the third Sustainable Communities Strategy (SCS) subject to the provisions of Senate Bill 375 (Steinberg, 2008) (SB 375). SB 375 requires that the Regional Plan include an SCS that demonstrates how development patterns and the transportation network, policies, and programs can work together to achieve per capita greenhouse gas (GHG) emission reduction targets for cars and light trucks (SB 375 targets) for the years 2020 and 2035 from a 2005 baseline as established by the California Air Resources Board (ARB).

Pursuant to SB 375, ARB is required to update the SB 375 targets by 2018. Before updating these targets, ARB is required to exchange technical information with SANDAG and other Metropolitan Planning Organizations (MPOs) as well as other agencies, and engage in a consultative process with public and private stakeholders. Toward that end, ARB has requested that SANDAG and other MPOs provide recommendations for the updated 2035 targets, along with technical analysis and documentation to support the recommendations. ARB will consider this information in establishing the updated SANDAG target, which will apply to the next update of the SANDAG Regional Plan, anticipated for adoption in 2019.

At the March 23, 2017, ARB Board meeting, ARB staff presented an informational update on the SB 375 Target Update process. Executive Directors of the four largest MPOs from the Sacramento Area Council of Governments (SACOG), Bay Area Metropolitan Transportation Commission (MTC), Southern California Association of Governments (SCAG), and SANDAG made a joint presentation at this meeting and summarized findings from the technical analyses presented to their respective boards.
Discussion

Existing SB 375 Targets for the San Diego Region

Established by ARB in 2010, the existing SB 375 targets for the San Diego region are to reduce GHG emissions from cars and light trucks by 7 percent, per capita, by 2020, and by 13 percent, per capita, by 2035, compared with a 2005 baseline. Table 1 shows that the Regional Plan adopted in 2015 would exceed the San Diego region’s SB 375 targets for 2020 and 2035.1

<table>
<thead>
<tr>
<th>Table 1: SB 375 Greenhouse Gas Reduction Targets and San Diego Forward: The Regional Plan Greenhouse Gas Emissions Reductions Results</th>
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</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Existing SB 375 Targets</td>
</tr>
<tr>
<td>San Diego Forward: The Regional Plan GHG Reductions (2015)</td>
</tr>
</tbody>
</table>

Note: Average weekday per capita carbon dioxide reductions for cars and light trucks from 2005.

Figure 1 identifies the contributions made by specific components of the Regional Plan’s SCS toward SB 375 per capita GHG reductions from passenger vehicles in 2050. The chart shows that about half of the reductions are due to the Regional Plan’s investments in transportation capital projects, operations improvements, and Transportation Demand Management (TDM) measures that support teleworking (i.e., working from home or telecommuting). About one quarter of the reductions are due to changing land use and population characteristics, and another quarter are due to increases in auto operating costs.

1 While the SB 375 analysis focuses on per capita GHG reductions from passenger vehicles, an analysis of total GHG emissions was included in the Regional Plan Environmental Impact Report (EIR) (Section 4.8). The EIR analysis showed that total GHG emissions in 2050 are projected to be 26 Million Metric Tons CO2e (Carbon Dioxide Equivalent), or 25.9 percent lower than GHG emissions in 2012 (Table 4.8-8).
Findings of Technical Stress Tests

On March 10, 2017, staff presented the Board of Directors with results of the technical “stress tests” that were conducted to inform the target update process (Attachment 1). The purpose of the stress tests was to evaluate the potential effectiveness of various transportation and land use strategies, pricing, technology innovations, and other variables that would help the state achieve its GHG reduction goals.

Source: Final EIR for San Diego Forward: The Regional Plan, Appendix K-1 Responses to Comments on the Draft EIR, Figure 4-1
The findings of this analysis indicate that the 2015 Regional Plan GHG reductions, shown in Table 1, represent an ambitious performance. The 2015 Regional Plan reflects the land use transformation that has taken place in the past 15 years due to updates of local jurisdiction land use plans, robust transit investments, the Regional Bike Plan Early Action Program mobility hubs, and transportation demand and system management strategies.2

In the 2019 update of the Regional Plan, future revenue assumptions may differ from the 2015 Regional Plan. They will depend in part on whether the next Regional Plan assumes a new local transportation funding source, and on future state funding initiatives, such as transportation bond measures and mileage-based user fees.

In addition to challenges represented by funding constraints, there are new challenges that the region will face during the update of the Regional Plan. New targets must account for progress that the state is making in other climate programs, such as zero-emission vehicle market penetration and increases in overall fleet efficiency from the Advanced Clean Cars (ACC) program. As shared with the Board of Directors in March, the ACC program has some unintended consequences; that is, by increasing passenger vehicle fuel efficiency, the cost of driving is decreasing, which leads to projections that people will drive more and GHG will increase. This is known as the Vehicle Miles Traveled (VMT) “rebound effect” and has the impact of limiting the ability of agencies like SANDAG to reduce GHG emissions from passenger vehicles through regional transportation and land use planning.

The technical stress tests presented at the March 10, 2017, SANDAG Board meeting evaluated strategies that are aspirational and fiscally unconstrained, and may not be feasible under existing circumstances. The findings of the stress tests indicate that only limited additional GHG reductions are achieved from aggressive land use changes and transit investment assumptions. Additionally, the stress tests showed that the best options to further reduce passenger vehicle GHG emissions are to increase the cost of driving and increase the amount of zero-emission miles that are driven on the region’s roadways—two factors that are outside the direct control of SANDAG and outside the framework of what MPOs can take credit for under SB 375.

Based on these factors, and through coordination with the other large MPOs (described further below), SANDAG staff believes an 18 percent per capita GHG reduction in 2035 is ambitious and achievable in the 2019 update to the Regional Plan, subject to the state successfully developing some combination of the following actions, which are consistent with current state sustainability policies:

(1) The state to lead the development of pricing mechanisms that reverse the VMT rebound effect caused by the lower cost of driving due to increased vehicle fuel efficiency and lower fuel prices. Pricing mechanisms should include equity considerations. The California Road Charge Pilot Program is an example of a pricing program under evaluation by the state.

2 SANDAG regularly collaborates with ARB on the review of its modeling assumptions, and SANDAG makes its transportation model source code available online (https://github.com/SANDAG/ABM). Additionally, MPOs across the state have collaborated to standardize the core assumptions used in the travel models (e.g., auto operating costs) and SANDAG uses those standardized assumptions.
(2) Given that the funding contained in the recent transportation legislation largely is focused on maintaining and rehabilitating the existing transportation system, the state also should recognize the lasting impacts of the elimination of redevelopment funding and provide additional funding to support implementation of Regional Transportation Plans/Sustainable Communities Strategies.

(3) ARB to address any impacts from updates to the Emission Factor emissions model used to calculate target achievement.

Figure 2 illustrates the current targets that were set by ARB in 2010 and a recommended target of an 18 percent reduction for 2035. This would represent an increase of 5 percentage points over the current target (13 percent).

![Figure 2: Target Comparison – Current and Recommended Targets](image)

**MPO Coordination on Target Recommendations**

The four largest MPOs in the state (SACOG, MTC, SCAG, and SANDAG) along with the California Association of Councils of Governments (CALCOG) have been collaborating in the target setting process using a consistent technical methodology. Each of the MPOs are anticipated to request approval from their respective boards in April for an 18 percent 2035 GHG reduction target. Therefore, it is possible that the recommendations from the four major MPOs could align and result in a uniform target being recommended to ARB.
Next Steps

SANDAG will continue to participate in the SB 375 GHG target setting process with ARB, other MPOs, and CALCOG to advocate for targets that are both ambitious and achievable. The following schedule outlines the anticipated steps toward approval of the final targets by the ARB Board.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANDAG submits target recommendation and target-setting analysis to ARB</td>
<td>April 2017</td>
</tr>
<tr>
<td>ARB releases draft target setting staff report</td>
<td>Late Spring/early Summer 2017</td>
</tr>
<tr>
<td>ARB workshop</td>
<td>Summer 2017</td>
</tr>
<tr>
<td>SANDAG provides comments on draft targets (as needed)</td>
<td>Summer 2017</td>
</tr>
<tr>
<td>ARB releases final staff report and ARB Board adopts targets</td>
<td>Fall 2017</td>
</tr>
</tbody>
</table>

GARY L. GALLEGOS
Executive Director

Attachment: 1. March 10, 2017, Board of Directors Agenda Item No. 17-03-2

Key Staff Contacts:  Phil Trom, (619) 699-7330, phil.trom@sandag.org
                    Elisa Arias, (619) 699-1936, elisa.arias@sandag.org
GREENHOUSE GAS REDUCTION TARGET SETTING PROCESS

Introduction

SANDAG will initiate the update of San Diego Forward: The Regional Plan (Regional Plan) in 2017. This Regional Plan will include the third Sustainable Communities Strategy (SCS) subject to the provisions of Senate Bill 375 (Steinberg, 2008) (SB 375). SB 375 requires that the Regional Plan include an SCS that demonstrates how development patterns and the transportation network, policies, and programs can work together to achieve per capita greenhouse gas (GHG) emission reduction targets for cars and light trucks (SB 375 targets) for the years 2020 and 2035 from a 2005 baseline as established by the California Air Resources Board (ARB). The Board of Directors has adopted two Regional Plans (in 2011 and 2015) since ARB first established SB 375 targets for the San Diego region in 2010. Both Regional Plans have demonstrated that SANDAG would meet or exceed its SB 375 targets for 2020 and 2035.

Pursuant to SB 375, ARB is required to update the SB 375 targets by 2018. Before updating these targets, ARB is required to exchange technical information with SANDAG and other Metropolitan Planning Organizations (MPOs) as well as other agencies, and engage in a consultative process with public and private stakeholders. Toward that end, ARB has requested that SANDAG and other MPOs provide recommendations for the updated targets, along with technical analysis and documentation to support the recommendations. Once established, the updated targets will apply to the next update of the SANDAG Regional Plan, which is due in 2019. Because the updated targets also will apply to California MPOs with SCS’s due after 2020, ARB is not expected to update the 2020 targets and instead will focus its efforts on the 2035 target setting.

This report discusses the scenario framework developed by ARB to update the targets, share the technical information and results, and provide information for future action by the Board of Directors on target recommendations to ARB.

Discussion

Statewide Planning for Greenhouse Gas Reductions

The SB 375 GHG reduction targets for cars and light trucks is one of several programs that California has put in place to reduce GHG emissions from various sources throughout the state. The overall framework for reducing GHG emissions in California is established in the Climate Change Scoping Plan (Scoping Plan) prepared by ARB. As required by Assembly Bill 32 (Nunez, 2006) (AB 32), the Scoping Plan (first adopted in 2008 and updated in 2014) shows the various programs the state has put in place to achieve the AB 32 goal of returning statewide GHG emissions to 1990 levels by 2020.
With the adoption of a statewide goal for 2030 included as part of Senate Bill 32 (Pavley, 2016) (SB 32), ARB now is working on a new Scoping Plan Update to show how California will achieve a 40 percent GHG reduction to 1990 levels by 2030. ARB published a draft of its 2017 Climate Change Scoping Plan Update (Draft Scoping Plan) on January 20, 2017, and is expected to consider adoption of a final Scoping Plan at its June 2017 meeting. Separately, while a 2005 Governor’s Executive Order (S-3-05) calls for an 80 percent statewide GHG reduction from 1990 levels by 2050, the State Legislature has not adopted a 2050 statewide goal.

The Draft Scoping Plan’s Proposed Scenario includes the following major elements by 2030:

- 50 percent of electricity from renewable sources
- Doubling of energy efficiency savings
- Cleaner transportation fuels
- More than 4 million zero-emission vehicles
- More than 100,000 zero-emission trucks
- Continuation of the cap-and-trade program 1 with declining caps
- 20 percent reduction in GHG emissions from the refinery sector
- “Increased stringency” of SB 375 targets for 2035

The Role of SB 375 Targets in Statewide Planning for GHG Reductions

The Draft Scoping Plan does not quantify how much SB 375 targets might be increased, or quantify the contribution of GHG reductions from the SB 375 targets to the statewide 2030 goal.2 However, it does state that “most of the GHG reductions from the transportation sector in this (draft) Plan will come from technologies and low carbon fuels,” and adds that, “a reduction in the growth of VMT (vehicle miles traveled) is also needed” to achieve the statewide 2030 goal. The Draft Scoping Plan further explains ARB’s position that, “(s)tronger SB 375 GHG reduction targets will enable the state to make significant progress toward this goal” of reducing the growth in VMT, but the SB 375 targets “alone will not provide all of the VMT growth reductions that will be needed.” The Draft Scoping Plan also acknowledges that, “(t)here is a gap between what SB 375 can provide and what is needed to meet the state’s 2030 and 2050 goals.” Furthermore, ARB recognizes that the burden for reducing VMT growth does not fall solely on MPOs like SANDAG, acknowledging that the state government also needs to take action “in parallel to SB 375” if the state’s GHG goals are to be achieved.

Existing SB 375 Targets for the San Diego Region

Established by ARB in 2010, the existing SB 375 targets for the San Diego region are to reduce GHG emissions from cars and light trucks by 7 percent, per capita, by 2020, and by 13 percent, per capita, by 2035, compared with a 2005 baseline. Table 1 shows that the two Regional Plans (the 2050 Regional Transportation Plan [RTP]/SCS in 2011 and San Diego Forward: The Regional Plan in 2015) adopted since ARB first established SB 375 targets would meet or exceed the San Diego region’s SB 375 targets for 2020 and 2035.

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1 According to ARB, “The Cap-and-Trade Program is a key element of California’s climate plan. It sets a statewide limit on sources responsible for 85 percent of California’s greenhouse gas emissions, and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy.”

2 The currently adopted Scoping Plan (2014) shows that statewide implementation of SB 375 (not just SANDAG, but all California regions) provides just under four percent of the GHG reductions needed to meet the statewide 2020 goal. https://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf
There are several reasons for the difference between the 2011 and 2015 Regional Plan’s GHG emissions in terms of meeting the 2035 targets. These include a reduction in low-density development in the rural unincorporated areas of the county, more compact land use pattern in the 2015 Regional Plan, advancement of transit investments, changes in auto operating cost assumptions, reductions in projected household income, and new information from the most recent travel studies about short walking and bike trips.

Table 1:  
SB 375 Greenhouse Gas Reduction Targets and Regional Plan Greenhouse Gas Emissions Reductions Results

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing SB 375 Targets</td>
<td>7 percent</td>
<td>13 percent</td>
</tr>
<tr>
<td>Our Region, Our Future 2050 RTP/SCS (2011)</td>
<td>14 percent</td>
<td>13 percent</td>
</tr>
<tr>
<td>San Diego Forward: The Regional Plan GHG Reductions (2015)</td>
<td>15 percent</td>
<td>21 percent</td>
</tr>
</tbody>
</table>

Note: Average weekday per capita carbon dioxide reductions for cars and light trucks from 2005.

Technical Work to Inform the Target Setting Update

As part of the collaborative process for updating the targets set forth in SB 375, SANDAG, other MPOs, and the California Association of Councils of Governments (CALCOG) have been working with ARB staff to conduct technical “stress tests” to inform the target setting update process. MPOs developed individual stress tests that all evaluated the potential effectiveness of various transportation and land use strategies, pricing, technology innovations, and other social and economic variables in helping the state meet its GHG reduction goals. These stress test scenarios include the Regional Plan adopted in 2015, along with six alternative scenarios consisting of strategies that are aspirational and fiscally unconstrained (e.g., they are not based on available funding), and may not be feasible under existing circumstances. Some scenario elements previously were studied in the Environmental Impact Report (EIR) for the 2015 Regional Plan.

The findings of the stress tests indicate that only limited additional GHG reductions are achieved from aggressive land use changes and transit investment assumptions. Additionally, the stress tests clearly show that the best options to further reduce passenger vehicle GHG emissions are to increase the cost of driving and increase the amount of zero emission miles that are driven on the region’s roadways — two factors that are outside the direct control of SANDAG and outside the framework of what MPOs can take credit for under SB 375. The effectiveness of these policies is confirmed by ARB’s own Scoping Plan.
**Stress Test Scenarios**

Strategies evaluated in the stress tests include (a) drastic changes in local land use patterns; (b) accelerated completion of transit capital projects and more frequent services; (c) a VMT user fee; (d) aggressive implementation of technology solutions (e.g., electric vehicles, autonomous vehicles); and (e) changes to other factors outside the control of SANDAG and other MPOs (e.g., increasing the cost of driving). Each of the stress test scenarios evaluated by SANDAG as part of this process is shown below and the descriptions and results are described in more detail in Attachment 1.

1. Revenue Constrained Regional Plan SCS (San Diego Forward)
2. San Diego Forward + Multiple Dense Cores Land Use
3. San Diego Forward EIR Alternative 2 (Advancing Transit)
4. San Diego Forward EIR Alternative 2 + Multiple Dense Cores
5. San Diego Forward 2035 Revenue Constrained SCS + 18-cent VMT User Fee
6. San Diego Forward EIR Alternative 2 + Multiple Dense Cores + 15-cent VMT User Fee
7. San Diego Forward Revenue Constrained SCS + additional 25 percent penetration of non-carbon VMT beyond Advanced Clean Cars\(^3\) standard

**Focus on Revenue Constrained Planning**

While SANDAG evaluated the seven scenarios as part of the stress tests, it is important to focus on Scenario 1, which reflects the adopted land use plans and revenue constraints of the 2015 Regional Plan. A focus on Scenario 1 is necessary (rather than on the aspirational or implausible nature of the other scenarios), because Regional Plans are required to include a financial element that is fiscally constrained. Setting higher targets not grounded in fiscal constraint and achievability will not automatically yield greater performance and may undermine the ability of the region to focus on the mandated revenue constrained planning required by federal law.

Complicating matters further, new targets set by ARB also must account for progress that the state is making in other climate programs, such as zero-emission vehicle market penetration and increases in overall fleet efficiency from the Advanced Clean Cars (ACC) program. The ACC program has some unintended consequences; that is, by increasing passenger vehicle fuel efficiency, the cost of driving is decreasing, which leads to projections that people will drive more and GHG will increase.\(^4\) This is known as the VMT “rebound effect” and has the impact of limiting the ability of agencies like SANDAG to reduce GHG emissions from passenger vehicles through regional transportation and land use planning. As a result, the focus on developing targets that are grounded in available

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\(^3\) The Advanced Clean Cars (ACC) Program is part of California’s requirements to reduce the state’s impact on climate change and improve ambient air quality. The components of the ACC program are the Low-Emission Vehicle regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulations, which require manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with additional provisions to produce plug-in hybrid electric vehicles in the 2018 through 2025 model years.

\(^4\) As a simple example, if gas costs $3 per gallon and you own a car that gets 20 miles to the gallon, your cost per mile to drive is $0.15 / mile. However, if you have a car that is twice as efficient and get 40 miles to the gallon, your cost of driving is cut in half to $0.075 / mile. SANDAG modeling and independent academic studies all conclude that reducing the cost of driving leads to more driving. This is the “rebound effect” of the ACC; SANDAG expects the impact of the ACC could lead to a 1 percent increase in regional VMT, albeit with much cleaner vehicles.
funding and other real-world constraints (i.e., ambitious and achievable) takes on greater importance.

**Scenario 1 Analysis**

Since the Board of Directors adopted the Regional Plan in 2015, SANDAG has updated its transportation model data and procedures. These model updates combined with changing revenue and income projections and the VMT rebound effect could lower GHG reduction results by as much as 3 percent in 2035. The next update of the Regional Plan will include an updated growth forecast based on changes to local land use plans and other updated economic and demographic assumptions. Furthermore, future revenue assumptions may differ from the 2015 Regional Plan and will depend in part on whether the next Regional Plan assumes voter approval of a new local transportation funding measure. Based on the analysis of all of these factors, SANDAG staff believes a reasonable range between 18 percent and 21 percent reduction in 2035 is achievable in the update to the Regional Plan.

**Additional Stress Test Results**

The results of the other six stress tests (Scenarios 2 through 7) help to provide some data around the evaluation of select variables that are outside the direct control of SANDAG and the other MPOs. Scenarios 2 through 4 focus on achieving passenger vehicle GHG reductions through major changes to local jurisdiction land use plans. Local land use plans have been updated over the past 14 years to concentrate growth within the urbanized areas of the region and closer to existing and planned transportation infrastructure. The planned land use changes between the late 1990s and 2015 resulted in an estimated per capita GHG reduction of between 25 and 30 percent. As shown by the stress tests, additional land use concentration within the San Diego region would do little to achieve additional passenger vehicle GHG reductions since so much progress already has been made. The stress test assumption that focuses forecasted housing and employment growth into four existing urban cores around high-quality transit stops (Multiple Dense Cores) (see map in Attachment 1) reveals an additional 2 percent passenger vehicle GHG reduction relative to Scenario 1.

The results of Scenarios 5 and 6 focus on the addition of pricing strategies in the form of a “Vehicle Miles Traveled user fee.” For purposes of the stress test, a per-mile fee of 15 to 18 cents is charged for every mile driven. This would effectively add $150 to $180 to the cost of every 1,000 miles driven. The VMT user fee is being explored actively by the State of California through a pilot study, but such a fee structure currently is not allowed at the regional or municipal level. It would require either state implementation or changes to existing state law to allow for such a regional VMT fee to be collected. The VMT fee analysis revealed that a six to seven percent reduction could be achieved over Scenario 1 from these pricing assumptions.

Finally, the evaluation of additional penetration of zero-emissions travel beyond ARB’s aggressive ACC standard was the focus of the Scenario 7 analysis. This scenario revealed that an additional 20 percent GHG reduction could be achieved over Scenario 1 by assuming that an additional 25 percent of miles traveled are on zero-emission vehicles beyond what ARB is assuming in the ACC standard. This much larger reduction points to ARB’s own conclusion that most of the GHG reductions from the transportation sector (as stated in the draft Scoping Plan) will come from technologies and low carbon fuels. As stated previously, ARB acknowledges that the state
government needs to take action “in parallel to SB 375” if the state’s GHG goals are to be achieved, and there are other factors not controlled by regional agencies that go well beyond the SB 375 targets and contribute far more to the achievement of the GHG goals.

**Regional Targets or Uniform Targets**

Rather than setting unique targets for each region, as was done in 2010, ARB has the option of setting a single statewide uniform target. ARB could set a uniform target for the four largest MPOs in the state (Sacramento Area Council of Governments, Bay Area Metropolitan Transportation Commission, Southern California Association of Governments, and SANDAG). SANDAG is working actively with those MPOs on the development of a single and uniform target.

**Next Steps**

Over the next several weeks SANDAG staff will continue to participate in the SB 375 GHG target setting process with ARB, other MPOs, and CALCOG. Additionally, ARB has scheduled three workshops on the target updates between March 7 and March 14, 2017. Staff will provide an update on the target setting process and expects to propose a recommended 2035 per capita GHG reduction target for Board action in the March/April timeframe. It is anticipated that the recommended target pursuant to SB 375 would be submitted to ARB for use in its target setting process in April 2017.

GARY L. GALLEGOS  
Executive Director

Attachment: 1. Stress Test Scenario Summaries

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Elisa Arias, (619) 699-1936, elisa.arias@sandag.org
Stress Test Scenario Summaries

The following are descriptions of each stress test scenario, and a summary of results is included as Table 1.

**Scenario 1: Revenue Constrained Regional Plan Sustainable Communities Strategy (“San Diego Forward”)**

This scenario is consistent with the phased transportation investments and revenue constrained financial estimates of San Diego Forward: The Regional Plan (Regional Plan) and land uses consistent with local General Plans.

**Scenario 2: San Diego Forward + Multiple Dense Cores Land Use**

The Multiple Dense Cores (MDC) scenario focuses all forecasted housing and employment growth into four existing urban cores around high-quality transit fixed-route stops. In this alternative, approximately 70 percent of the future housing growth is located within the Dense Cores, with the remaining 30 percent being mostly located in the surrounding Transit Priority Areas. Under this scenario, land development is prohibited in the remainder of the region. The Multiple Dense Cores land use assumption differs greatly from adopted local general plans. A map showing the Multiple Dense Cores is included as Figure 1.

**Scenario 3: San Diego Forward Environmental Impact Report Alternative 2 (Advancing Transit)**

Environmental Impact Report (EIR) Alternative 2 includes the following transportation investments:

- Complete all public transit capital projects and public transit operations improvements in the adopted plan by 2025 (the plan horizon year is 2050)
- Complete managed lanes (MLs) and ML connectors in the proposed Plan that support Rapid routes by 2025
- Implement ten-minute all-day frequencies for Urban Core local bus routes by 2025
- Complete all active transportation projects in the adopted plan by 2025

Significant new funding would be required to implement and operate the accelerated capital program of EIR Alternative 2, which is estimated at approximately $34 billion by 2025. This would require approximately $30 billion in new capital funds within a ten-year period. The cost to operate the transit facilities would expand from approximately $350 million annually in FY 2015, to nearly $1.1 billion annually in FY 2025. Total operating costs over the 35-year period (by 2050) would be nearly $49 billion.

**Scenario 4: San Diego Forward EIR Alternative 2 + Multiple Dense Cores**

This scenario represents the combination of the EIR Alternative 2 along with the Multiple Dense Cores land use from Scenarios 2 and 3. A map showing the Multiple Dense Cores is included as Figure 1.

**Scenario 5: San Diego Forward 2035 Revenue Constrained Sustainable Communities Strategy + 18-cent Vehicle-Miles-Traveled User Fee**

Scenario 5 includes the Regional Plan assumptions along with an 18-cent Vehicle-Miles-Traveled (VMT) fee. For this scenario, SANDAG analyzed how different VMT user fees could—in combination with the adopted Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS)—potentially achieve VMT reductions comparable to those assumed in the California Air Resources Board (ARB) Draft Scoping Plan (i.e., a 7.5 percent reduction in total light-duty VMT in 2035, relative
to 2035 levels under adopted RTP/SCS’s). The VMT fees used in this scenario increase auto operating costs by 67 percent beyond the baseline cost agreed to by the four large Metropolitan Planning Organizations (MPOs) for Round 2 SCS development.

**Scenario 6: San Diego Forward EIR Alternative 2 + Multiple Dense Cores + 15-cent VMT User Fee**

This scenario combines Scenario 4 with a 15-cent VMT fee. A map showing the Multiple Dense Cores is included as Figure 1. For this scenario, SANDAG analyzed how different VMT user fees could—in combination with aggressive land use and transportation investment assumptions described above—potentially achieve VMT reductions comparable to those assumed in the ARB Draft Scoping Plan (i.e., a 7.5 percent reduction in total light-duty VMT in 2035, relative to 2035 levels under adopted RTP/SCS’s). The VMT fees used in this scenario increase auto operating costs by 56 percent beyond the baseline cost agreed to by the four large MPOs for Round 2 SCS development.

**Scenario 7: San Diego Forward Revenue Constrained SCS + additional 25 percent penetration of non-carbon VMT beyond Advanced Clean Car standard**

This scenario combines the Regional Plan with an additional 25 percent penetration of non-carbon emitting VMT beyond the current Advanced Clean Car (ACC) standard set by ARB.

**Table 1:**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>2035 GHG Reduction (per capita)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Revenue Constrained Regional Plan SCS</td>
<td>-18 to -21 percent</td>
</tr>
<tr>
<td>2. San Diego Forward + Multiple Dense Cores Land Use</td>
<td>-2 percent (-20 to -23 percent)</td>
</tr>
<tr>
<td>3. San Diego Forward EIR Alternative 2 (Advancing Transit)</td>
<td>&lt;1 percent (-18 to -21 percent)</td>
</tr>
<tr>
<td>4. San Diego Forward EIR Alternative 2 + Multiple Dense Cores</td>
<td>-2 percent (-20 to -23 percent)</td>
</tr>
<tr>
<td>5. San Diego Forward 2035 Revenue Constrained SCS + 18-cent VMT User Fee</td>
<td>-7 percent (-25 to -28 percent)</td>
</tr>
<tr>
<td>6. San Diego Forward EIR Alternative 2 + Multiple Dense Cores + 15-cent VMT User Fee</td>
<td>-6 percent (-24 to -27 percent)</td>
</tr>
<tr>
<td>7. San Diego Forward Revenue Constrained SCS + additional 25 percent penetration of non-carbon VMT beyond ACC standard</td>
<td>-20 percent (-38 to -41 percent)</td>
</tr>
</tbody>
</table>

1 EIR Alternative 2 has minimal impacts in 2035 because the scenario is similar to the base SCS scenario. Alternative 2 accelerates deployment of transit to 2025 that would have occurred later in the plan.

2 The ACC Program is part of California’s requirements to reduce the State’s impact on climate change and improve ambient air quality. The components of the ACC program are the Low-Emission Vehicle regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with additional provisions to produce plug-in hybrid electric vehicles in the 2018 through 2025 model years.
Figure 1: Multiple Dense Cores
Target Recommendation
Southern California Association of Governments
DATE: April 6, 2017

TO: Regional Council (RC)  
   Executive/Administration Committee (EAC)  
   Community, Economic and Human Development (CEHD) Committee  
   Energy and Environment Committee (EEC)  
   Transportation Committee (TC)

FROM: Hasan Ikhrata, Executive Director, (213) 236-1944, ikhrata@scag.ca.gov

SUBJECT: SCAG SB 375 Regional GHG Target Recommendations for the 2020 Regional Transportation Plan/Sustainable Communities Strategy (2020 RTP/SCS) and Beyond

EXECUTIVE DIRECTOR’S APPROVAL:

RECOMMENDED ACTION FOR CEHD AND TC:  
For Information Only – No Action Required.

RECOMMENDED ACTION FOR EAC AND EEC:  
Recommend that the RC approve SCAG’s submittal to the California Air Resources Board (CARB) of a recommended greenhouse gas (GHG) per capita reduction target for the region that is the same as the achievement in the 2016-2040 RTP/SCS — 18% in 2035. This recommendation would apply to the 2020 RTP/SCS and subsequent cycles of the SCS, and is conditioned upon a combination of actions or alternative equivalent measures further described below in the staff report (see Section entitled “SCAG’S TARGET RECOMMENDATIONS AND CONDITIONS”).

RECOMMENDED ACTION FOR RC:  
Approve SCAG’s submittal to CARB of a recommended greenhouse gas (GHG) per capita reduction target for the region that is the same as the achievement in the 2016-2040 RTP/SCS — 18% in 2035. This recommendation would apply to the 2020 RTP/SCS and subsequent cycles of the SCS, and is conditioned upon a combination of actions or alternative equivalent measures further described below in the staff report (see Section entitled “SCAG’S TARGET RECOMMENDATIONS AND CONDITIONS”).

EXECUTIVE SUMMARY:  
SB 375 directs Metropolitan Planning Organizations (MPOs) in California to develop a Sustainable Communities Strategy in concert with their Regional Transportation Plan that can meet State-determined regional GHG emission reduction target, if it is feasible to do so. CARB is presently working to update the reduction targets for the subsequent round of the RTP/SCS, and SCAG has been coordinating with the other large MPOs to develop recommendations to CARB. Based on SCAG’s SB 375 Stress Test results, additional considerations of impacts from Metro’s Measure M, potential VMT rebound effects from enhanced fuel efficiency, and consensus reached about likely ranges of GHG reduction targets among the four largest MPOs in California, staff recommends that CARB should adopt a regional GHG per capita reduction target that is the same as SCAG’s 2016 RTP/SCS achievement—18% in 2035 for the 2020 RTP/SCS and beyond. This recommended target in 2035 is very ambitious and cannot be achieved simply with strategies in the adopted 2016-2040 RTP/SCS. However, it can be
achieved through a bottom-up collaboration process with stakeholders and through leadership of policy makers and state agencies through the development of the 2020 RTP/SCS.

STRATEGIC PLAN:
This item supports SCAG’s Strategic Plan, Goal 1: Improve Regional Decision Making by Providing Leadership and Consensus Building on Key Plans and Policies; Objective: a) Create and facilitate a collaborative and cooperative environment to produce forward thinking regional plans.

BACKGROUND:
Codified in 2009, California’s Sustainable Communities and Climate Protection Act (referred to as “SB 375”), calls for the integration of transportation, land use, and housing planning, and also establishes the reduction of greenhouse gas (GHG) emissions as part of the regional planning process. SCAG, working with the individual County Transportation Commissions (CTCs) and the subregions within the SCAG region, is responsible for complying with SB 375 in the Southern California region. One key element of compliance with SB 375 is the establishment of GHG emissions reduction targets for each region, which is done by CARB with input from the State’s MPOs.

The last time that CARB established GHG emissions reduction targets was in 2010, to which CARB utilized a Regional Targets Advisory Committee (RTAC) to undertake a public process for determining the regional targets. In September 2010, SCAG’s Regional Council approved a recommendation to CARB that the SCAG regional GHG emission targets be 8% for 2020 and 13% in 2035. The RTAC and CARB ultimately approved SCAG’s recommendation, and these represent the current SB 375 GHG emission reduction targets for the SCAG region. In accepting the targets proposed by CARB in 2010, SCAG’s Regional Council identified 11 conditions/actions or alternative equivalent measures that must be met for SCAG to be able to comply with those targets. The conditions outlined below in this staff report can be considered as an update to those conditions. Most of those conditions were related to increasing funding, securing higher levels of funding commitments to specific modes/programs, such as Active Transportation, Transit, and Transportation Demand Management. With the exception of securing higher level of funding for Active Transportation through the Active Transportation Program (ATP) and Los Angeles County’s recently passed Measure M, most of the other measures/actions to increase transportation funding have not come to fruition. The new target must take into consideration the challenges associated with making progress and bringing those actions and equivalent measures to fruition.

For the upcoming cycle of the RTP/SCS, staff has reported to Regional Council and Policy Committees regularly beginning in September 2016 on the status and progress on finalizing SCAG’s GHG target recommendation to the CARB. There are several factors that impact SCAG’s recommendation of an 18% per capita GHG reduction target for 2035 – one being that SCAG’s 2016-2040 RTP/SCS (also referred to as the “Plan”) achieved this target and represents an ambitious and balanced Plan that pushes the envelope in all strategies while protecting economic growth, job creation, and accessibility. In fact, the Plan exceeds CARB’s GHG reduction target of 13% for 2035 by five percentage points. With the anticipated impacts from the VMT rebound effect and other factors, the same level of resolve would likely not achieve this 18% target. To reach 18% for the 2020 RTP/SCS, SCAG will need to conduct additional research in GHG reduction strategies and must promote innovation and collaboration with regional stakeholders to formulate an achievable SCS.
Indeed, the SCAG region has been ambitious in implementing the Plan as well. There has been overwhelming evidence showing progress on implementation of the RTP/SCS: (1) the share of growth in single family and multifamily housing has been consistent with the assumptions in the Plan since adoption, (2) the proportion of growth in High Quality Transit Areas (HQTAs) is higher on the ground than was projected (49% actual vs. 43% projected), (3) the SCAG region has secured additional active transportation investments as prescribed, and (4) requests for funding on SCAG’s Sustainability Planning Grants dramatically exceeds available funding ($35 million requested vs. $11 million available) indicating the desire from local jurisdictions to implement sustainability practices. With all of this progress, local efforts will still need substantial funding support to meet an ambitious GHG reduction target.

**CARB SB 375 Target Update:**

SB 375, as codified in State law in Government Code Section 65080(b)(2)(B), requires that each MPO adopt, as part of its regional transportation plan, a “Sustainable Communities Strategy” that sets forth plans to meet regional GHG reduction targets set by CARB. SB 375 also requires that CARB update the regional targets at least every eight years.

SCAG has completed two cycles of the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) in 2012 and 2016 that met or exceeded these required CARB targets. The latest Plan, SCAG’s 2016-2040 RTP/SCS was adopted in April 2016, and met the per capita GHG reduction target of 8% in 2020 and demonstrated 18% per capita GHG reductions in 2035 (exceeding the target of 13% by five percentage points).

For this round of the SB 375 Target Update Process, CARB will utilize a similar GHG reduction target for year 2020 as each MPO’s GHG reductions in previous cycle – 8% for the SCAG Region, and future SCS evaluations for 2020 will focus on performance monitoring. CARB will develop statewide performance indicator database to monitor the performance of SCS.

CARB is in the process of updating the regional GHG reduction targets for each MPO. These new CARB targets will form the basis of the next round of RTP/SCS plans, which for SCAG will be the 2020 RTP/SCS. The SB 375 Target Setting Process has been informed by a suite of concurrent planning activities and technical exercises, including: CARB SB 32 Scoping Plan Update, the CARB Mobile Source Strategy; and the MPO Stress Test.

CARB released the Draft SB 32 Scoping Plan Update in January 2017 and completed three scheduled public workshops on SB 375 Regional Target Update Process in March 2017. The four largest MPOs—MTC, SACOG, SANDAG, and SCAG are planning to submit their respective GHG target recommendations in April 2017. CARB’s current schedule is to issue Draft SB 375 regional GHG reduction targets in 2035 for MPOs in June and adopt final targets in Fall 2017.

**SCAG STRESS TEST RESULTS AND CONSIDERATIONS:**

SCAG, along with the other three major MPOs in California, have collaborated and each conducted a technical “Stress Test” aimed to test GHG reduction strategies that would yield the most ambitious yet achievable GHG emission reductions. The purpose of the Stress Test is to quantify potential GHG emission reductions that would result from deployment of various land use and transportation strategies, such as accelerated deployment of zero emission vehicles and mobility innovations. The technical analysis and off-
model assessment of potential additional GHG emission reductions from strategies included in the Stress Test are the technical basis for SCAG’s 2035 target recommendations to CARB.

Since SCAG has already adopted very ambitious strategies in land use, mileage-based user fees, pricing, and transit investment in both the 2012 and 2016 RTP/SCS, staff focused the agency’s “Stress Test” and potential additional GHG emissions reductions in three strategy buckets: (a) active transportation, (b) zero emissions vehicles and (c) mobility enhancement and innovations. As indicated in the November 3, 2016 RC and Policy Committees staff reports, SCAG’s Stress Test results show that about 2 to 2.5 percentage points (2.0%-2.5%) of per capita GHG emissions could be reduced further above the 18% in 2035—but this carries with it an additional funding need of $10 billion on active transportation programs, investments, and more refined off-model assessment of mobility enhancements and innovations.

It is important that the ultimate SB 375 targets continue to be set at levels that MPOs can meet with an SCS, not an Alternative Planning Strategy (APS). The targets should also take into account federal requirements that MPOs must meet for financial constraints, among other requirements. As indicated, SCAG staff estimate that it will cost roughly $10 billion in additional investments and programs to achieve the higher GHG emission reduction results in the Stress Test. This cost, however, is not within the financial constraints of the 2016 RTP/SCS financial plan. Stress Test results also predict that improved vehicle technology and fuel efficiency through 2035 will have an attendant reduction in vehicle operating costs, which will likely increase household driving and VMT.

In addition to the Stress Test results, staff also identified and assessed likely ranges of GHG impacts from the following factors:

Impacts from Transit Investments in Measure M passed by voters on November 8, 2016
- May result in additional per capita GHG reductions in the SCAG Region
- Active Transportation investments are estimated to reduce the $10 billion funding gap identified in the Stress Test to just under $5 billion

Automotive Technology Improvements in Fuel Efficiency
- It will induce up to a 4 to 5 percentage points increase in per capita GHG and VMT in the SCAG region due to the decreased cost of driving (i.e., VMT rebound effect)
- This negative effect on per capita GHG reductions might be mitigated through additional mileage based user fees and/or other strategies beyond what was assumed and assessed in the 2016 RTP/SCS

MPO Coordination, Consensus in Target Recommendation:
Since the four largest MPOs (SCAG, SACOG, SANDAG, and MTC) follow similar RTP/SCS development processes and address similar issues, these agencies have been closely coordinating with each other in conducting their respective Stress Tests and in developing each MPO’s SB 375 GHG target recommendations. The goal of this collaboration is to develop parallel, independent, but comparable Stress Test results and ranges of target recommendations based on consistent modeling and off-model analysis framework and assumptions. As a result of this effort, here is a summary of consensus items among the MPOs:

- The ranges of additional GHG emissions reductions from each MPO’s Stress Tests are between two to four percentage points per capita for land use, transportation expenditures, and pricing scenarios.
However, some of these reductions are based on “extreme land use, transportation expenditure, and pricing scenarios” which are not expected to be adopted by each MPO’s governing board.

- CARB's advance clean car & fuel regulations will have some unintended consequences.
  - VMT rebound effect: by increasing fuel efficiency (i.e., higher fuel efficiency standards), the cost of driving is decreasing, and both per capita VMT and GHG will likely increase in the future
  - Transportation revenues will continue to fall due to declining fuel sales from more efficient vehicles and zero emission vehicles.
  - What does this mean? There will be gaps between CARB’s GHG targets and the MPOs’ existing and subsequent RTP/SCS’ GHG reduction strategies, requiring MPOs to assess additional “aggressive” strategies to fill the "gaps" through the next RTP/SCS development process. So far, no MPO has clear answers for addressing the gaps.

- Each of the four major MPOs is anticipated to request board action in April. Considering the GHG reductions achieved by MPOs in the previous two rounds of their RTP/SCSs, the “Stress Test” results, and the VMT/GHG rebound effect, there is a possibility that the four major MPOs may ultimately align on the same recommended target, which would allow the four to recommend a single and uniform target for CARB’s consideration and adoption.

**SCAG’S TARGET RECOMMENDATIONS AND CONDITIONS**

Based on SCAG’s SB 375 Stress Test results, additional considerations from Metro’s Measure M, the likelihood of VMT rebound effects from enhanced fuel efficiency standards and vehicle technology, and likely consensus among the four largest MPOs in California, staff recommends for CARB to adopt a regional GHG per capita reduction target for the SCAG region at the same level as the 2016 RTP/SCS’s achieved GHG reduction—that is, 18% in 2035 for the 2020 RTP/SCS and beyond. This recommended target in 2035 is very ambitious and cannot be achieved simply with strategies in the adopted 2016-2040 RTP/SCS. The performance gap between the 2016-2040 RTP/SCS and this ambitious recommended target may be resolved or surpassed with new and innovative strategies that can be developed through advanced research, regional leadership, and collaboration with private sector entities, state agencies, and local jurisdictions.

It is important to note that this GHG target recommendation is built upon SCAG’s 2016 RTP/SCS and its successful and timely implementation. As such, key conditions and assumptions in the 2016 RTP/SCS, including but not limited to policies, funding, strategies, and assistance from all levels of government, private business, advocacy groups, stakeholders, and technology innovation enablers will need to be coordinated and secured to ensure the attainment of the recommended targets.

In addition, SCAG’s recommendation for a regional GHG per capita reduction target of 18% in 2035, the same as achieved in the 2016-2040 RTP/SCS, is conditioned upon a combination of actions or alternative equivalent measures. Ambitious and achievable initiatives that were included in the previous Plan will need to be carried through into subsequent RTP/SCSs:

1. Successfully transitioning from an excise tax on gasoline to a mileage based user fee, starting in 2025 to serve as one of the primary sources of funding our roadways and transit infrastructure in the 2016 RTP/SCS
2. Successful implementation of the Regional Express Lane Network (HOT Lane Network) within the timeframe specified in the 2016 RTP/SCS

3. Implementation of over $38 billion in passenger rail improvements, including CA High Speed Rail Phase 1 connecting the Bay Area and Central Valley to the SCAG region including LA Union Station and Anaheim (the same level of investment identified in the 2016 RTP/SCS)

4. Implementation of over $56 billion in transit improvements, including expansion of the Metro Rail heavy and light rail system in Los Angeles County (representing a doubling of service compared to baseline), expansion of commuter rail service in the Inland Empire, implementation of streetcar service in Orange County, and region wide expansion of bus rapid transit services (the same level of investment identified in the 2016 RTP/SCS)

5. Targeted increase in funding commitments and enabling information technology for Transportation Demand Management (TDM) from federal, state and local agencies

6. Improvements in land use planning, with technical and information assistance, and funding in cooperation with local governments, mostly at the neighborhood scale along growth opportunity areas, including for example, the high quality transit areas (HQTA), neighborhood mobility areas and livable corridors

7. Continuing partnership and commitment from each County Transportation Commission (CTC) to support the SCS development process, including a focus on non-motorized transportation solutions

8. Promote potential efficiency gains from quick deployment of autonomous transportation systems and identify policy priorities to maximize sustainable outcomes from autonomous vehicles

9. Promote shared-use mobility, such as bike sharing, car sharing and ride sourcing

10. Continued leadership and partnership of state and regional partners to increase availability of State funding for the region

11. Continued leadership by the regional leaders to increase availability of federal funding through the next transportation authorization and through climate change legislation

12. ARB will commit to working with MPOs, local governments, state agencies and the Legislature to identify, pursue and secure adequate incentives and sustainable sources of funding for local and regional planning and other activities related to the implementation of SB 375

13. Expanded funding from Cap-and-Trade and other sources to fund AHSC and ensure fair and adequate funding allocation and award to the SCAG region to implement SCAG RTP/SCS

14. Support regulatory incentives and dedicated funding sources at the state level for affordable housing

15. Promote and incentivize development of infrastructure for zero emission vehicle and alternative transportation fuel system

Moreover, SCAG’s target recommendation is also contingent on ARB’s leadership in the following technical and modeling areas:

16. Acknowledgement of the VMT rebound effect as it will be difficult to repeat SCAG’s 2016 RTP/SCS achievement of 18% under CARB’s clean car and fuel technology assumptions (as fuel efficiency rises, the cost of driving decreases and may result in VMT and GHG emission increases)

17. Commitment to address the issues resulting from update to the EMFAC emissions model—there should be a consistent use of the same EMFAC emissions model for target setting and target compliance

18. CARB’s commitment to address off-model adjustments – consistent treatment/analytical review for the quantification of off-model strategies in target setting, as used in the CARB RTP/SCS technical review process
FISCAL IMPACT:
Work associated with this item is included in the Fiscal Year 16/17 Overall Work Program (17-080.SC00153.04: Regional Assessment).

ATTACHMENT/S:
PowerPoint Presentation: SCAG SB 375 Regional GHG Target Recommendations for the 2020 RTP/SCS and Beyond
SB 375 Regional GHG Target Recommendations for the 2020 RTP/SCS and Beyond

April 6, 2017

Outcomes of SCAG’s 2016 RTP/SCS

Daily Vehicle Miles Traveled (VMT)

- 2015 BASE YEAR: 22.8 MILES
- 2049 BASELINE: 22.1 MILES
- 2080 PLAN: 20.5 MILES

Decline in Plan Comparison: -7.4%
Decrease Year to Year Comparison: -10.2%

Efficiency Cost Savings

Improved Air Quality

<table>
<thead>
<tr>
<th>GHG</th>
<th>2020</th>
<th>2029</th>
<th>2034</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>8%</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>NOX</td>
<td>9%</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>PM2.5</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Reduction in Building Energy Costs

- 10%
- 4%
- 12%

Spending Less Time on the Road

- 20.5 miles average daily vehicle miles driven per person
- 7.4% fewer daily trips

- 9.2 mins daily drive per capita (time savings in traffic)

- 39% Household Savings

- $14,000/yr

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Strategies of SCAG’s 2016 RTP/SCS

- Includes a revenue neutral Mileage (VMT) Based User Fee
  - $0.04/Mile in 2015 dollars; starts in 2025 and replaces gas taxes; indexed at 2.4% per year
- Fix it First — Focus on O & M
- Incentives future growth in areas well served by transit
- Increase first/last mile investments within High Quality Transit Areas (HQTAs)
- Promote mixed-use walkable communities, avoid new developments in sensitive habitats
- To implement the plan, SCAG will continue supporting local initiatives through our Sustainability Planning Grants
  - $11 Million in funding over 3 years and $5+ Million set aside for Active Transportation; local request totaled $35 Million

Build Upon 2016-2040 RTP/SCS
Findings of SCAG’s Stress Test & Additional Considerations

- Summary of Findings
  - Focused on: AT, ZEV, and MI
  - 2.0 to 2.5 percentage points GHG can be reduced above our 2016 RTP/SCS achievement — through additional programs, investments, and mobility innovations
  - With an estimated cost of $10 billion

- Impacts From Transit Investments in Measure M
  - May result in additional and moderate per capita GHG reductions
  - AT investments estimated to reduce funding gap to less than approx. $5 billion

- Automotive Technology Improvements in Fuel Efficiency
  - Could lead to a substantial increase in per capita GHG due to the decreased cost of driving
SCAG GHG Target Recommendations

<table>
<thead>
<tr>
<th>2016 – 2040 RTP/SCS</th>
<th>SCAG’s Stress Test (AT, ZEV, MI &amp; MM)</th>
<th>+ 4% to +5%</th>
<th>SCAG Rec. for 2020 RTP/SCS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>-8% 2020</td>
<td>-18% 2035</td>
<td>-2% to -2.5%</td>
<td>-18% 2035</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-2% to -3% GAP</td>
</tr>
</tbody>
</table>

VMT/GHG Rebound Effect

Innovation Needed to Make Up the Gap for the Next Plan

* Subject to implementation of key strategies in 2016-2040 RTP/SCS and ARB Leadership in Technical and Modeling Areas

Thank you!
SCAG Supplemental Submittal
SUMMARY

As part of the SB 375 Target Update process for 2035 and preparation for the 2020 RTP/SCS, SCAG staff has reviewed and revised the planning assumptions and forecasts used in the 2016 RTP/SCS based on the latest empirical data, trends, and research. Based on the revised planning assumptions and forecasts, and the same strategies used in the 2016 RTP/SCS, the target achievement for 2035 would be decreased from 18% to 16% per capita GHG reduction (Table 1). This report provides the documentation of the revision of target achievement.

Specifically, SCAG staff has revised its estimates of the off-model portion for the 2016 RTP/SCS (Table 2). The revised estimates include updated assumptions for enhanced mobility based on research literature, a technical correction for Zero-emission Vehicles (ZEVs), and a rounding adjustment of Neighborhood Electric Vehicles (NEVs). Finally, growth projections for 2035 are updated based on the most current Expert Panel recommendations and local input. The updates of these four components would result in a 16% per capita reduction in 2035, continuing to significantly exceed the ARB target of 13% though slightly decreasing from the original 18% estimates in the 2016 RTP/SCS. The rest of this document provides additional details of the quantitative re-estimation of these four components. Finally, it should be noted that the updated 16% estimate is conservative as it does not include the potential adverse impacts reflected from several recent trends further discussed below.

Table 1 shows that combining the off-model adjustment with the growth projection adjustment effects (0.89 percentage decrease in target achievement) would result in a total of 1.76 percentage point decrease in GHG achievement (i.e., a decrease from approximately 18% to 16% per capita GHG reduction in 2035). Table 2 shows the off-model adjustment would result in a 0.87 percentage point decrease in GHG achievement.

Table 1. GHG Reductions

<table>
<thead>
<tr>
<th>2035 % Reduction/Capita vs 2005</th>
<th>Model Output</th>
<th>w/off-model</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016 RTP/SCS</td>
<td>-15.75%</td>
<td>-17.93%</td>
</tr>
<tr>
<td>Preliminary 2020 RTP/SCS w/Plan HQTA</td>
<td>-14.89%</td>
<td>-16.17%</td>
</tr>
</tbody>
</table>

Source: SCAG
Table 2. 2035 Off-Model Adjustment

<table>
<thead>
<tr>
<th>Component</th>
<th>2016 RTP/SCS</th>
<th>Revision</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Active Transportation</td>
<td>-0.42%</td>
<td>-0.42%</td>
<td>0.00%</td>
</tr>
<tr>
<td>2. Neighborhood Electric Vehicle (NEV)</td>
<td>-0.10%</td>
<td>-0.01%*</td>
<td>0.09%</td>
</tr>
<tr>
<td>3. Zero Emission Vehicles (ZEVs)</td>
<td>-0.83%</td>
<td>-0.65%**</td>
<td>0.18%</td>
</tr>
<tr>
<td>4. Enhanced Mobility</td>
<td>-0.83%</td>
<td>-0.23%***</td>
<td>0.60%</td>
</tr>
<tr>
<td>4.1 Carsharing</td>
<td>-0.33%</td>
<td>-0.12%</td>
<td>0.21%</td>
</tr>
<tr>
<td>4.2 Ridesourcing / Transportation Network Companies</td>
<td>-0.50%</td>
<td>-0.11%</td>
<td>0.39%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>-2.18%</td>
<td>-1.31%</td>
<td>0.87%</td>
</tr>
</tbody>
</table>

*Use 2-digit decimal number instead of the rounded up to 1-digit decimal number.
**Corrected percent of household with single vehicle from 16.5% to 32.4%.
***Include Carsharing participation household VMT reduction of 10% and Ridesourcing participation household VMT reduction of 15%.

Source: SCAG

STAFF ANALYSIS OF QUANTITATIVE UPDATES IN FOUR COMPONENTS

This section provides staff analysis of updates in four components and the respective impacts on target achievement. It should be emphasized that components 1-3 are only related to updates of the off-model estimates and do not impact the Travel Demand Model estimates.

1. Updated assumptions for Enhanced Mobility (0.6%) (Table 2)

Under Enhanced Mobility, the assumptions in the 2016 RTP/SCS need to be revised. They include Carsharing participation household VMT reduction from 30% to 10% and Ridesourcing participation household VMT reduction from 30% to 15%. Those updated assumptions would result in 0.6% decrease in GHG achievement in 2035. These reductions are based on two research studies released since adoption of the 2016 RTP/SCS that indicate that both Carsharing and Ridesourcing may result in more VMT than originally anticipated. This effect is due specifically to two factors: ridesourcing generates trips (and therefore VMT) that wouldn’t have been taken otherwise, and may displace more transit trips than anticipated. (See: [https://media.wix.com/ugd/c7a0b1_68028ed55eff47a1bb18d41b5fba5af4.pdf](https://media.wix.com/ugd/c7a0b1_68028ed55eff47a1bb18d41b5fba5af4.pdf), and [http://schallerconsult.com/rideservices/unsustainable.htm](http://schallerconsult.com/rideservices/unsustainable.htm)).
SCAG staff reviewed and summarized findings below from recent research and latest Modeling Task Force discussions:

  - This research shows percent reduction in VMT per car2go household for two large west coast cities in the U.S.: San Diego (-6%) and Seattle (-10%).

- Alejandro Henao, Impacts of Ridesourcing - Lyft and Uber - on Transportation Including VMT, Mode Replacement, Parking, and Travel Behavior, January 2017. (See: [https://media.wix.com/ugd/c7a0b1_68028ed55eff47a1bb18d41b5fba5af4.pdf](https://media.wix.com/ugd/c7a0b1_68028ed55eff47a1bb18d41b5fba5af4.pdf))
  - This research shows ridesourcing could potentially increase VMT by 185%.

  - Based on six (6) model sensitivity tests, automated vehicles are expected to result in a big increase to VMT.

Based on findings from those researches, SCAG adjusted the participating household VMT reduction for Carsharing to 10% and Ridesourcing to 15%. It is noted that SCAG off-model analysis on enhanced mobility for 2016 RTP/SCS did not include autonomous vehicles. Since VMT is likely to increase with autonomous vehicles, SCAG’s latest assumptions on VMT reduction due to enhanced mobility could still be very ambitious.

2. Technical correction for ZEVs (0.18%) (Tables 1 and 3)

The share of households with single vehicles needs to be corrected from 16.5% (used in the 2016 RTP/SCS) to 32.4% based on the 2015 American Community Survey (ACS) data published by the U.S. census Bureau. Table 3 includes data of vehicle ownership households by county for 2000 and 2011-2015. There was little change of the share of households with only one vehicle between 2011 and 2015. As the use of ZEVs is less likely in households with single vehicles, the correction would result in the decrease of GHG achievement of 0.18%, from -0.83% to -0.65%.

It should be noted that correction is needed only for the off-model analysis, and the travel demand model used the correct data.
Table 3. Households Owning One Vehicle by County, Region and State

<table>
<thead>
<tr>
<th>Year</th>
<th>Imperial</th>
<th>Los Angeles</th>
<th>Orange</th>
<th>Riverside</th>
<th>San Bernardino</th>
<th>Ventura</th>
<th>SCAG</th>
<th>CA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000 Census</td>
<td>34.0%</td>
<td>37.0%</td>
<td>31.1%</td>
<td>34.7%</td>
<td>32.4%</td>
<td>28.0%</td>
<td>34.9%</td>
<td>34.1%</td>
</tr>
<tr>
<td>ACS 2011</td>
<td>31.3%</td>
<td>34.8%</td>
<td>28.7%</td>
<td>29.7%</td>
<td>27.9%</td>
<td>26.4%</td>
<td>32.1%</td>
<td>31.9%</td>
</tr>
<tr>
<td>ACS 2012</td>
<td>30.4%</td>
<td>35.0%</td>
<td>28.8%</td>
<td>29.9%</td>
<td>28.8%</td>
<td>26.7%</td>
<td>32.3%</td>
<td>32.1%</td>
</tr>
<tr>
<td>ACS 2013</td>
<td>31.5%</td>
<td>35.1%</td>
<td>28.9%</td>
<td>30.2%</td>
<td>29.6%</td>
<td>26.3%</td>
<td>32.5%</td>
<td>32.3%</td>
</tr>
<tr>
<td>ACS 2014</td>
<td>31.6%</td>
<td>35.1%</td>
<td>28.7%</td>
<td>30.1%</td>
<td>30.2%</td>
<td>26.1%</td>
<td>32.5%</td>
<td>32.2%</td>
</tr>
<tr>
<td>ACS 2015</td>
<td>31.3%</td>
<td>35.1%</td>
<td>28.6%</td>
<td>30.1%</td>
<td>30.3%</td>
<td>25.8%</td>
<td>32.4%</td>
<td>32.1%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau

3. Rounding adjustment of NEVs (0.09%) (Table 2)

The 2016 RTP/SCS off-model estimate of NEVs use a 1-digit decimal number of -0.10% in 2035. However, using the more accurate 2-digit decimal number would be -0.01%, resulting in 0.09% decrease in GHG achievement in 2035.

4. Updated growth projections for 2035 (0.89%) (Tables 4 and 5)

As part of the June 2017 expert panel recommendations and additional local input based on the most current assessment, SCAG staff has developed the preliminary revised regional growth forecast for population, household and employment (Table 5). Using the revised regional growth forecast would result in a 0.89% decrease in target achievement on a per capita basis in 2035, due to the slight increase in both household and employment.

For expert panel recommendations, please see Item 5 of the CEHD staff report including page 57-107 of following link:
http://www.scag.ca.gov/committees/CommitteeDocLibrary/cehd070617fullagn.pdf

In addition, Table 4 includes growth projection information in the 2016 RTP/SCS and Table 5 includes growth projection information collected from subsequent local jurisdiction discussions.
Table 4. Population, Housing, and Employment Projection – 2016 RTP/SCS

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
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<td>Imperial</td>
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<td>72,000</td>
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<td>3,494,000</td>
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<td>3,431,000</td>
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<td>1,075,000</td>
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<td>1,645,000</td>
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<td>3,055,000</td>
<td>748,000</td>
<td>802,000</td>
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<td>733,000</td>
<td>849,000</td>
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<td>San Bernardino</td>
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<td>651,000</td>
<td>687,000</td>
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</table>

Source: SCAG

Table 5. Population, Household, and Employment Projection – Preliminary 2020 RTP/SCS with San Bernardino County input

<table>
<thead>
<tr>
<th></th>
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<td>Riverside</td>
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<td>2,503,000</td>
<td>3,022,000</td>
<td>715,000</td>
<td>796,000</td>
<td>1,013,000</td>
<td>747,000</td>
<td>819,000</td>
<td>991,000</td>
</tr>
<tr>
<td>San Bernardino</td>
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<td>2,217,000</td>
<td>2,611,000</td>
<td>630,000</td>
<td>682,000</td>
<td>830,000</td>
<td>791,000</td>
<td>831,000</td>
<td>980,000*</td>
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<tr>
<td>Ventura</td>
<td>856,000</td>
<td>894,000</td>
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<td>273,000</td>
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</table>

* San Bernardino County provided higher employment than the initial expert panel/CEHD recommended.

Source: SCAG
RECENT TRENDS FOR WHICH ADVERSE IMPACTS NOT ASSESSED QUANTITATIVELY

As noted at the beginning, the approximately two percentage point decrease in target achievement (Table 1) represents a conservative estimate as recent trends below indicate potential further decrease of GHG achievement.

a. Growth in High Quality Transit Areas (HQTAs) fell short than anticipated in the 2016 RTP/SCS: Household growth in HQTAs was about 30% versus the 45% called by the RTP/SCS in recent years (SCAG staff processed data within HQTAs from the 2007-11 American Community Survey (ACS) and 2011-2015 ACS).

Table 6 below shows the share of HQTAs growth from ACS07-11 to ACS11-15 is 31%, which is below the 45% estimated by the 2016 RTP/SCS.

<table>
<thead>
<tr>
<th>Table 6. HQTAs Share of Household Growth in the Region</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>HQTAs HH</td>
<td>Total HH</td>
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<tr>
<td>2007-11 ACS</td>
<td>1,724,914</td>
<td>5,788,744</td>
</tr>
<tr>
<td>2011-15 ACS</td>
<td>1,758,801</td>
<td>5,899,671</td>
</tr>
<tr>
<td>Growth</td>
<td>33,887</td>
<td>110,927</td>
</tr>
</tbody>
</table>

| HQTA Share of Growth | 31% |

Source: SCAG


c. Millennials are all in their adulthood (aged between 20 and 38) and many are moving from urban areas to suburbs and exurbs as a result of housing unaffordability. Their next move and potential impacts on residential locations and transportation preferences could pose challenges to future trends in VMT. [http://scag.ca.gov/calendar/Documents/demo27/DemoProgram2016.pdf](http://scag.ca.gov/calendar/Documents/demo27/DemoProgram2016.pdf)  [http://scag.ca.gov/calendar/Documents/demo27/Demo27Panel01_Myers.pdf](http://scag.ca.gov/calendar/Documents/demo27/Demo27Panel01_Myers.pdf)

d. Low unemployment rates relative to the same population levels will generate more commuting trips and higher VMT per capita based on similar level of population

In summary, with updated planning assumptions and forecasts but the same strategies used in the 2016 RTP/SCS, the target achievement for 2035 would be decreased from 18% to 16% per capita GHG reduction.
Joint San Joaquin Valley MPO Submittal
Dear Mr. Karperos,

The San Joaquin Valley Regional Planning Agencies’ Directors’ Committee comprises the Executive Director from each Metropolitan Planning Organization (MPO) that serve a region with 8 counties, 62 cities, whose collective population is more than four million, with an anticipated 2035 population of approximately six million. The counties include: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare.

These eight counties, home to some of the most disadvantaged communities in the state, share an air basin challenged by weather and topography that creates an ideal setting for extreme air pollution. The Valley MPOs are sensitive to the need for air quality improvement, and are committed to the intent of SB 375. In advance of 2014 RTP/SCS efforts, ARB established one set of uniform targets for the Valley: a 5 percent per capita reduction in greenhouse gas (GHG) by 2020, and 10 percent by 2035. Since the adoption of the 2014 RTP/SCS, the Valley MPOs have been actively implementing strategies to reduce GHG emissions, and have been able to demonstrate that the targets can be met.

Following the completion of the 2014 RTP/SCS, ARB identified areas of improvement, including updates to the travel demand model. The Valley has been responsive to this feedback through the development of the San Joaquin Valley Model Improvement Plan, Phase 2 (VMIP2). VMIP2 validation is preliminary at this time, and as such, model output is subject to changes as the validation is finalized. Valley staff has been in regular contact with ARB staff to discuss VMIP2 progress. In recent discussions it has been established by ARB staff that the Valley MPOs may refine their target recommendations based on the finalized model validation in early 2017.

The attached document describes the many efforts underway (both locally and valley-wide) in support of SB 375, as well as the various challenges that impact the Valley’s ability to match or expand upon the GHG reductions reported as part of the 2014 RTP/SCS. At the conclusion of the document, each Valley MPO has prepared a preliminary SB 375 target recommendation based on data currently available. However, as noted, Valley MPOs will be refining their target recommendations as model validation concludes.
Thank you for this opportunity to prepare SB 375 target recommendations ahead of the 2018 RTP/SCS. The eight San Joaquin Valley regional planning agencies look forward to continued dialogue with ARB as this important planning process moves toward finalization.

Sincerely,

Ted Smalley – Committee Chair

Tulare County Association of Governments
SB 375 Target Setting Recommendations
For the San Joaquin Valley’s Metropolitan Planning Organizations
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   C. Kings County Association of Governments ..................................................................................... 24  
      i. SCS Implementation, and Efforts Above and Beyond .................................................................. 25  
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      i. 2014 Madera County RTP/SCS GHG Targets ............................................................................... 31  
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1. 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 I: 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>
<th>Demonstrated Year 2035 CO2e Reductions per Capita</th>
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<td>Fresno COG(1)</td>
<td>-5 &amp; -10%</td>
<td>-9.0%</td>
<td>-11.0%</td>
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<td>Kern COG(1)</td>
<td>-5 &amp; -10%</td>
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<td>-16.6%</td>
</tr>
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<td>KCAG(1)</td>
<td>-5 &amp; -10%</td>
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<td>StanCOG(1)</td>
<td>-5 &amp; -10%</td>
<td>-26.0%</td>
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<td>TCAG(1)</td>
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<td>-17.5%</td>
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<td>Valleywide Average</td>
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<td>-16.3%</td>
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<td>AMBAG(1)</td>
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<td>MTC(4)</td>
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<td>-10.0%</td>
<td>-16.0%</td>
</tr>
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<td>SACOG(4)</td>
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<td>0 &amp; 0%</td>
<td>-10.5%</td>
<td>-15.4%</td>
</tr>
<tr>
<td>SCAG(4)</td>
<td>-8 &amp; -13%</td>
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<td>-18.0%</td>
</tr>
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<tr>
<td>TRPA(1)</td>
<td>-7 &amp; -5%</td>
<td>-12.1%</td>
<td>-7.2%</td>
</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 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>
<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>EMFAC2011</td>
<td>EMFAC2014</td>
</tr>
<tr>
<td>Fresno</td>
<td>14,868</td>
<td>14,427</td>
</tr>
<tr>
<td>Kern</td>
<td>13,391</td>
<td>14,229</td>
</tr>
<tr>
<td>Kings</td>
<td>1,534</td>
<td>1,618</td>
</tr>
<tr>
<td>Madera</td>
<td>2,038</td>
<td>2,122</td>
</tr>
<tr>
<td>Merced</td>
<td>3,297</td>
<td>3,207</td>
</tr>
<tr>
<td>San Joaquin</td>
<td>13,087</td>
<td>13,493</td>
</tr>
<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 3: Impact of Economic Recovery on VMT and GHG**

<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
wells 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

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 Reductions 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:

  o More than 21 miles of new bike lanes
  o More than 18 miles of new sidewalks
  o More than 120 new ADA curb cuts
  o 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**

  o Additional service and improvements: The San Joaquin Joint Powers Authority (SJPPA) added a seventh round-trip train per day to the Amtrak San Joaquins in 2016, which connect Bakersfield to Oakland/Sacramento.

  o The City of Bakersfield is expanding overnight parking availability at the Bakersfield Amtrak Station, including solar/electric vehicle charging using Proposition 1B bond funds.

  o 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 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 the 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 amially 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 being 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 he 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

Commutes 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:
  o 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.
  o 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.
  o 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:
  o 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.
  o 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.
  o 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.
  o 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 be beginning 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 plan. 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 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 crowdsourcing-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.
April 25, 2017

Mary Nichols, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 9581

Re: SB 375 Greenhouse Emission Reduction Target for the Fresno County Region

Dear Chair Nichols,

First of all, I would like to express my appreciation for your leadership in addressing air quality and climate change issues in the state and in the San Joaquin Valley. I would also like to thank your staff for working with the regions on the SB 375 target recommendation process, taking into consideration the different needs and resources available at the regions.

As pointed out in the valley-wide letter to ARB in December 2016, the San Joaquin Valley MPOs have made significant achievement towards the targets set in 2010, and are continuing our efforts to reduce VMT through integrated transportation and land use planning.

Fresno COG’s first SCS, if implemented, would achieve 11% of GHG reduction by 2035, exceeding the -10% target set by the ARB for the Valley. However, due to the new clean car/fuel measures that will be implemented state-wide, it will be much cheaper to drive and thus more VMT will be generated, which is known as the “VMT effect”. The new clean car/fuel programs are reflected in EMFAC 2014 and the VMT effect has been tested and proved by MPO models. With the VMT effect, MPOs will have to look for additional VMT reduction beyond the previous SCS even if just to reach what was achieved in the pre-EMFAC 2014 SCS.

With that said, Fresno COG is committed to working with the state on developing ambitious and achievable targets. The Region will be looking at enhanced alternative transportation strategies and implementation of the newly updated general plans to help the state achieve SB 32 goals. Fresno COG is proposing 13% per capita reduction of GHG by 2035 as the new target for the region. This new target is ambitious given the VMT effect described above, but can be achieved if the general plans are implemented on schedule and there is no major disruption of funding flowing into the region. The draft target will be brought to the COG Policy Board for approval in late May.
Thank you for the opportunity to recommend the target. Should you have any questions regarding the proposed draft target, please feel free to contact me or my staff Kristine Cai at 559-233-4148 or kcai@fresnocog.org.

Sincerely,

Tony Boren
Executive Director
Fresno COG 2016-2017 Target Recommendation Report

I. Overview of Fresno COG Target Recommendation

In 2010, the California Air Resources Board set the greenhouse gas emission reduction targets for Fresno COG and the other seven MPOs 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 is implemented.

Since the adoption of the 2014 RTP/SCS, Fresno COG has been working collaboratively with the local governments, the San Joaquin Air Quality Control District, transit operators, Caltrans, community organizations and other local and state partners in implementing the first SCS. As the implementation efforts continue in full strength in the land use area in the Fresno region, Fresno COG anticipates that transportation related SCS strategies will be strengthened compared to the 2014 RTP/SCS for the following reasons: 1) emerging technology in zero-emission vehicles and near-zero-emission vehicles becomes more accepted by consumers 2) funding from the State and other sources provides incentives for installation of more charging stations for electric vehicles, which helps to expedite the market penetration of the clean vehicles. 3) the Transportation Network Companies (TNC) such as Uber and Lyft has been expanding in the Valley, although mostly in the urban areas. Other shared mobility service such as CalVans’ vanpool program for farmworkers and commuters in the rural counties has received more support due to its high cost-effectiveness. Two non-profit community groups in Fresno County have just recently received grants from Just Transit to address the transportation needs in the rural communities through shared mobility programs (Green Raiteros serving Huron area and Van y Vienen serving Cantua Creek and El Porvenir). 4) With the completion of several Active Transportation Plans (ATP) in the region and a couple of more in the pipeline, it is expected that many more active transportation projects will be carried through the planning and funding process compared to the first SCS. 5) Fresno COG has initiated efforts to develop the first regional long range transit plan in the Fresno region, which will provide input to the long range transit strategies in the future SCSes. Although the long range transit plan will be completed in 2019, and can’t provide direct input to the target recommendation process, additional transit services beyond the 2014 SCS that have been initiated by the transit operators are added in the 2017 target.

Although the GHG reduction benefits from the above transportation strategies can’t be captured 100% due to the limitation of existing tools and data scarcity, Fresno COG has
been working closely with the ARB and other fellow MPOs on developing quantification methodologies while actively promoting and supporting such transportation strategies. The land use and transportation strategies applied in the target scenario have been run through the land use-travel forecasting-air quality modeling process. Off-model methodology was applied for strategies that the traffic model is not sensitive to, and is documented in the modeling section of this report.

II. Scenario and Process

Due to the time constraint and the availability of the modeling tools, the 2016-2017 target setting has largely remained an internal technical exchange with ARB. Fresno COG is bringing the draft target recommendation to the RTP Roundtable in April 2017, which consists of representatives from COG member agencies, the Air District, Caltrans, transit operators, community organizations, agriculture, building industry, education, health, tribal governments, etc. The RTP Roundtable is an advisory committee that provides guidance and recommendation on RTP/SCS related issues. The recommendation will also be presented to Fresno COG’s Transportation Technical Committee (TTC), Policy Advisory Committee (PAC), and the Policy Board for approval in May 2017.

The target scenario is largely based on the 2014 SCS with enhancement in transportation strategies and a few general plan updates. The 2014 SCS contained draft conceptual information for City of Fresno’s new 2035 general plan, which was finalized after the adoption of the 2014 SCS. The final map of City of Fresno’s new general plan is incorporated into the target scenario. City of Sanger and the County of Fresno are updating/revising their general plan and the latest assumptions from the draft plans are also included in the target scenario. In addition to the transportation strategies in the 2014 SCS, the target scenario takes into consideration additional transit investment; more aggressive deployment of bike and pedestrian strategies region-wide; CalVans’ vanpool program expansion with $3 million from the AHSC program for the Vanpool Expansion Project; more electric vehicle (EV) charging stations in the region; high speed rail operational in 2035, etc.

III. Land Use Strategies in the Target Scenario

The 2017 target scenario mostly retains the land use strategies applied in the 2014 RTP/SCS. Increased density and mixed use development are proposed in the target scenario at a scale that is appropriate for the size of the cities. Residential density will increase from an average of 4.6 units per acre to 7.4 units per acre. A range of housing opportunities and
choices are provided with a more balanced supply of various housing type. More than 45% of new housing will be multifamily and town homes, compared to 22% in the pre-SCS plans. Over 20% of new housing and 36% of new employment are allocated along the proposed high-capacity transit corridors and activity centers, which provide foundation for potential Transit Oriented Development. The target scenario reflects the sustainability principle of directing and strengthening development towards existing communities. The City of Fresno’s new general plan directs about 50% of new growth in the central core, Downtown, established neighborhoods and along Bus Rapid Transit (BRT) corridors, and the rest inside the existing sphere of influence. The City of Fresno’s plan proposes no sphere of influence expansion by 2035, which is a significant stride towards reining in fringe development in a traditionally sprawling region. The plan emphasizes increased land use intensity and mixed-use development at densities supportive of greater transit usage. The plan also calls for building healthy communities with safe, well maintained, and accessible streets, public utilities, education and job training, proximity to jobs, retail services, and health care, affordable housing, youth development opportunities, open space and parks and transportation options. The target scenario also includes elements of complete neighborhood, with efficient and diverse mix of residential densities, building types and affordability which are designed to be healthy, attractive and centered by schools, parks, and public and commercial services to provide a sense of place and that provide as many services as possible within walking distance. The complete neighborhood concepts foster distinctive and attractive communities with a strong sense of place.

Farmland conservation and resource land protection are also emphasized in the target scenario. As pointed out in the 2014 SCS, farmland, open space and natural resource land are critical for the region’s environmental and economic health. Farmland conversion is minimized to the extent possible with increased density and more focused development within existing urban cities. Resources lands such as critical habitat, wetlands, vernal pools riparian forest, groundwater recharge zones, Williamson Act land were identified during the 2014 SCS process. City of Fresno’s new general plan set goals that “emphasize conservation, successful adaption to climate and changing resource conditions, and performance effectiveness in the use of energy, water, land, building, natural resources and fiscal resources required for long-term sustainability”. The policies in the Plan preserve farmland by incentivizing new development within and adjacent to already-urbanized land. City of Clovis’ updated general plan requires mitigation at 1:1 ratio of converted to preserved acreage, or payment of its valuation equivalent if the conversion of Important Farmland is deemed significant; City of Reedley’s 2014 general plan provided direction for the City to develop a farmland mitigation program that requires new development within the existing
sphere of influence to fund farmland preservation efforts. The mitigation program will require applicants seeking to annex important farmland within the existing city sphere of influence to pay a fee to city of Reedley equivalent to the cost of preserving Important Farmland on a 1 to 1 basis with land converted to urban uses. The San Joaquin Valley Greenprint project, which has been funded by the Strategic Growth Council, has been a huge undertaking in resource conservation and management in the San Joaquin Valley. It has identified challenges and opportunities for lands, waters and living resources in the Valley. The study recommends a series of strategies for the conservation and management of the resources. The results of the Greenprint will reinforce local efforts and serve as a guide to local, state, federal and private sector decision-makers as they make choices about the future of the Valley’s resources.

IV. Transportation Strategies in the Target Scenario

As discussed in the Overview, transportation strategies are strengthened in the target scenario compared to the 2014 SCS. Fresno region envisions increased investment in bike, pedestrian and transit facilities, and is supportive of the emerging shared mobility service to address various transportation needs. Fresno COG and the region will continue to support the State’s efforts to have cleaner vehicles and fuels through building EV charging stations and electrification of bus fleets when funding becomes available.

- **Transit**
  Although Fresno COG has obtained funding to develop a long range transit plan, the project will not be completed until 2019 and would not be able to provide direct input to the transit investment strategies in the target recommendation. However, in addition to all the transit projects planned in the 2014 RTP/SCS (including 5 BRT routes in the City of Fresno), the target scenario assumes increased frequency of major transit routes in the existing urban areas to 15 minutes from 30 minutes service, expanded services to new development areas in the metropolitan areas based on the updated general plans, all of which will be subject to revision after the long range transit plan is developed. Furthermore, the target scenario includes the three new college routes started by FCRTA. The bus service to the Yosemite National Park is also an addition to the transit system in the Fresno regional although the target scenario did not take credit for it since the service is only available during summer.

- **Active Transportation**
  As discussed in the December 2016 submittal, Fresno region has been taking a big stride in active transportation planning and investment. Fresno COG conducted a
Transportation Needs Assessment study that evaluated and identified the (active) transportation needs and gaps in the region. City of Fresno, Clovis and Coalinga have completed and adopted their individual ATPs and Fresno COG is developing a regional ATP on behalf of the rest of Fresno County. Projects from the ATPs will feed into the 2018 RTP and the subsequent RTPs. With the aggressive active transportation planning, and the funding from the existing ATP program and the SB1 for active transportation projects, Fresno COG assumes aggressive deployment of bike/ped projects in the off-model quantification of GHG reduction.

- CalVans and other vanpool and shared mobility programs
  CalVans provides vanpool services to farmworkers and commuters in the rural counties. In year 2014/15, vans out of Fresno County traveled 29.1 million passenger miles; in 2015/16, the vans (out of Fresno County) traveled a total of 2.7 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. CalVans received $3 million in 2015/2016 from the AHSC program for the Vanpool Expansion project. The counties that will be covered by the project include Merced, Madera, Fresno, Tulare, Kings, Kern, Monterey and Imperial. Fleet expansion for CalVans is assumed to continue into the future target year and off-model quantification of GHG reduction benefits for the CalVans and other vanpool programs have been captured in the proposed target.

- Measure C Carpool program
  Fresno County Measure C ½-cent sales tax funded carpool program provides incentives to commuters who carpool. In year 2015/16, program participants reported 58,527 daily commute carpool VMT. It is assumed that the level of participation in this program will continue into the future target year at the same rate as the reported year.

- Electric Vehicle (EV) charging stations/infrastructure
  Regional efforts to enhance EV charging infrastructure came from both public and private sectors. A good example of the effort is the Fresno Rural Transit Agency secured funding to install public accessible solar powered charging stations at all municipal yards of the small cities that it serviced throughout the Fresno COG region. PG&E recently announced that it will significantly expand access to EV charging stations throughout Northern and Central California over the next three years. Up to 7,500 EV charging stations will be installed at apartment, condominium complexes and workplaces. An EV Regional Charger Program Off-Model spreadsheet
was developed by SANDAG. Fresno COG adopted SANDAG spreadsheet and scaled regional VMT and vehicle populations to match the Fresno Region. Within the spreadsheet, regional charger programs were assumed to increase electric mode to 41% (MTC Assumptions), and consequently increase eVMT by 11%. Factoring in CO2 emissions from electricity associated with the eVMT, the net CO2 reduction from enhanced EV charging program was calculated.

- High Speed Rail
  California High Speed Rail (HSR) is currently under construction in Fresno and other sections of its planned route through Central Valley. Once completed, the HSR will connect the region with the LA and Bay Areas with a fast and convenient mode of travel. Its impact on regional travel was implemented as a module within the VMIP2 model and can be turned on and off depending on the modeling purposes. For vehicular trips, HSR will reduce through trips trip at the model gateways, and will redirect a portion of the inter-regional trips from the gateways to the planned HSR station in downtown Fresno. The HSR module adjusted trip productions (P) and attractions (A) accordingly. The estimated ridership was based on projections found in the HSR 2012 Revised Business Plan, where high and low projected numbers were given. To be conservative, the projected low numbers were used as the HSR model input.

V. Modeling Tools and Planning Assumptions applied in the Target Scenario

Fresno COG has developed a new population/employment growth forecast that took into consideration factors such as economic development, land use planning, infrastructure investments, local demographic characteristic, regional commute patterns, etc. The new growth forecast is scheduled to be adopted by the Policy Board in late April, and is applied in the target scenario. Attached is the draft growth forecast report.

Since Fresno COG is in the process of developing 2018 RTP/SCS, the projects proposed from the 2014 RTP/SCS are applied in the target scenario with some additional transit projects as described in the Transportation Strategies Section. Additional bike/ped projects are assumed in the target scenario and quantified through the off-model quantification methodology from the “Moving Cooler, An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions” by Cambridge Systematics. High Speed Rail is a post processor in the MIP2 model, and ridership information from the HSR Authority was applied in the modeling of the target scenario.
The land use and transportation assumptions were run through the MIP2 model, which is newly updated with latest survey data and revised auto-operation cost that is consistent with the Big Four MPOs. Fresno COG is in the process of producing the final documentation for the MIP2 model, and will post it on the website once it is available.

EMFAC2014, the latest air quality model developed and approved by ARB, was run to produce the GHG results. Fuel efficiency from EMFAC2014 was an input to the auto operation cost in MIP2.

Off-model quantification was applied to strategies that the traffic model is not sensitive to. Vanpool VMT was derived from statistics submitted by CalVans and the rate of growth applied to the Vanpool program was based on the projection from the operator and smoothed by an algorism developed by Fresno COG. Percent of VMT reduction from carpool was assumed constant into the future. The target scenario also included GHG reduction benefits from the boost of numbers of EVs in the Fresno due to the EV charging stations that are planned to be built in the region. Quantification methodology from “Moving Cooler, An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions” by Cambridge Systematics was also applied to active transportation projects and other operational improvement such as ITS. Aggressive deployment was assumed for bike and pedestrian projects in the target scenario. The San Joaquin Air District’s Rule 9410: Employer Based Trip Reduction was also included as part of the off-model quantification for GHG reduction.

VI. Target Recommendation

Based on the modeling of the above land use and transportation strategies in combination with the latest growth forecast, Fresno COG recommends 13% per capita GHG reduction by 2035 as the target for the Fresno County region. The -13% target is very ambitious to the Fresno region given that cars are becoming cleaner and more efficient, and thus it is less expensive to drive, which produces the VMT effect of more VMT being produced due to the cleaner cars. The region has to look for additional VMT reduction from the land use/transportation strategies to counter the VMT effect. With that said, the Fresno region will be able to achieve the proposed target if the latest general plans are implemented on schedule, and the revenue assumed for the programs and projects in the target scenario will be coming through as projected. The State will need to provide more tools for VMT reduction should any target number beyond -13% is expected for the Fresno region.
Fresno COG is taking the draft target number to the Policy Board for approval in May 2017. The -13% target will be subject to the final approval of the Fresno COG Policy Board.
May 10, 2017

Mary Nichols, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 9581

Re: 2020 Greenhouse Emission Reduction Target for the Fresno County Region

Dear Chair Nichols,

I hope this letter finds you well. Although the California Air Resources Board (ARB) did not request a GHG reduction target for 2020, Fresno COG has determined that a 2020 target recommendation will inform ARB’s target setting process. Based on the latest population numbers released by the Department of Finance (DOF) and the employment numbers by the Employment Development Department (EDD), the Fresno region is recovering faster from the recession in employment but is experiencing slower population growth than foreseen by the last growth forecast, which was applied in the 2014 RTP/SCS. The different recovery rates in employment and population have significant impacts on the new 2020 population/employment projection and thus the 2020 target which is based on the new projection. The higher recovery rate in employment and slower population growth contribute to a new 2020 projection with approximately 29,000 more jobs and 35,000 less population in the region. The following table provides a comparison of two sets of growth projection for the region. The 2012 projection, conducted by the Planning Center in 2012, was based off the 2010 population/employment numbers and applied in the 2014 SCS. The 2017 projection, which was just adopted by Fresno COG Policy Board in April 2017, was based on the 2015 population/employment numbers.

<table>
<thead>
<tr>
<th></th>
<th>The Planning Center (2012)</th>
<th>ADE (2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Population</td>
<td>Employment</td>
</tr>
<tr>
<td>2010</td>
<td>929,758</td>
<td>326,900</td>
</tr>
<tr>
<td>2015</td>
<td>1,010,080</td>
<td>348,282</td>
</tr>
<tr>
<td>2020</td>
<td>1,082,097</td>
<td>369,665</td>
</tr>
<tr>
<td>2035</td>
<td>1,300,597</td>
<td>433,812</td>
</tr>
</tbody>
</table>

*The highlighted cells indicate historical values at time of study; the rest of the cells are projected numbers.
The Fresno COG region has historically been plagued by double digit unemployment rates, and is one of the areas in the State with highest poverty concentration. The region also has the most disadvantaged communities in the State. The added jobs coming out of the recession are timely and celebrated opportunities to an impoverished region such as Fresno County where the majority of residents are minorities. It shows that the most disadvantaged communities are also benefiting from the economic recovery, which, to some extent, helps to address geographic social inequity issues in the State.

However, higher employment rates mean that more people are traveling to work, which leads to higher per capita VMT/GHG with a smaller projected population.

Due to the economic recovery effect described above, Fresno COG is recommending a 6% per capita GHG reduction for 2020. Land use and transportation strategies applied in the 2020 target scenario are consistent with the 2014 SCS, which was described in the submittal for the 2035 target to ARB on April 25, 2017. Alternative transportation strategies such as vanpool, carpool, bike and pedestrian projects, ITS, Electric Vehicle (EV) charging stations and the San Joaquin Valley Air Pollution Control District’s Employer Based Trip Reduction Program (Rule 9410) are also built in the 2020 target, but scaled down to the 2020 level.

Although the 2014 SCS projected to achieve 9% per capita GHG reduction in 2020, it was based on a projection with a less optimistic employment future and faster population growth. 6% per capita reduction is, however, based on the latest employment/population projection with better economic opportunities for the region, and still exceeds the 5% target for 2020 that was set in 2010.

Thank you for considering the recommended 2020 target. Should you have any questions regarding the proposed draft target, please feel free to contact me or my staff Kristine Cai at 559-233-4148 or kcai@fresnocog.org.

Sincerely,

Tony Boren

Executive Director
April 25, 2017

Mary Nichols, Chair
California Air Resource Board
1001 I Street
Sacramento, CA 95814

Re: SB 375 Greenhouse Emission Reduction Target for the Kern County Region

Dear Chair Nichols,

We would like to thank you and your staff for working closely with us on development of the SB375 Target recommendation for Kern. As pointed out in the valley-wide letter to ARB dated December 30, 2016, Kern has achieved and exceeded targets set in 2010 and since the adoption of our first SCS in 2014, we are expanding our efforts to reduce passenger vehicle emissions by better coordinating land use and transportation planning.

Based on the modeling results to date, Kern COG’s Regional Planning Advisory Committee and governing Board unanimously recommend the following targets.

<table>
<thead>
<tr>
<th>Table 1 – Kern COG Recommended Targets for the Kern Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Per Capita GHG Reduction</td>
</tr>
<tr>
<td>Current Targets (2011)</td>
</tr>
<tr>
<td><strong>Recommended Targets</strong></td>
</tr>
</tbody>
</table>

*Preliminary recommendation subject to change as improved modeling warrants.

The latest modeling for target setting expands on the strategies and assumptions in the 2014 RTP as well as incorporates the improved methods recommended in ARB’s evaluation of the 2014 RTP/SCS. Attachment A provides an overview of the assumptions used in the target modeling.

The target setting report in Attachment B spends considerable time discussing the latest technical improvements and challenges for target setting created by the improved methods. It demonstrates Kern’s continued commitment and good faith effort by opening up the modeling black box and helping better inform decision makers and the public on target setting for SB 375. However, while considering these technical details, keep in mind that Kern’s member agencies are some of the most aggressive and successful in pursuing funding and implementing strategies that meet both air quality and greenhouse gas emission reduction goals.
Attachment C documents 53 strategies or “success stories” of new, enhanced and continuing strategies our region is undertaking to achieve these goals. Real projects like these strategies on the ground are an even more effective indicator of the success of SB 375 and the regional transportation planning process, and illustrate the effectiveness Kern COG’s grass roots public outreach process that has garnered input of more than 1% of Kern’s citizens.

Thank you for the opportunity to recommend targets. Should you have any questions regarding the this effort, please feel free to contact me or my staff Rob Ball at 661-635-2900 or rball@kerncog.org.

Sincerely,

Ahron Hakimi
Executive Director

Enclosures
ATTACHMENT A

Kern RTP/SCS Assumptions
Sustainable Community Strategy Assumptions Overview
Kern Council of Governments (Kern COG)

Kern COG’s Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS) will help the State of California meet its climate change goals and the requirements of Senate Bill 375.

Kern COG Draft 2018 - 2042 RTP/SCS Plan

Located at the crossroads of California, Kern COG is a single county region that serves as the Northern gateway to the Southern California as well as the gateway between Northern California and the national I-40 corridor. The region is roughly home to 900,000, and is expected to add over ½ million people, 150,000 jobs and 160,000 households by 2042. The RTP/SCS is the Kern region’s strategy to meet the near-term and future needs of its residents. As with the previous Plan, implementation is expected to increase the region’s transportation options and access to jobs while reducing the distance traveled between jobs and housing. Kern COG’s 2014 RTP/SCS is expected to help California meet its greenhouse gas reduction goals by meeting its SB 375 targets to be updated by 2018.

RTP/SCS Key Strategy Highlights

Kern COG’s 2014 RTP/SCS included strategies that signal a major change from the prior plans, promoting a more efficient land use pattern/transportation system. The 2018 RTP/SCS will build on this success:

- **Advancing All Communities** – Environmental Justice communities receive 36% of highway investment and 60% of transit investment but only account for 18% and 48% of passenger miles traveled respectively.
- **Active Transportation** - 1000+ miles of new/safer bike facilities by 2040, funded in-part by a 700% increase in existing sources re-directed to bike and pedestrian infrastructure resulting in a 5+% decrease in household medical costs by promoting cleaner air and more active life-styles. And these facilities are being built faster than anticipated with Kern receiving 20 years of anticipated Active Transportation Program funding in the first 3 years of the plan.
- **Improved Transit Access** - 4,000% increase (10,600 to 473,000) in homes + jobs within 1/2 mile of passenger rail stops and high frequency transit (<15 min.).
- **Improved Transit Investment** – Over a 700% increase in transit related capital spending over prior plan including BRT, express bus, transit/HOV lanes, park & ride facilities, vanpooling, and commuter rail (not including high speed rail expenditures in Kern).
- **Revitalization of Existing Communities** - 46% reduction in the rate of farmland loss to urban uses compared to the previous 22 years (from 1.8 mi²/yr to <1), 11% decrease in infrastructure costs, and a 10% reduction in water use by providing a full range of housing choices.
- **Transportation System/Demand Management** – Improved system management and technology is helping to slow travel growth, allowing the delay of two beltways and the redirection of up to $2B in highway funding to transit and active transportation.

### Measuring the Benefits of the 2014 RTP/SCS

<table>
<thead>
<tr>
<th>Households Near Transit (2035)</th>
<th>Average Trip Length (Miles)</th>
<th>Developed Acres (2035)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAU</td>
<td>2005</td>
<td>275,000</td>
</tr>
<tr>
<td></td>
<td>2035</td>
<td>285,000</td>
</tr>
<tr>
<td></td>
<td>295,000</td>
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</tr>
</tbody>
</table>

**Forecasted Development Pattern – Metropolitan Bakersfield (Growth Only)**

Bakersfield is seeing an accelerating resurgence in downtown development. In the past 10 years 434 infill housing units have been built in central Bakersfield, an increase of over 400% compared to the previous 16 years.

**RTP/SCS Key Outreach Highlights**

After more than three years of extensive public input garnered from over **8,000 participants**, the Kern COG Board approved a slate of alternatives for inclusion in the EIR including the plan alternative to move forward with during the 55 day public comment period in 2014. Key Outreach Activities Included:

- Business/Industry and Environmental/Social Equity Roundtable stakeholder meetings;
- Twenty-seven community workshops and meetings;
- Directions to 2050 website with two online activities and an online survey to garner input;
- Presentations before the eleven member agency City Councils and the Kern County Board of Supervisors; and
- Presentations to local organizations upon request.

Similar outreach efforts are underway for the 2018 RTP/SCS.

**For More Information**

The Kern COG RTP/SCS can be found at the following web address [www.kerncog.org/regional-transportation-plan](http://www.kerncog.org/regional-transportation-plan). For additional information regarding the Kern COG 2018 RTP/SCS, please contact Becky Napier or Rob Ball by phone 661-635-2900 or by email at bnapier@kerncog.org or rball@kerncog.org.
ATTACHMENT B

KERN COG 2016-17 TARGET RECOMMENDATION REPORT

Based on the San Joaquin Valley Planning Agencies December 30, 2016 Letter & SB 375 Target Setting Recommendations (Kern related sections only, full document available at: https://www.arb.ca.gov/cc/sb375/sb375_target_update_analysis_sjvalley_123016.pdf)
KERN COG 2016-17 TARGET RECOMMENDATION REPORT

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 is anticipated to provide targets that are effective as of January 1st, 2018, in time for the 2018 RTP/SCS.

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 for 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 “Preliminary Analysis” 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.

A. 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. ARB has recommended changes in the modeling methodology used by the Valley MPOs. Kern’s model is updated every four years and is still 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.

Figure 1 – Transportation Modeling Methodology Flow Chart

B. 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/Sacramento 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 high speed rail station area plan underway recognizes this benefit and is considering an aggressive infill strategy for downtown Bakersfield. 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. The SCS identifies transit priority place types in all the outlying communities to help facilitate this strategy. This focus on vibrant outlying communities is exemplified by the remote community of Ridgecrest, primarily because it is a self-contained community with full amenities, serving a military base, and consequently has one of the lowest VMT per capita in the region.

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 land use 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 as recommended by ARB.

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 still preliminary and may be subject to changes as the model validation is refined.

These modeling changes do not affect Kern’s aggressive, grass roots 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.

C. SCS TARGET SETTING SCENARIO ASSUMPTIONS

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 strategies 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 Reductions 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

Kern’s 53 SCS Success Stories (see attachment C)

NEW STRATEGIES
1. Bakersfield High Speed Rail Station Area Plan – Specific/General Plan Update
2. Kern COG 4,000 Workplace Charging Spaces by 2025
3. Improvements to 51 Bus Stops – Metro Bakersfield/Disadvantaged Neighborhoods
4. New Taft Transit Center / Regional Transit Hub
5. Early Delivery of Wasco Disadvantage Community Active Transportation Projects
6. Bakersfield Disadvantaged Communities Bike Share & Downtown Bicycle Connectivity Project
7. Kern Highway Projects Advancing Complete Streets
8. Kern Regional Active Transportation Plan Including Disadvantaged Communities
9. Kern COG Intelligent Transportation System Plan Update
10. SJV Rural Transit Shared Mobility Study for Disadvantaged Communities
11. Kern County General Plan Update – Land Use, Conservation, Open Space, Circulation, Housing, and other key elements

ENHANCED STRATEGIES
13. City of Bakersfield Redevelopment Projects – Mill Creek and Baker Street
14. Commuter Rail Feasibility Study – Amtrak Improvements
15. Rideshare Program – Commute Kern
16. Expanding Park and Ride Lots
17. Dial-A-Ride and Local Transportation Services
18. Kern County Bicycle Master Plan & Complete Streets Recommendations/City of Tehachapi Bicycle Master Plan
19. City of Bakersfield Bicycle Facilities
20. Westside Station Multi-modal Transit Center
21. San Joaquin Valley Vanpool Program (CalVans)
22. Kern County Wind Farm Areas (Largest in U.S.)
23. City of Shafter Container Yard and Intermodal Rail Facility Expansion
24. Intersection Signalization/Synchronization
25. City of Bakersfield 4 New Downtown Infill Housing Projects
26. Cities of McFarland and Shafter – Conversion of transit fleet to electric vehicles
27. Golden Empire Transit – Purchase of 2 Electric Buses
28. Lost Hills Wonderful Park and Communitywide Improvements
29. New Developments Innovative Green Tech

EXISTING/CONTINUING STRATEGIES
30. City of Tehachapi General Plan (Form-Based Code, Transect Zone, Mobility Element, Town Form Element)
31. Infill Incentive Zone – Lower Transportation Impact Fee Core Area
32. City of Taft General Plan – Sustainability Principles
33. City of Ridgecrest General Plan and Multi-Modal Circulation Element
34. Metro Bakersfield General Plan Sewer Policy – Hook-up required for parcels less than 6 acres
35. City of Bakersfield Required Lot Area Zoning Strategies
36. San Joaquin Valley Air District’s Indirect Source Review to Mitigate Off-Site Impacts of Development
37. Transit Priority Areas in the Kern COG SCS
38. Metropolitan Bakersfield General Plan Centers Concept – Transit Priority & Strategic Employment Place Types
39. GET Short-Term Service Plan (2012–2020)
40. GET X-92 Commuter Express bus service to Tejon Industrial Complex
41. Kern51 – Traveler Information System
42. San Joaquin Valley Blueprint Integration Project
43. Caltrans Vehicle Detection System – State Route 43 Intersection Improvements and East Bakersfield Vehicle Detection Systems
44. California Highway Patrol’s Safety Corridors
45. Purchase of CNG Buses (80+ bus fleet)
46. The Electric Cab Company of Delano
47. Downtown Elementary School Expansion (Bakersfield)
48. Traffic Control Devices
49. Kern Region Energy Action Plans (Kern REAP) and Kern Energy Watch Goal 3
50. Tejon Ranch Conservation and Land Use Agreement
51. Kern County Community Revitalization Program
52. Kern Transit – Route Connection with Antelope Valley Transit Authority
53. CSU Bakersfield – Public Transit Center

Appendix B Page 151
the upcoming 2018 RTP/SCS to continue encouraging sustainable communities. Examples of more than 50 success stories on strategies in Attachment C, clearly demonstrate how state visions and goals are realized on a local and regional level.

Consistent with the 2014 RTP/SCS modeling methodology, the modeling assumptions for the proposed targets account for the majority if not all of these strategies. No off model adjustments were made due to the difficulty in determining how much overlap there is in a strategy that is covered by the modeling and how much is not. This also gives stakeholders more transparent comparability on how the region is actually doing compared to prior SCSs.

Local Transportation Strategies in the Target Scenario

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.

- **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 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.

Local Land Use Strategies in the Target Scenario
• **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.

**Infrastructure Investment Consistent with the State's Conservation, Development, and Health Goals in the Target Scenario**

- **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.

**Pricing Policy Strategies in the Target Scenario**

- **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.

**Transportation System Efficiency Strategies in the Target Scenario**

• **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 contributors to low SOV Kern COG and local transit providers are implementing projects and policies that offer commuters with more eco-friendly travel options.

  o 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).

  o 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.

  o 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 traveled that year.

  o 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 five 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 two 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 in the RTP.**

**Co-benefits in the Target Setting Scenario**

- **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 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. Proposed changes to CalEnviroScreen raking may undermine Kern’s success in bring active transportation projects to some of the most disadvantaged communities in the State.

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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.

- **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.

- **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.

- **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.

- **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.

**D. PRELIMINARY ANALYSES AND VALLEYWIDE CHALLENGES FOR TARGET SETTING**

Despite ongoing SB 375 efforts, there exist outstanding variables that 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 the changing economic recovery rate 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.

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, some MPOs used older sources 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 suggests that it will be challenging for Valley MPOs to 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.

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 1: 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>EMFAC11</td>
<td>EMFAC14</td>
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<tr>
<td>Fresno</td>
<td>14,868</td>
<td>14,427</td>
</tr>
<tr>
<td>Kern</td>
<td>13,391</td>
<td>14,229</td>
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<tr>
<td>Kings</td>
<td>1,534</td>
<td>1,618</td>
</tr>
<tr>
<td>Madera</td>
<td>2,038</td>
<td>2,122</td>
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<tr>
<td>Merced</td>
<td>3,297</td>
<td>3,207</td>
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<tr>
<td>San Joaquin</td>
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<td>13,493</td>
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<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>

Preliminary numbers as of 12/30/16

As shown, differences in light-duty VMT and CO2 emissions from EMFAC2011 to EMFAC2014 range from 4% 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.

**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 most of 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>
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<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>
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<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>

Preliminary numbers as of 12/30/16
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.

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.

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 3: 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. Preliminary numbers as of 12/30/16.

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.

E. 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 correction opportunities 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. The modeling for the target scenario uses the same methodology with the modifications requested by ARB.

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 are implementing over 50 GHG reduction strategies, 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 latest modeling results provided in 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. Consistent with the 2014 RTP/SCS no off model adjustments have been made.

### Table 4: 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</td>
<td>-13</td>
</tr>
</tbody>
</table>

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

50+ Sustainable Community Success Stories in the Kern Region
ATTACHMENT C

50+ Sustainable Community Success Stories in the Kern Region
In order to help demonstrate the Kern region’s extensive efforts to comply with state climate change goals, Kern COG identified activities that demonstrate the progress of our member agencies are making toward achieving AB 32 and SB 375 goals.

**NEW STRATEGIES**
1. Bakersfield High Speed Rail Station Area Plan – Specific/General Plan Update
2. Kern COG 4,000 Workplace Charging Spaces by 2025
3. Improvements to 51 Bus Stops – Metro Bakersfield/Disadvantaged Neighborhoods
4. New Taft Transit Center / Regional Transit Hub
5. Early Delivery of Wasco Disadvantaged Community Active Transportation Projects
6. Bakersfield Disadvantaged Communities Bike Share & Downtown Bicycle Connectivity Project
7. Kern Highway Projects Advancing Complete Streets
8. Kern Regional Active Transportation Plan Including Disadvantaged Communities
9. Kern COG Intelligent Transportation System Plan Update
10. SJV Rural Transit Shared Mobility Study for Disadvantaged Communities
11. Kern County General Plan Update – Land Use, Conservation, Open Space, Circulation, Housing, and other key elements

**ENHANCED STRATEGIES**
13. City of Bakersfield Redevelopment Projects – Mill Creek and Baker Street
14. Commuter Rail Feasibility Study – Amtrak Improvements
15. Rideshare Program – Commute Kern
16. Expanding Park and Ride Lots
17. Dial-A-Ride and Local Transportation Services
18. Kern County Bicycle Master Plan & Complete Streets Recommendations/City of Tehachapi Bicycle Master Plan
19. City of Bakersfield Bicycle Facilities
20. Westside Station Multi-modal Transit Center
21. San Joaquin Valley Vanpool Program (CalVans)
22. Kern County Wind Farm Areas (Largest in U.S.)
23. City of Shafter Container Yard and Intermodal Rail Facility Expansion
24. Intersection Signalization/Synchronization
25. City of Bakersfield 4 New Downtown Infill Housing Projects

**ENHANCED STRATEGIES (continued)**
26. Cities of McFarland and Shafter – Conversion of transit fleet to electric vehicles
27. Golden Empire Transit – Purchase of 2 Electric Buses
28. Lost Hills Wonderful Park and Communitywide Improvements
29. New Developments Innovative Green Tech

**EXISTING/CONTINUING STRATEGIES**
30. City of Tehachapi General Plan (Form-Based Code, Transect Zone, Mobility Element, Town Form Element)
31. Infill Incentive Zone – Lower Transportation Impact Fee Core Area
32. City of Taft General Plan – Sustainability Principles
33. City of Ridgecrest General Plan and Multi-Modal Circulation Element
34. Metro Bakersfield General Plan Sewer Policy – Hook-up required for parcels less than 6 acres
35. City of Bakersfield Required Lot Area Zoning Strategies
36. San Joaquin Valley Air District’s Indirect Source Review to Mitigate Off-Site Impacts of Development
37. Transit Priority Areas in the Kern COG SCS
38. Metropolitan Bakersfield General Plan Centers Concept – Transit Priority & Strategic Employment Place Types
39. GET Short-Term Service Plan (2012–2020)
40. GET X-92 Commuter Express bus service to Tejon Industrial Complex
41. Kern511 – Traveler Information System
42. San Joaquin Valley Blueprint Integration Project
43. Caltrans Vehicle Detection System – State Route 43 Intersection Improvements and East Bakersfield Vehicle Detection Systems
44. California Highway Patrol’s Safety Corridors
45. Purchase of CNG Buses (80+ bus fleet)
46. The Electric Cab Company of Delano
47. Downtown Elementary School Expansion
48. Traffic Control Devices
49. Kern Region Energy Action Plans (Kern REAP) and Kern Energy Watch Goal 3
50. Tejon Ranch Conservation and Land Use Agreement
51. Kern County Community Revitalization Program
52. Kern Transit – Route Connection with Antelope Valley Transit Authority
53. CSU Bakersfield – Public Transit Center
PROJECT TITLE: Bakersfield High Speed Rail Station Area Plan – Specific/General Plan Update
PROJECT SPONSOR: City of Bakersfield

PROJECT DESCRIPTION:
The City of Bakersfield in partnership with and funding from the California High-Speed Rail Authority, are developing a High Speed Rail Station Area Plan for Downtown Bakersfield. The Plan will serve as vision document that will guide the future development of the HSR station area.

PROJECT BENEFITS:
Based on with an economic impact analysis, the vision document will: increase population and economic density in the urban core; support residential and commercial activity; develop under-utilized or vacant properties; connect existing activity and cultural centers; create an efficient, reliable, and effective multi-modal transportation system; connect existing activity and cultural centers; enhance sustainability, livability and a sense of place; and secure funding for identified implementation actions like a new property-based business improvement district.

COST BENEFIT RATIO: Not Applicable
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: 2017
STATUS: In Progress

Reference: City of Bakersfield, 2016
PROJECT TITLE: 4,000+ Workplace Charging Spaces by 2025
PROJECT SPONSOR: Kern Council of Governments and member agencies

PROJECT DESCRIPTION:
Active Transportation and Demand Management is the Federal Highway Administration’s (FHWA’s) program to promote active management, control, and influence of travel demand, traffic demand, and travel flow of transportation facilities. Under this program Kern COG member agencies are invited to work with Kern COG staff to capitalize on the resources provided through a new work element and OWP 801.1 grant writing element to develop electric charging infrastructure projects in Kern communities. Together, Kern plans to establish a county-wide network of 2,456 Electric Vehicle Charging Stations (EVSE) (4,320 spaces) at workplaces and public charging locations to support Governor Brown’s 2015 ZEV Action Plan goal of 1.5 million ZEVs on California roads by the year 2025.

PROJECT BENEFITS:
Kern COG’s implementation of Active Transportation Demand Management programs will offer opportunities to reduce transportation-related air pollution emissions and greenhouse gas emissions by engaging the public and private sectors in actions that accelerate advanced clean transportation technologies enhancing efforts to influence travel demand, and travel flow of transportation facilities through our traditional Transportation Demand Management strategies.

COST BENEFIT RATIO:
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: 2016-2025
STATUS: In progress

Electric charging station in Tehachapi

Electric charging station in Bakersfield

Photo: Tehachapi News
PROJECT TITLE: Improvements to 51 Bus Stops – Metro Bakersfield/Disadvantaged Neighborhoods  

PROJECT SPONSOR: City of Bakersfield, County of Kern, Golden Empire Transit District (GET), Kern Council of Governments and VOICED

PROJECT DESCRIPTION: Through a partnership of the City of Bakersfield, County of Kern, Golden Empire Transit District (GET), and Kern COG, and VOICED, a coalition formed to build alliances with organizations that provide services to individuals with disabilities and their families, Bakersfield residents with disabilities have increased bus stop accessibility. Contributed funds through the partnership improved 51 bus stop locations that were identified and prioritized in Bakersfield. Additional locations are currently planned.

PROJECT BENEFITS: Improvements to ADA ramps and sidewalks have improved access to the bus stop locations for the riders while improvements to the curb, gutter and pavement adjacent to the bus stops have improved access for the drivers.

COST BENEFIT RATIO: Not Applicable  
TOTAL COST OF PROJECTS: $1,000,000  
YEAR OF CONSTRUCTION: 2016  
STATUS: In Progress

Press conference for bus stop accessibility

Installation of new bus stop

Photos: Golden Empire Transit
PROJECT TITLE: Taft Transit Center – Regional Transit Hub

PROJECT SPONSOR: City of Taft

PROJECT DESCRIPTION:
The City of Taft broke ground on the Taft Transit Center in November 2016. The location of the transit facility is along the Rails to Trails and Oilworker Monument. The design for the facility will preserve the historic theme of the Rails to Trails. The facility will not only be a transit center but will include a maintenance and office building and a community center. The facility’s expected completion is in Summer of 2017.

PROJECT BENEFITS:
This project is being funded by surplus Proposition 1B Transit funds. Residents of the cities of Taft and Maricopa will be sheltered from the summer heat and winter while waiting for Taft and Kern transit service. Due to its central location, this facility may encourage the use of Taft and Kern transit to local and visiting riders.

COST BENEFIT RATIO: $49.18/lb.
TOTAL COST OF PROJECTS: $1.9 million
YEAR OF CONSTRUCTION: 2016-17
STATUS: In progress
PROJECT TITLE: Early Delivery of Wasco Active Transportation Program Projects

PROJECT SPONSOR: City of Wasco

PROJECT DESCRIPTION:
The City of Wasco was awarded Active Transportation Program (ATP) funding during the first cycle of ATP. The projects included bike and pedestrian improvements for John L. Pruiett Elementary School and Teresa Burke Elementary School; pedestrian improvements near Karl Clemens School and Palm Avenue Elementary School; and pedestrian safety lighting and pedestrian infrastructure along the Highway 43 corridor. These were some of the first ATP projects delivered in the State.

PROJECT BENEFITS:
There were significant benefits to the City of Wasco and its residents with the completion of these ATP projects. These included access to bike lanes, safe and walkable streets, lighting and landscaping along sidewalks, and safe routes to schools for students.

COST BENEFIT RATIO: Not Applicable

TOTAL COST OF PROJECTS: $3.6 million

YEAR OF CONSTRUCTION: 2014-2017

STATUS: Varies
PROJECT TITLE: Bakersfield Disadvantage Communities Bike Share & Bicycle Connectivity Project
PROJECT SPONSOR: City of Bakersfield

PROJECT DESCRIPTION:
In 2017 Kern COG awarded nearly one million dollars to the City of Bakersfield in regional share Active Transportation Program funds for a new bike share program and improvements to central Bakersfield. The program includes adding 19 miles of bike lanes; installing 80 bicycle parking and storage racks; and adding up to 25 stations with 180 dock ports for 100 smart bicycles. This pilot project may be expanded if proven successful.

PROJECT BENEFITS:
The City of Bakersfield's implementation of this project will offer opportunities to reduce transportation-related air pollution emissions and greenhouse gas emissions by providing the public with more active transportation choices. The project benefits the largest concentration for disadvantage populations in the region, for a community with the second highest number of disadvantaged census tracts in the state. This project has tremendous potential to affect the health and access to jobs and services for these disadvantaged neighborhoods. The project is also expected to attract millennial job seekers.

COST BENEFIT RATIO:
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: 2016
STATUS: In progress

Bakersfield Bike Share Program
PROJECT TITLE: Kern Highway Projects Advancing Kern COG Complete Streets Recommendations

PROJECT SPONSOR: Kern Council of Governments

PROJECT BENEFITS:
These projects incorporate bike and pedestrian friendly facilities as well as facilities that promote carpools, vanpools and transit use through ramp metering. Surface streets are at grade, improving ease of bike and pedestrian flow.

COST BENEFIT RATIO: Unknown

TOTAL COST OF PROJECTS: Unknown

YEAR OF CONSTRUCTION: 2009-2021

STATUS: In Progress

PROJECT DESCRIPTION:
In 2012 Kern COG completed the Complete Streets Recommendations report. Highway projects in Kern are implementing these recommendations. The Thomas Roads Improvement Program has now completed the following complete streets 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

Calloway Bridge, Westside Parkway
DRAFT APPENDIX E – SUCCESS STORIES

PROJECT TITLE: Kern Regional Active Transportation Plan Including Disadvantaged Communities
PROJECT SPONSOR: Kern Council of Governments

PROJECT DESCRIPTION:
Kern COG began the development of an Active Transportation Plan for the Kern region in July 2016 and completion date in June 2017. The Plan will inventory existing active transportation infrastructure, identify deficiencies in the system and prioritize the installation of new facilities that will improve system safety, connectivity and user convenience.

PROJECT BENEFITS:
With financial assistance from both the metropolitan Bakersfield public transit provider, Golden Empire Transit, 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.

COST BENEFIT RATIO: Not Applicable
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: 2017-2037
STATUS: In Progress

Examples of obstructed sidewalk and sidewalk gap in Downtown Bakersfield

![Examples of obstructed sidewalk and sidewalk gap in Downtown Bakersfield](image-url)
PROJECT TITLE: Kern Intelligent Transportation Systems Plan
PROJECT SPONSOR: Kern Council of Governments

PROJECT DESCRIPTION:
In 2017 Kern COG began the development of an update to the current Intelligent Transportation System (ITS) Infrastructure Plan. The plan proposes implementation of technology that improves the efficiency of the transportation system. An example of ITS infrastructure is traffic signal coordination.

PROJECT BENEFITS:
The ITS Plan provides for phasing in of new technologies that will improve the efficiency of the transportation system thereby reducing greenhouse gas and health based air pollution emissions.

COST BENEFIT RATIO: Not Applicable
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: 2017-2042
STATUS: In Progress

Examples of Intelligent Transportation Systems

![Intelligent Transportation Systems Diagram](image-url)
PROJECT TITLE: SJV Rural Transit Shared Mobility Study for Disadvantaged Communities
Implementation Alternatives for Meeting Transit Needs in the Rural San Joaquin Valley

PROJECT SPONSOR: Kern Council of Governments

PROJECT DESCRIPTION: The 8 San Joaquin Valley COGs are partnering with the Institute of Transportation Studies at UC Davis and Michael Sigala to explore opportunities for leveraging new technology driven shared access services to enhance, compliment, and/or replace traditional fixed-route transit serving rural communities. The shared access services will study ridesharing, carsharing, and bikesharing.

PROJECT BENEFITS: The partnership and project will expand low-carbon transportation options in rural areas and disadvantage communities.

COST BENEFIT RATIO: Unknown
COST OF PROJECTS: $600,000
YEAR OF CONSTRUCTION: In progress
STATUS: In progress
PROJECT TITLE: Kern County General Plan Update – Land Use, Conservation, Open Space, Circulation, Housing, and other key elements

PROJECT SPONSOR: County of Kern

PROJECT DESCRIPTION:
In October 2016, the County of Kern kicked off the update to their General Plan. The General Plan update includes Land Use, Conservation, Open Space, Circulation, Housing, Water, Healthy Communities, Energy, Military Readiness, Safety and Noise Elements. The update process to the document that controls the resource land use areas of the county. The document will have to balance land uses and resources will providing a plan for disadvantaged unincorporated communities. The County already requires farmland lost to Solar requires 2-1 farmland preservation Easements.

PROJECT BENEFITS:
The plan when complete will advance the existing efforts to preserve Kern County resource areas for future generations while helping to reduce greenhouse gas production through alternative energy and ensuring water availability for the region’s agricultural carbon sink.

COST BENEFIT RATIO: Not Applicable
COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: Not Applicable
STATUS: In progress

Kern County General Plan Update
PROJECT TITLE: Early Deployment Pricing Policies for Parking and FastPass HOT Lanes
PROJECT SPONSOR: City of Bakersfield/Caltrans

PROJECT DESCRIPTION:
Parking Pricing - 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 Pricing - 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.

PROJECT BENEFITS:
Parking toll lane pricing policies have proven to be an effective means to redistribute demand during peak periods, delaying the need for new infrastructure while providing a pay-as-you-go method to make improvements to the parking area or corridor. The reduced congestion benefits GHG and health based criteria pollutants.

COST BENEFIT RATIO: Not Applicable
COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: In progress
**PROJECT TITLE:** City of Bakersfield Redevelopment Projects – Mill Creek and Baker Street  
**PROJECT SPONSOR:** City of Bakersfield

**PROJECT DESCRIPTION:**  
The Mill Creek Linear Project was a redevelopment project in Downtown Bakersfield, and included the renovation and redesign of Central Park. The Mill Creek Project includes a 1.5 mile linear park, housing, senior housing, and commercial developments, along with landscaping and street improvements, and has recently received a State AHSC grant for senior housing.

The Baker Street Village Project was also a redevelopment project that involved the revitalization of Olde Town Kern. The Project mixes condos and lofts, along with 10,000 square feet of commercial and community space.

**PROJECT BENEFITS:**  
These two mixed-use redevelopment projects help reduce auto dependency, roadway congestion, and improve air quality. In addition, these projects promote pedestrian and bicycle travel, and promote efficient use of land and infrastructure.

**COST BENEFIT RATIO:** Not Applicable  
**COST OF PROJECTS:** $58 million  
**YEAR OF CONSTRUCTION:** 2007-2017  
**STATUS:** In progress
PROJECT TITLE: Commuter Rail Feasibility Study/Amtrak Improvements
PROJECT SPONSOR: Kern Council of Governments

PROJECT DESCRIPTION:
Kern COG contracted with a consultant to develop a feasibility study for Federal Small Starts or New Starts program, and to determine alternative commuter bus and passenger rail service to replace or enhance the Amtrak San Joaquin passenger rail service between Bakersfield and Fresno once high-speed rail is implemented.

In 2016 Amtrak began operating a 7th train per day on this corridor, facilitating potential additional intercity stops on this passenger rail corridor in Kern.

high-speed rail trains begin to operate in six to eight years. If funding is available, strategies include:

- A possible commuter passenger rail service from Bakersfield to Delano with stops in northwest Bakersfield, Shafter, Wasco, and Delano.
- A possible commuter passenger rail service to rural employment sites such as Frito Lay, Grimmway, Bolthouse, etc.
- An extension of the Metrolink commuter passenger rail services from Palmdale to Rosamond.

COST BENEFIT RATIO: Unknown
COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: Unknown
STATUS: In progress

Map of Alternatives 1 and 2 in Bakersfield Region

Metrolink Extension – E. Kern

Source: Commuter Rail Feasibility Study, Draft July 2012
PROJECT TITLE: Rideshare Program – Commute Kern
PROJECT SPONSOR: Kern Council of Governments

PROJECT DESCRIPTION:
Commute Kern provides customer service upon request from the general public, employers, colleges, vanpool operators, other agencies and the media regarding ridesharing opportunities. As an on-line transportation demand management program, Commute Kern’s website-commutekern.org, serves as a resource for carpooling, vanpooling, public transit, park-and-ride facility use, telework, walking and bicycling for commutes to work and school to help improve our air quality. The program also allows for flexible scheduling, daily tracking, vanpool management, outreach to employers, resources to commuters such as concierge services, and forum for discussion and sharing resources.

PROJECT BENEFITS:
Using rideshare services reduces the number of single occupancy vehicles on the road, and ultimately helps to improve our air quality.

COST BENEFIT RATIO:
2017-2018: $59.15 / lbs.

COST OF PROJECT:
2016-2017: $231,420
2017-2018: $243,886

YEAR OF CONSTRUCTION: Non-construction
STATUS: Ongoing
PROJECT TITLE: Expanding Park and Ride Lots  
PROJECT SPONSOR: Caltrans, City of Bakersfield and California City

PROJECT DESCRIPTION:
The purpose of the development of Park and Ride lots is to provide a safe and centralized location for commuters to meet and either carpool, vanpool, or use transit. There are seven existing Park and Rides within Kern County that Caltrans (Districts 6 and 9) operates. There are lots in Lake Isabella, Delano, Taft, Ridgecrest, and three in Bakersfield.

The newest Park and Ride location was created through a partnership with Tejon Ranch, GET Bus, and IKEA Industrial Plaza. A bus picks up and drops off the Industrial Plaza employees from the newest park and ride lot at South H Street and McKee Road.

An addition proposed project is the construction of College Station Park and Ride with a bus turnout at the intersection of California City Blvd. (South) and Yale Ave in California City. The primary purpose of the project is to provide a place to park and car/van pool for those working at the Borax Plant in Boron, and Edwards Air Force base.

PROJECT BENEFITS:
Provides a meeting point for commuters to leave their individual cars as they join carpools or vanpool services. This service helps eliminate the number of single occupied vehicles from the roads on a daily basis.

In addition, the proposed project is anticipated to reduce the number of vehicle trips for those who will car or van pool to work. Using the latest emission factors, it is estimated that this project would remove between 865 and 1,100 pounds of emissions annually over a twenty year life expectancy.

COST BENEFIT RATIO: $23 / lbs.
COST OF PROJECT: $375,000
YEAR OF CONSTRUCTION: 2014
STATUS: Complete

Park and Ride lot at South H Street and McKee Road
PROJECT TITLE: Dial-A-Ride and Local Transportation Services
PROJECT SPONSOR: City of Arvin, California City, City of Delano, City of McFarland, City of Ridgecrest, City of Shafter, City of Taft, City of Tehachapi, City of Wasco, City of Bakersfield (GET)

PROJECT DESCRIPTION:
The following cities provide Dial-A-Ride service to the public within their city limits: Arvin, California City, Delano, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. The Dial-A-Ride services vary from city to city; some cities provide services to all the public while some limit services to seniors and the disabled. In addition, Bakersfield through Golden Empire Transit (GET) provides the GET-A-Lift service to eligible persons. Dial-A-Ride service within the Bakersfield urban area is also provided by the Consolidated Transportation Service Agency (CTSA).

Kern COG is part of a study with UC Davis on shared mobility for rural transit that may of solutions to enhance transit service in rural, disadvantaged communities.

PROJECT BENEFITS:
The Dial-A-Ride service is a form of ridesharing that benefits the Kern region by reducing the number of single occupancy vehicles on the road which ultimately helps improve our air quality.

COST BENEFIT RATIO: Not Applicable
COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: Unknown
STATUS: In progress
PROJECT TITLE: Kern County Bicycle Master Plan and Complete Streets Recommendations / City of Tehachapi Master Bike Plan

PROJECT SPONSOR: Kern Council of Governments / City of Tehachapi

PROJECT DESCRIPTION:
The Kern County Bicycle Master Plan and Complete Streets Recommendations proposed 664 miles of new bikeways, including 30 miles of Class I bike paths, 297 miles of Class II bike lanes, 46.6 miles of Class III bike routes, and 186 miles of Class II bike routes on State Routes. In addition, the Plan also presents recommendations for complete streets.

The City of Tehachapi Master Bike Plan proposed 31.69 total miles of bikeways, including 4.66 miles of Class I Bike Paths and 25.24 miles of Class II bike lanes.

PROJECT BENEFITS:
Replacing vehicular trips with bicycle trips can reduce human-generated GHGs in the atmosphere, reduce VMT, reduce fuel consumption and lessen mobile source pollutants, such as carbon dioxide being released into the air.

COST BENEFIT RATIO: Unknown

COST OF PROJECTS: Unknown

YEAR OF CONSTRUCTION:
Kern County Final Plan will be issued in September 2012 and the City of Tehachapi Master Bike Plan was adopted in June 2012.
PROJECT TITLE: City of Bakersfield Bicycle Facilities  
PROJECT SPONSOR: City of Bakersfield Public Works Department

PROJECT DESCRIPTION:
These projects relate to bicycle facilities at numerous locations within the City of Bakersfield. There were a total of two proposed bicycle facilities projects (total of eight proposed lanes) for the Fiscal years of 2012-2013. Both projects proposed the installation of Class 2 bicycle lanes along each corridor including pavement striping, markings and roadway signage. The map also includes the existing bicycle facilities.

PROJECT BENEFITS:
On-street bike lanes (Class 2) along major roadways help raise bicycle usage resulting in lower emissions and congestion, while resolving safety issues.

COST BENEFIT RATIO: $7 – $21/ lbs.
TOTAL COST OF PROJECTS: $35,000 - $60,000
YEAR OF CONSTRUCTION: 2013
STATUS: Constructed, Planned

Map of Bicycle Lanes
PROJECT TITLE: Westside Station – Multi-modal Transit Center  
PROJECT SPONSOR: California City  

PROJECT DESCRIPTION:  
The completed project provides the eastern Kern region with a multi-modal transit center on City owned property in the Wonder Acres neighborhood at the southwest corner of California City Blvd. and Wonder Ave. The Transit Center includes a parking lot, lighting, restrooms, landscaping, and Kern Regional Transit bus stops.  

The purpose of this project is to provide a comfortable, accessible, and a safe place to park that encourages residents who were parking at the previously undeveloped site to commute to work or school using car pools, ride sharing or public transit.

PROJECT BENEFITS:  
Improves site accessibility to local area residents desiring to use van pools, ride sharing and public transit throughout the Kern region. Encourages future users of alternative transportation options.

COST BENEFIT RATIO: All emissions: $8.34/lbs.  
COST OF PROJECT: Approximately $500,000  
YEAR OF CONSTRUCTION: Completed in 2013  
STATUS: Constructed
PROJECT TITLE: San Joaquin Valley Vanpool Program (CalVans)

PROJECT SPONSOR: CalVans

PROJECT DESCRIPTION:
The San Joaquin Valley vanpool program (CalVans) is a public vanpool service that serves Central California and began serving Kern County residents in 2009. CalVans provides public transit services to people in transportation uses that are difficult for traditional public transit operators to provide. CalVans currently provides transportation services to farmworkers throughout the county and has also provided services to Shafter students attending Taft Community College. In 2016, CalVans added vanpools going to Tehachapi. There are now 28 vanpools operating in Kern.

PROJECT BENEFITS:
CalVans provides a higher level of vanpooling while reducing overall miles traveled and carbon dioxide emissions from passenger vehicles.

CalVans provides 7, 8, and 15-passenger vans to its customers. Currently CalVans has over 495 vanpools in operation which in turn saves nearly 13,000 vehicle miles traveled per day. Growing demands project a market for nearly 500 vans pools which can save approximately 100,000 vehicle miles traveled per day.

COST BENEFIT RATIO: Unknown

TOTAL COST OF PROJECTS:

YEAR OF CONSTRUCTION: 2009

STATUS: In process

Local college students who use CalVans

![Local college students who use CalVans](image-url)
PROJECT TITLE: Kern County Wind Farm Areas (Largest in the U.S.)
PROJECT SPONSOR: County of Kern

PROJECT DESCRIPTION:
The County of Kern has 21,752 acres of existing wind energy areas, 57,524 acres of approved wind projects and 14,998 acres of wind projects that are in progress.

PROJECT BENEFITS:
Wind is a clean source of renewable energy that produces no air pollution. In addition, wind turbines create power without producing greenhouse gases.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: Unknown
STATUS: In process
PROJECT TITLE: City of Shafter Container Yard and Intermodal Rail Facility Expansion

PROJECT SPONSOR: City of Shafter

PROJECT DESCRIPTION:
The City of Shafter Intermodal Rail Facility was recently expanded by adding 2 miles of tail sidings and a container storage yard. The rail facility will establish a dedicated reliable intra-state rail shuttle connecting the Port of Oakland and Los Angeles/Long Beach with the southern San Joaquin Valley. The container yard is leased by a dock operating company for Los Angeles/Long Beach and Oakland and uses the facility to help match loads between the ports and the southern San Joaquin Valley so as to eliminate emissions and truck trips.

PROJECT BENEFITS:
The rail shuttle will better utilize existing port facilities, highways, and rail infrastructures in California to reduce the relocation of empty containers, remove trucks from overcrowded highways, and improve air quality. The proposal is to create an intermodal facility which will divert the freight transported by 600 trucks per day to 2 unit trains per day to and from the Port of Oakland.

COST BENEFIT RATIO: $99 / lbs.
TOTAL COST OF PROJECTS: $60 million
YEAR OF CONSTRUCTION: 2013
STATUS: In process
PROJECT TITLE: Next Generation Intersection Signalization
PROJECT SPONSOR: City of Bakersfield Public Works, Kern County Roads Department, City of Ridgecrest, Caltrans

PROJECT DESCRIPTION:
Existing and proposed intersection signalization projects at numerous locations throughout the Kern region. A total of 13 intersection signalization proposed projects have been scheduled for the Fiscal years of 2012-2014.

In 2016 Kern COG commenced an update to the Intelligent Transportation System (ITS) Plan that will look at the next generation of traffic signal technology.

PROJECT BENEFITS:
Improves signal timing along the reference corridor which will reduce overall vehicle stops and starts, and limits delay in travel time. The reduction in vehicle stops and starts will improve the corridor’s average speed, thereby reducing the harmful pollutants generated by vehicles traveling at low speeds and when idling.

COST BENEFIT RATIO: $ 3 – $ 60/ lbs.
TOTAL COST OF PROJECT: $ 104,500 - $ 652,500
STATUS: Constructed/Operating, Planned

Proposed Intersection Signalization Projects
PROJECT TITLE: City of Bakersfield 4 New Downtown Infill Housing Projects – Mill Creek South, 1612 City Lofts, 17th Place Townhouses, AHSC Senior Housing Project at Mill Creek

PROJECT SPONSOR: City of Bakersfield

PROJECT DESCRIPTION:
South Mill Creek Apartments was developed and operates with Federal housing financing. The property utilizes the Low Income Housing Tax Credit Federal housing program to make rent affordable to lower income tenants.

1612 City Lofts (The Lofts) is a mixed use development located in the thriving Downtown Bakersfield Arts and Entertainment District or popularly known as “The District.” 1612 City Lofts became the first mixed-use building in downtown Bakersfield in the 21st century. The Lofts also provide a workforce housing as part of a program through the Bakersfield Economic Redevelopment Agency. Tenants income limits are adjusted annually.

17th Place Townhomes is an environmentally friendly downtown community walking distance from downtown amenities. The luxury development townhomes will include drought-sensitive landscaping and courtyard space.

AHSC Senior Housing Project at Mill Creek provides affordable one and two-bedroom apartment homes for seniors 55 years and older. The Mill Creek Village will be coming in early 2017 and includes private patios or balconies and a central courtyard.

PROJECT BENEFITS:
The infill housing projects are conveniently located to public transportation that includes the Amtrak Station and Bakersfield Downtown Transit Center. The housing projects are also within walking distance of downtown shopping and dining.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: Varied
STATUS: In Progress
PROJECT TITLE: Cities of McFarland and Shafter – Conversion of transit fleet to electric vehicles
PROJECT SPONSOR: City of McFarland, City of Shafter

PROJECT DESCRIPTION:
The City of Shafter introduced four electric vans for use in its Dial-A-Ride program. Each van is configured to carry up to 16 passengers or cargo at 100 miles per charge. The City of McFarland is in the process of converting their transit fleet to electric vehicles.

PROJECT BENEFITS:
The benefits of transit electric vehicles includes the reduction of the number of single occupancy vehicles on the road and ultimately helps improve our air quality, lower maintenance and repair costs, and lower fuel costs.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: 2016
STATUS: In Progress

Shafter Electric Vehicles
PROJECT TITLE: Golden Empire Transit/Kern Transit – Purchase of 4 Electric Buses
PROJECT SPONSOR: Golden Empire Transit District, Kern Transit

PROJECT DESCRIPTION:
The Golden Empire Transit District will be purchasing 2 electric buses in 2017. Clean non-polluting buses may attract more riders who may be looking to alternatives to the auto for home to work purposes. These electric buses are planned to be used for the future bus rapid transit route in Bakersfield.

Kern Transit was recently awarded a grant to purchase 2 electric busses for its east Kern run to the Metrolink station in Lancaster.

PROJECT BENEFITS:
As fleets increase, rapid routes may make commuter travel preferable. This improves preferences and accessibility to medical, shopping centers and employment centers.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: 2017
STATUS: In Progress

Electric buses being driven in Bakersfield

Kern Transit Bus at Intermodal Rail Stop
PROJECT TITLE: Lost Hills Wonderful Park and Communitywide Improvements
PROJECT SPONSOR: The Wonderful Company

PROJECT DESCRIPTION:
The Lost Hills Wonderful Park is located at the intersection of Highway 46 and Lost Hills Road. The park was part of Lynda Resnick, co-chair of The Wonderful Company, Central Valley Leadership Project. Phase I of the project involved major park improvements including resurfaced basketball court, soccer field, bleachers, and a mile-long walking path that circles the park, a splash park, and solar powered lights to illuminate the park in the evening. The community center located in the park was also completely renovated to include a fully equipped kitchen, tables and chairs for community and private events. Phase II of the project renovation included widening of streets and addition of bike lanes; installation of sidewalks, gutters, bus stop shelters and street lights; and the planting of drought-resistant landscaping.

PROJECT BENEFITS:
The Wonderful Company made major street improvements in the community. The Wonderful Company, improved 3.8 miles of streets, built 7.2 miles of sidewalk, extended 220 driveways and installed 6.9 miles of curbs and gutters. In addition, the Wonderful Company planted 730 trees, put up 16 stop signs, erected 38 LED street lights and built 1,400 feet of 60-foot-wide pedestrian walkways. Residents of Lost Hills can safely walk, ride their bike, or drive to the Park. Directly across from the Park is a bus shelter for the regional transit, Kern Transit. The Wonderful Company, the County and Caltrans are developing a pedestrian overpass on SR 43 for the community.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: 2019
STATUS: Completed

Lost Hills Wonderful Park improvements
PROJECT TITLE: New Developments Innovative Green Tech
PROJECT SPONSOR: County of Kern, City of Bakersfield

PROJECT DESCRIPTION:
Newly approved developments such as Grapevine leverage new technologies to provide the lowest carbon footprint, sustainable education, and housing options closer to jobs in the region.

PROJECT BENEFITS:
Reduction in vehicle miles traveled and a reduction in the overall per capita carbon footprint.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: Unknown
STATUS: In Progress

Reference: http://www.grapevineattejonranch.com/
PROJECT TITLE: City of Tehachapi General Plan – Form Based Code General Plan
PROJECT SPONSOR: City of Tehachapi

PROJECT DESCRIPTION:
The City of Tehachapi adopted the 2035 General Plan Update, and the new General Plan will contribute towards the implementation of SB 375.

The new General Plan can be characterized as a Form Based General Plan because it emphasizes facilitating mixed use, walkable neighborhoods and developments. The “T” Zone will facilitate high density mixed use development opportunities. The Mobility Element is still linked to the Land Use Element with an emphasis on greater connectivity, walkability, and opportunities for mixed use developments. The “O” Sectors will reinforce the preservation of the Sphere of Influence area as open space, prevent urban sprawl and maintain our compact urban form. The “G” Sectors will emphasize infill development as our highest priority as the General Plan continues to build out.

PROJECT BENEFITS:
The new General Plan will maintain a compact urban form by maintaining all areas outside of the current City limits and within the sphere of influence area as Open Space. This approach will prevent urban sprawl, protect important agricultural resources and provide a clear line of demarcation between town and countryside.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: Unknown
STATUS: In Progress

Reference: City of Tehachapi General Plan, 2012
PROJECT TITLE: Infill Incentive Zone – Lower Transportation Impact Fee Core Area
PROJECT SPONSOR: City of Bakersfield / City of Tehachapi

PROJECT DESCRIPTION:
The Transportation Impact Fee (TIF) Core Area is a designated area within Metro Bakersfield that has been identified through the City’s Land Use policies as an area where development is encouraged. Developers who plan projects in the TIF Area will have reduced permitting fees. The TIF Core Area would allow an increase of approximately four times the number of households that are currently in this area.

The City of Tehachapi also has implemented a Tehachapi Region Core Area TIF. Tehachapi’s TIF is established for the similar purposes as Bakersfield’s TIF.

PROJECT BENEFITS:
Implementing incentives for development in the TIF Core Area can promote infill, mixed-use, and discourage sprawl. Future development in the TIF Core Area will also bring the public closer to quality transit service.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: n.a.
STATUS: In process

Map of TIF Core Area for Bakersfield
PROJECT TITLE: City of Taft General Plan – Sustainability Principles
PROJECT SPONSOR: City of Taft

PROJECT DESCRIPTION:
The City of Taft’s General Plan incorporates sustainable principles throughout the elements of the General Plan. The City’s principle involves the three aspects of sustainability: environment, economy, and equity. Throughout the General Plan, there is a leaf symbol adjacent to goals and policies based on the sustainable or “green” principles.

PROJECT BENEFITS:
The City of Taft’s General Plan promotes the development of a sustainable community by ensuring its general plan policies are crafted to cut greenhouse gas emissions and move toward cleaner energy sources.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: Not Applicable
YEAR OF CONSTRUCTION: Not Applicable
STATUS: In Progress

Reference: City of Taft General Plan, 2009

Table of Sustainable Principles by Element

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<th>Land Use</th>
<th>Circulation</th>
<th>Open Space &amp; Conservation</th>
<th>Energy Resources</th>
<th>Noise</th>
<th>Safety</th>
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<td>Promote compact, walkable, mixed-use development</td>
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<td>Focus new development in existing developed areas in the Planning Area, while limiting growth of undeveloped lands.</td>
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<td>Promote multifamily development.</td>
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<td>Protect open space and agricultural lands.</td>
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<td>Promote the efficient use of energy and resources (water, soil, building materials, etc.).</td>
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<td>Create strong local and regional economies.</td>
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<td>Encourage jobs/housing balance.</td>
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<td>Support energy and resource efficient authorities.</td>
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<td>Promote energy and resource efficient buildings.</td>
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<td>Promote economic opportunity for all segments of the community.</td>
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<td>Enhance the design character of commercial and office development</td>
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<td>Equity</td>
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<td>Provide adequate housing for all income levels.</td>
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<td>Provide a fair and predictable land use planning process.</td>
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<td>Promote development that is equitable in terms ofAffordability and benefits among all Taft residents and businesses.</td>
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<td>Require fair treatment in the development, adoption, and enforcement of regulations and policies.</td>
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<td>Promote alternative transportation options to increase access.</td>
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PROJECT TITLE: City of Ridgecrest General Plan and Multi-Modal Circulation Element
PROJECT SPONSOR: City of Ridgecrest

PROJECT DESCRIPTION:
In 2009, the City of Ridgecrest adopted its most recent General Plan. The guiding principles that are included in the updated general plan are: explore land use and policy alternatives; provide guidance in the planning and evaluation of future land and resource decisions; and provide a vision and framework for the future growth of the City. In addition, the Circulation Element addresses automobile travel, public transit, aviation, and trails for bicyclists and pedestrians.

PROJECT BENEFITS:
The City of Ridgecrest’s updated General Plan includes new goals, policies, and implementation measures that are sustainable approaches. A new Land Use goal in the City’s General Plan is to provide an appropriate mix of land use opportunities and provide incentives for infill development. In addition, the Circulation Element includes a goal to encourage and provide alternative modes of transportation and alternatives to travel for Ridgecrest residents to decrease dependence on single-occupant vehicular travel and reduce vehicle emissions.

Non-Motorized Circulation Map

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: Not Applicable
YEAR OF CONSTRUCTION: Not Applicable
STATUS: In Progress

Reference: City of Ridgecrest General Plan, 2009

PROJECT TITLE: General Plan Sewer Policy – Hook-up required for parcels less than 6 acres
PROJECT SPONSOR: County of Kern

PROJECT DESCRIPTION: In November 2005, the Kern County Board of Supervisors approved revisions to the Metropolitan Bakersfield General Plan including its sewer policy. The revisions required all new commercial, industrial and residential developments including residential land divisions proposing parcels smaller than six gross acres to connect to public sewer.

PROJECT BENEFITS: The policy is intended to ensure that new growth be based on the availability of the extension of sewer infrastructure. The policy greatly curtails large lot development on the periphery of Metro Bakersfield.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: Unknown
STATUS: In process
**PROJECT TITLE:** City of Bakersfield Required Lot Size Zoning Strategies  
**PROJECT SPONSOR:** City of Bakersfield

**PROJECT DESCRIPTION:**  
In January 2005, the City of Bakersfield amended Section 17.14.070 of the Municipal Code relating to minimum lot area zoning. The amendment reduced the minimum lot size for R-2 zone dwellings to four thousand five hundred square feet per dwelling unit.

The City of Bakersfield also has a Planned Unit Development (PUD) zone, which enables developers to propose any lot size they desire, subject to discretionary approval by either the Council or Planning Commission. An example of a project that achieved higher density in a single-family residential development is University Park located in southwest Bakersfield.

The housing project includes a mixture of small, but traditional lots as well as cluster lots where six lots share a single driveway. In addition, the City has the Commercial-Center (C-C) zone which permits mixed use development by-right.

**PROJECT BENEFITS:**  
Building on smaller lot sizes allows for compact and sustainable development. Planning and implementing compact sustainable development provides opportunities to reduce greenhouse gas emissions.

**COST BENEFIT RATIO:** Unknown  
**TOTAL COST OF PROJECTS:** Unknown  
**YEAR OF CONSTRUCTION:** Ordinance implemented in 1995  
**STATUS:** In process

Map of Small Lot Areas in Metro Bakersfield
PROJECT TITLE: San Joaquin Valley Air Pollution Control District – Indirect Source Review (ISR) to Mitigate Off-Site Air Quality Impacts of New Development

PROJECT SPONSOR: San Joaquin Valley Air Pollution Control District (SJVAPCD)

PROJECT DESCRIPTION:
The SJVAPCD adopted Indirect Source Review (Rule 9510) to reduce the impacts of growth in emissions from all new land development in the San Joaquin Valley. Indirect air emissions are emissions indirectly caused by growth in population. ISR applies to development projects that have not yet gained discretionary approval.

PROJECT BENEFITS:
The ISR Rule looks to reduce the emission of harmful pollutants, specifically NOx and PM10 associated with the construction and operation of new development projects in the San Joaquin Valley.

COST BENEFIT RATIO: Unknown
COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: Unknown
STATUS: Adopted

Examples of Smart Growth Development Located in Downtown Bakersfield

[Images of smart growth developments]
PROJECT TITLE: Transit Priority Areas (TPA)
PROJECT SPONSOR: Kern Council of Governments

PROJECT DESCRIPTION:
SB 375 addresses Transit Priority Areas (TPA) as part of the SCS. TPA are areas within ½-mile of either rail stations or bus services with 15 minute headways in the peak period. The current TPA only includes the Amtrak stations with a total population of 5,628 within the TPA. In October 2012, the GET Short Term Transit Plan will implement their 2012 plan which will increase the TPA coverage to 26.40 square miles and include a household population of 127,022 within the TPA. With the implementation of the GET Long Range Plan by 2035, the TPA coverage will increase 87.58 square miles and include a household population of 415,431. The TPA difference from existing and 2035 is a 5,478.3% increase in the TPA coverage and a household population of 7,281.5%.

PROJECT BENEFITS:
TPA encourages sustainable development by providing accessibility to quality transit which can reduce vehicle miles traveled and reduce the region’s GHG.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECT: Unknown
YEAR OF CONSTRUCTION: October 2012
STATUS: Planned
PROJECT TITLE: Metropolitan Bakersfield General Plan Centers Concept – Transit Priority & Strategic Employment Place Types

PROJECT SPONSOR: Kern Council of Governments

PROJECT DESCRIPTION:
Below is a map based on the Metro Bakersfield General Plan Centers Concept that was adopted in 1992. The Centers Concept was incorporated into the 2008 Kern Regional Blueprint Conceptual View maps. These map series were designed to illustrate some of the Regional Blueprint Principles designed to promote sustainable communities. The Maps are distinguished in phases; resources and other layers, existing, planned, and potential centers, along with a map that combines all the phase layers. The Maps include City spheres of influence from the County General Plan (included in the Public/Resources layer), the transportation model network, and the major transit routes.

PROJECT BENEFITS:
Transit Priority Centers and Strategic Employment Place Types are illustrated in three phases; existing, planned, and potential. The Planned and Potential centers are located along major transit services within the urban area.

COST BENEFIT RATIO: Unknown
COST OF PROJECTS: N/A
YEAR OF CONSTRUCTION: N/A
STATUS: Adopted
**PROJECT TITLE:** GET - Short-Term Service Plan (2012-2020)  
**PROPOSED SPONSOR:** Golden Empire Transit District (GET)

**PROJECT DESCRIPTION:**  
In the Metropolitan Bakersfield Transit System Long-Range Plan, there is a proposed Short-Term Service Plan (2012-2020). In the Short-Term plan, GET’s fixed-route bus network would be reconfigured to reflect population and employment growth since the 1980’s and to improve customer service and cost-effectiveness. In addition, the area covered within .75 miles from the Short-Term transit routes is 111 square miles.

**PROJECT BENEFITS:**  
The prominent features of the Short-Term Plan includes a new transit center at CSU Bakersfield, increased service to CSU Bakersfield and Bakersfield College, faster cross-town trips, and decreased emphasis on timed connections at transit centers. The public will have more access to quality transit which will influence more people to use public transportation.

**COST BENEFIT RATIO:** -  
**TOTAL COST OF PROJECT:** -  
**YEAR OF CONSTRUCTION:** -  
**STATUS:** Planned

Reference: Metropolitan Bakersfield Transit System Long-Range Plan, April 2012
PROJECT TITLE: GET X-92 Commuter Express bus service to Tejon Industrial Complex
PROJECT SPONSOR: Golden Empire Transit District (GET)

PROJECT DESCRIPTION:
Since 2008, GET has been using federal and local funds to provide a round-trip commuter express bus service that begins at 22nd Street and Eye Street, travels to a Park and Ride facility at McKee Road, and then terminates at the Tejon Industrial Complex (TIC). The purpose of this service is to provide employees of the TIC an efficient, inexpensive commuter alternative to driving to work in their own car. Service is also provided to the Tejon Outlets.

GET staff has worked closely with the employers at TIC to ensure the X-92 Route arrivals and departures match the work schedules as much as possible. GET currently offers nine round-trip schedules beginning at 3:50 a.m. and ending as late as 12:10 a.m. to accommodate as many TIC employers/employees as possible. Approximately 19,000 employees per year use the X-92. A 31-day pass for the service currently costs $55; a significant value given the fluctuation of today’s fuel prices!

PROJECT BENEFITS:
The X-92 Route provides the benefits below:

- Lowers employee driving costs such as general vehicle wear and tear, oil changes, fuel costs, etc.
- Allows for TIC employers to offer fare subsidies to meet SB 375 requirements.
- Reduces the number of single occupancy vehicle trips.
- Reduces vehicle emissions throughout metro-Bakersfield and the surrounding rural area.

COST BENEFIT RATIO: 29% (FY 2015-2016)
COST OF PROJECTS: $361,767 (FY 2015-2016)
YEAR OF CONSTRUCTION: In progress
STATUS: In progress
PROJECT TITLE: Kern 511
PROJECT SPONSOR: Kern Council of Governments

PROJECT DESCRIPTION: Establish a 511 Traveler Information System in Kern County. The Kern 511 System will include a website and an Interactive Voice Recognition System (IVR).

The purpose of this project is to provide real-time information to the traveling public to improve traffic flow and safety on highways throughout Kern County.

PROJECT BENEFITS: Provides traveler information including traffic speeds, traffic alerts, transit services, carpool information, and trip planning.

COST BENEFIT RATIO: Unknown
COST OF PROJECT: $773,762
YEAR ESTABLISHED: 2012
STATUS: In Process

Kern County 511 Website
PROJECT TITLE: San Joaquin Valley Blueprint Integration Project
PROJECT SPONSOR: San Joaquin Valley Blueprint

PROJECT DESCRIPTION:
The San Joaquin Valley Blueprint Integration Project is a valley-wide program to provide support to cities in the valley whose population is under 50,000. The Project integrates Blueprint Smart Growth principles into the cities’ General Plan and planning policies. A team of planning consultants will serve as Circuit Planners and will provide hands-on support to local agencies to integrate the appropriate Blueprint principles into local planning programs.

Within Kern County, the following small cities are involved in the Project and will be integrating the corresponding Blueprint Integration (BPI) tool:

- Ridgecrest – Sign Ordinance
- Wasco – Design guidelines SR 46 Corridor
- Arvin – Design guidelines
- Shafter – Strategy to link transportation/land use
- California City – infill strategy
- McFarland – Ag mitigation program
- Tehachapi – Climate Action Plan Guidance
- Taft – Zoning Ordinance audit tool

PROJECT BENEFITS:
The SJV Blueprint Integration Project assists in implementing the 12 Blueprint Smart Growth Principles. The Principles include creating walkable neighborhoods, mixing land uses, and providing a variety of transportation choices.

COST BENEFIT RATIO: Unknown
COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: Unknown
STATUS: In progress
PROJECT TITLE: Caltrans Detection Systems - State Route 43 Intersection Improvements and East Bakersfield Vehicle Detection Systems

PROJECT SPONSOR: Caltrans

PROJECT DESCRIPTION:
The SR 43 Intersection Improvements in Shafter installed vehicle detection systems (loops, vehicle signal heads, conduit and connectors) and new signal controllers with GPS clocks to reduce traffic congestion and improve operations at the following intersections of SR 43: Lerdo Hwy, Shafter Ave, Central Ave and Kimberlina Rd.

The East Bakersfield Vehicle Detection Systems proposed project will install vehicle detection systems in order to reduce traffic congestion and maximize efficiency of existing highways. The system will be on State Route 58 through the City of Bakersfield from Real Road to Vineyard Street at various locations. The system may be traditional loops installed in roadways or microwave radar detection systems.

PROJECT BENEFITS:
The system will provide travelers with real time information to make decisions to choose alternate routes for more efficient travel. These efficiencies will also help to improve air quality.

COST BENEFIT RATIO: All emissions – $7.00 - $21.00 / lbs.

COST OF PROJECTS: $1,038,000

YEAR OF CONSTRUCTION: 2010, 2012

STATUS: Operating, In Construction
APPENDIX E – SUCCESS STORIES

PROJECT TITLE: California Highway Patrol's Safety Corridors
PROJECT SPONSOR: California Highway Patrol

PROJECT DESCRIPTION:
The California Highway Patrol (CHP) has received funds from the Office of Traffic Safety (OTS) to establish task forces comprised of representatives from city, county, regional, state, and federal government agencies, and the private sector. The mission of each task force is to assess a high collision highway or pedestrian corridor, and make recommendations to improve traffic safety on the roadways of interest.

PROJECT BENEFITS:
With the increased CHP presence along these highway safety corridors, drivers will be more sensible of their driving habits. Sensible driving and observing the speed limits can impact fuel efficiency and have a fuel economy benefit of 5% to 33% (fueleconomy.gov). Fuel efficiency can reduce CO2 emissions through reducing the burning of gasoline and diesel.

COST BENEFIT RATIO: Unknown
COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: Started in 2002
STATUS: In progress

Map of Safety Corridors in Kern County
PROJECT TITLE: Purchase of CNG Buses
PROJECT SPONSOR: Golden Empire Transit District, County of Kern Roads/Kern Regional Transit

PROJECT DESCRIPTION: Purchasing and replacing CNG buses for Golden Empire Transit (GET) and Kern Regional Transit (KRT). There are three proposed projects that relate to the acquisition of CNG buses for Fiscal Years 2012-2014. The purpose of these projects is to invest in alternate fuel fleets which promote the reduction of automobile trips, while also reducing the emission of harmful pollutants.

PROJECT BENEFITS: Increasing the available capacity for passengers will encourage the public not to drive their own vehicles and decrease the number of buses for services that will reduce fleet emission levels.

COST BENEFIT RATIO: $34+ / lbs.
COST OF PROJECTS: $400,000 - $575,000 per bus
YEAR OF CONSTRUCTION: 2013-2014
STATUS: Planned

GET CNG Bus

KRT CNG Bus
APPENDIX E – SUCCESS STORIES

PROJECT TITLE: The Electric Cab Company of Delano
PROJECT SPONSOR: The Electric Cab Corporation and Private Organization

PROJECT DESCRIPTION:
The Electric Cab Company of Delano is a business organization founded in the City of Delano. The company currently provides local transportation services to the community members of Delano.

PROJECT BENEFITS:
The Electric Cab Company provides alternative transportation services to the community of Delano by using electric vehicles which reduce the emission of harmful air pollutants.

COST BENEFIT RATIO: Unknown
COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: 2012
STATUS: In progress

http://www.theelectriccab.com/

Images of Electric Cab Company’s electric vehicles

[Images of electric vehicles]

Photos from: http://www.theelectriccab.com/
PROJECT TITLE: Downtown Elementary School (City of Bakersfield)  
PROJECT SPONSOR: Bakersfield City School District

PROJECT DESCRIPTION:
Downtown Elementary School is located in the City of Bakersfield's Downtown. The school serves K-8 students and provides extended day programs where the school day is extended before and after school to accommodate working parents. Downtown Elementary was recently expanded to accommodate more students.

PROJECT BENEFITS:
Downtown Elementary was designed to support families of the employees working in the downtown area.

COST BENEFIT RATIO: Unknown  
TOTAL COST OF PROJECTS: Unknown  
YEAR OF CONSTRUCTION: Unknown  
STATUS: In process
APPENDIX E – SUCCESS STORIES

PROJECT TITLE: Traffic Control Devices
PROJECT SPONSOR: City of Bakersfield

PROJECT DESCRIPTION:
Implements traffic control devices at numerous locations within the City of Bakersfield. There were a total of four proposed traffic control device projects (total of nine monitoring cameras) for the Fiscal years of 2012-2014.

The purpose of these projects is to improve traffic flow and safety through better signal timing and accident detection through main corridors. The cameras will be controlled and monitored from the City’s Traffic Operation Center (TOC), and changes to signal time can be made through the City’s existing signal communication system.

PROJECT BENEFITS:
Signal timing improvements as well as visually monitoring traffic flow on central corridors will reduce overall vehicle stops and starts and limit delays in travel time. This reduction in vehicle stops and starts will improve the corridor’s average speed, thereby reducing the harmful pollutants generated by vehicles at low speeds and when idling.

COST BENEFIT RATIO: $15 – $30 / lbs.
TOTAL COST OF PROJECTS: $168,000 - $460,000
YEAR OF CONSTRUCTION: 2013-2014
STATUS: Planned

Proposed Traffic Control device Projects (Traffic Monitoring Cameras)
PROJECT TITLE: Kern Region Energy Action Plans (Kern REAP) and Kern Energy Watch Goal 3

**PROJECT SPONSORS:** Kern Energy Watch Partnership with Southern California Edison (SCE), Pacific Gas & Electric (PG&E), and Southern California Gas Company (SCG)

**PROJECT DESCRIPTION:**
Kern COG is coordinating Greenhouse Gas Inventories based on energy use and Energy Action Planning (EAP) for ten cities and the County of Kern. Energy Action Plans identify policies, goals, and strategies for the city or county to adopt and enforce or to implement to improve energy efficiency.

Through SCE’s Flight #5.6 Funding Opportunity and the Kern Energy Watch Partnership, Kern COG was awarded funding for activities that support California’s Long-Term Energy Efficiency Strategic Plan along with the Great Valley Center, which was awarded funding to implement PG&E’s Green Communities Program. Kern COG coordinates the efforts of all of the partners and programs. As of October 2013, the County of Kern and ten cities have completed baseline inventories for the years 2005 and 2010. Five cities and the County of Kern have adopted Energy Action Plans. Work will continue to update the inventories in 2014, to identify strategies to address natural gas use, then to update the plans, and to establish plans for the remaining local government partners.

**PROJECT BENEFITS:**
Through the development of EAPs, the participating municipalities will be the lead in conducting energy inventories and using energy efficiency to reduce global warming emissions and energy use in both their own facilities and throughout the communities.

**COST BENEFIT RATIO:** Unknown

**TOTAL COST OF PROJECTS:** N/A

**YEAR OF CONSTRUCTION:** N/A

**STATUS:** Completed

Map of Kern Region Energy Action Plans and Utility Service Areas
PROJECT TITLE: Tejon Ranch Conservation and Land Use Agreement
PROJECT SPONSOR: Tejon Ranch Co.

PROJECT DESCRIPTION:
On June 17, 2008, Tejon Ranch Co. and the nation’s major environmental organizations, including The Sierra Club, Natural Resources Defense Council, Audubon California, the Planning and Conservation League and the Endangered Habitats League, unveiled a landmark agreement on the future of the Tejon Ranch. The agreement provides for the permanent protection of 240,000 acres of the historic Ranch — approximately 90 percent of the entire landholding. The remaining 10 percent, or 30,000 acres, of the Ranch is designated for responsible master-planned community development. The agreement and land use plan serve as a major regional sustainability success story, and the scale of the landscape makes it a state-wide and national success.

PROJECT BENEFITS:
The Ranch’s location between Bakersfield and Los Angeles and its adjacency to major California and national infrastructure corridors offer opportunities for regionally-beneficial development. The Conservancy has developed and is implementing a Ranch-wide management plan in collaboration with the Tejon Ranch Company. The agreement also provides new opportunities for public access, including realignment of 37 miles of the Pacific Crest Trail to the Blue Ridge on Tejon Ranch, a potential location for a new CA state park, and a potential UC Reserve research site. In addition, the Conservancy leads public access programs that have brought approximately 5,000 visitors to the Ranch since 2008 and are serving approximately 1,000 per year through docent-led tours.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: Not Applicable
YEAR OF CONSTRUCTION: Not Applicable
STATUS: In Progress

Reference: Tejon Ranch Co.

Tejon Ranch – Conservation and Land Use Plan Map
PROJECT TITLE: Kern County Community Revitalization Program
PROJECT SPONSORS: County of Kern

PROJECT DESCRIPTION:
With the recent loss of redevelopment agencies, the County of Kern Planning and Community Development Department established a centralized Economic Opportunity Areas and developed the RENEWbiz grant-funding mechanism to assist communities with initiating projects that improve and enhance the quality of life within the community as well as increase the economic benefit to the County as a whole. The Kern County Community Revitalization Program provides the seed money for a focused visioning process that is tailored to each community to develop a visual road map and unique identity. Each community visioning effort is highly collaborative and requires the County’s close collaboration with an outreach/visioning consultant and the local community. Many times, initial funding for the visioning efforts have come from private businesses.

Two of the community vision plans developed through the Kern County Community Revitalization Programs

PROJECT BENEFITS:
The program has attracted investment and real improvements of over $4 million in the communities of Oildale, East Bakersfield, Rosamond, Mojave, Boron, and soon, Olde Town Tehachapi. The outreach efforts established a collaboration between residents, businesses, and stakeholders with the county that continues with physical improvements and additional planning efforts to be completed into the future.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: N/A
YEAR OF CONSTRUCTION: N/A
STATUS: In Process
PROJECT TITLE: Kern Transit – Route Connection with Antelope Valley Transit Authority

PROJECT SPONSOR: Kern Transit

PROJECT DESCRIPTION:
Kern Transit now meets with Antelope Valley Transit Authority’s Route 785 that provides commuter service to Downtown Los Angeles, San Fernando Valley, and Century City. The Kern Transit Route 100 also connects with the Metrolink in Lancaster.

PROJECT BENEFITS:
The collaboration with Kern Transit and Antelope Valley Transit Authority provides significant alternative transportation benefits for commuters and enhances air quality.

COST BENEFIT RATIO: Unknown
TOTAL COST OF PROJECTS: Unknown
YEAR OF CONSTRUCTION: 2016
STATUS: In progress

Kern Transit Route 100 Schedule (September 2016)
PROJECT TITLE: California State University of Bakersfield – Construction of Public Transit Center

PROJECT SPONSOR: Golden Empire Transit District, California State University of Bakersfield

PROJECT DESCRIPTION: The California State University of Bakersfield (CSUB) Transit Center is a partnership between CSUB and Golden Empire Transit District (GET). In GET’s Long Range Plan, a new transit center was identified in the Short-Term Service Plan (2013-2020) at CSUB campus. The transit center will facilitate access and travel to several activity centers that include large employers, retail, a hospital, medical offices, and residential neighborhoods.

PROJECT BENEFITS: The CSUB Transit Center will improve existing transportation choices by enhancing points of modal connectivity, increasing the number of modes accommodated on existing assets and reducing congestion on existing modal assets. The location of the station is along a bicycle corridor and passengers may also connect with Kern Regional Transit.

COST BENEFIT RATIO: Unknown

TOTAL COST OF PROJECTS:

YEAR OF CONSTRUCTION: 2017, 2018, 2019

STATUS: In progress

Surrounding area of proposed CSUB Transit Center
With assistance from Fehr&Peers and Sierra Research, an auto operating cost sensitivity test was conducted by the eight SJV MPOs in order to understand the impacts of new VMIP2 “auto op” methodology on VMT and CO2 emissions. Since at the time of this test, fully functioning VMIP2 models were not yet available, SJV MIP1 models were used to complete the analysis.

Fehr&Peers computed VMIP2 auto operating cost growth rates from 2005 base year until 2035 and MPO staff applied these rates to VMIP1 2005 auto operating cost used in the SJV 2014 RTP/SCSs (see Attachment 1).

The total VMIP2 auto operating cost is comprised of the following (see Attachment 2):

1. Region-specific fuel price
2. Effective passenger vehicle fuel efficiency
3. Fuel-related automobile cost
4. Non-fuel related price

The calculated 2035 auto operating cost reflects both the revised region-specific fuel price and EMFAC2014 updates to regional light-duty fuel efficiency. The new cost was then used in a sensitivity model run to inform SJV target recommendation. The revised VMT was run through EMFAC2014 generating CO2 emissions used to calculate each MPO’s SB 375 target performance (see Attachment 3). The results calculated in Attachment 3 could then be directly compared with the CO2e per Capita results calculated as part of the 2014 RTP/SCS to illustrate the impact of revised auto operating costs. Those comparisons are summarized below.

<table>
<thead>
<tr>
<th>County</th>
<th>2014 RTP/SCS (Old Baseline, EMFAC2011)</th>
<th>Auto Ops Cost Test (New Baseline, EMFAC2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Joaquin</td>
<td>-23.7%</td>
<td>-17.1%</td>
</tr>
<tr>
<td>Stanislaus</td>
<td>-22.0%</td>
<td>-16.5%</td>
</tr>
</tbody>
</table>

Please note that Merced County does not have an exact comparison between the two scenarios due to changes in land use modeling and base year adjustments after the 2014 RTP/SCS adoption.
In order to understand the influence of employment and economic recovery rate on travel and greenhouse gas emissions, the Valley MPOs prepared an economic recovery test that supposes valley employment levels and household income levels approaching state averages by 2035. The test is meant to serve as an academic exercise to demonstrate the extent to which economic recovery may affect VMT and GHG.

This memo is intended to provide context for assumptions made in the SJV MPO models regarding the influence of these factors. The tests presented in this memo are only intended to demonstrate how the travel model can be used to evaluate the connection between economic influences (household income and job salary by employment type) on travel and are not intended to represent recommendations, suggestions, or actual expectations of past or future scenarios.

BACKGROUND

The recovery rate and economic forecasts in the initial Regional Transportation Plan and Sustainable Community Strategy (RTP/SCS) 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 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 SJV models can be applied to forecast of future conditions that reflect real world employment and income. The scenarios are based on recent trends, and the influence of household income and job salary can vary depending on the interaction with the individual county and the neighboring MPOs (i.e., the three-county area is heavily influenced by the larger neighboring MPOs such as MTC and SACOG).

APPROACH

Data was gathered from a number of sources to establish household income and industry of employment in all eight counties in the region.

- Census 2010

The demographic data from the 2005 and 2035 model runs were the base conditions for household income and industry of employment. The model, census, and ACS all present household income divided into five categories. LODES data for salaries was not divided into any distributions. First, the LODES data was broken down into average salary by job sector (see attached figure). Then, the household income ranges and the job salary types were compared to determine low, medium, and high income and salary.

Three income categories were used to organize household income and job salary data:

- Low Income: Less than $24,999
- Medium Income: Between $25,000 and $74,999
- High Income: Greater than $75,000
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. (See attached charts). This breakdown was applied to 2005 and 2035 employment outputs from the base model to determine how many jobs are offered in each income category.

The total number of households and jobs in 2035 will not change, but the household income and employment industry will be adjusted to higher paying industries in order to increase salaries. This reflects the real world trend of the number of households with high income increasing. Importing and exporting of workers will be balanced to reflect the higher income jobs, and retail and service employment will also be increased to reflect the shopping opportunities residents with higher income and less commute time.

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.

INPUT ASSUMPTIONS

After comparing the households by the income ranges, each of the counties were modified to reflect the statewide average percentage. Although the magnitude varies by county, the low income households were reduced and the medium and high income households were increased. The comparison by county to statewide average can be seen on the attached charts.

Similarly for employment, the distribution of salary between the high and medium income jobs and reduced from low income jobs. In addition to the income of jobs being reallocated to match statewide average, the jobs per household were increased from approximately 0.8 valley wide to 1.28. The reallocation of jobs by salary and the increase in jobs per household were implemented uniformly across all geographies.

RESULTS

Model runs were performed with the shifted economic inputs for each model. The outputs were processed to see the effects of the potential economic recovery on mode share, interregional travel, VMT per capita.

Tables are presented below with model outputs for each of the counties individually and a single table summarizing the change by county. Although the results vary by starting percentage of high income households and jobs, size and geographic location, in general, the person trip generation increased, mode share remained roughly the same, interregional trips decreased slightly, and VMT per capita increased by roughly the same percent as the trip generation when accounting for mode shifts.
## SAN JOAQUIN

<table>
<thead>
<tr>
<th>Metric</th>
<th>2035 Base</th>
<th>2035 Test</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person Trips</td>
<td>3,258,376</td>
<td>3,491,676</td>
<td>7.16%</td>
</tr>
<tr>
<td>VMT per capita</td>
<td>29.75</td>
<td>30.84</td>
<td>3.67%</td>
</tr>
<tr>
<td>Mode Share</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive Alone</td>
<td>38.16%</td>
<td>38.91%</td>
<td>0.75%</td>
</tr>
<tr>
<td>Shared Ride</td>
<td>56.26%</td>
<td>56.14%</td>
<td>-0.13%</td>
</tr>
<tr>
<td>Transit</td>
<td>1.81%</td>
<td>1.51%</td>
<td>-0.30%</td>
</tr>
<tr>
<td>Active</td>
<td>3.77%</td>
<td>3.44%</td>
<td>-0.33%</td>
</tr>
<tr>
<td>Interregional Trips</td>
<td>11.3%</td>
<td>10.05%</td>
<td>-1.26%</td>
</tr>
</tbody>
</table>

## STANISLAUS

<table>
<thead>
<tr>
<th>Metric</th>
<th>2035 Base</th>
<th>2035 Test</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person Trips</td>
<td>2,451,385</td>
<td>2,631,227</td>
<td>7.34%</td>
</tr>
<tr>
<td>VMT per capita</td>
<td>22.44</td>
<td>23.09</td>
<td>2.87%</td>
</tr>
<tr>
<td>Mode Share</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive Alone</td>
<td>38.4%</td>
<td>39.1%</td>
<td>0.73%</td>
</tr>
<tr>
<td>Shared Ride</td>
<td>55.6%</td>
<td>55.6%</td>
<td>-0.03%</td>
</tr>
<tr>
<td>Transit</td>
<td>1.9%</td>
<td>1.6%</td>
<td>-0.34%</td>
</tr>
<tr>
<td>Active</td>
<td>4.1%</td>
<td>3.7%</td>
<td>-0.36%</td>
</tr>
<tr>
<td>Interregional Trips</td>
<td>4.2%</td>
<td>3.5%</td>
<td>-0.73%</td>
</tr>
</tbody>
</table>

## MERCED

<table>
<thead>
<tr>
<th>Metric</th>
<th>2035 Base</th>
<th>2035 Test</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person Trips</td>
<td>1,467,286</td>
<td>1,545,196</td>
<td>5.31%</td>
</tr>
<tr>
<td>VMT per capita</td>
<td>36.52</td>
<td>37.47</td>
<td>2.61%</td>
</tr>
<tr>
<td>Mode Share</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive Alone</td>
<td>36.27%</td>
<td>37.11%</td>
<td>0.84%</td>
</tr>
<tr>
<td>Shared Ride</td>
<td>57.22%</td>
<td>57.19%</td>
<td>-0.03%</td>
</tr>
<tr>
<td>Transit</td>
<td>2.64%</td>
<td>2.18%</td>
<td>-0.46%</td>
</tr>
<tr>
<td>Active</td>
<td>3.88%</td>
<td>3.52%</td>
<td>-0.36%</td>
</tr>
<tr>
<td>Interregional Trips</td>
<td>9.1%</td>
<td>8.31%</td>
<td>-0.79%</td>
</tr>
</tbody>
</table>
As shown in the figures below, the Statewide average employment salary and household income is higher than the SJV and increases from 2005 to 2014 for both medium and high income groups by about 1% from each of the evaluation years. In 2014, the SJV had 0.88 jobs per household and Statewide average was 1.26 (about 40% higher than SJV average).
Association of Monterey Bay Area Governments
As a follow-up to our discussion this spring regarding AMBAG’s SB 375 target update, AMBAG proposes a 3% reduction for 2020 and a 6% reduction for 2035 as our new GHG reduction targets for our region’s second Sustainable Communities Strategy (SCS) which is scheduled to be adopted in June 2018.

AMBAG is a small and slow growing region in the state. Our initial SB 375 targets were a 0% reduction by 2020 and a 5% reduction by 2035. Our first SCS, adopted in June 2014, achieved a 3% GHG reduction by 2020 and a 5.9% GHG reduction by 2035.

Over a year ago, AMBAG began a technical update to the 2035 Metropolitan Transportation Plan (MTP)/SCS. The environmental analysis (CEQA), including environmental scoping, updating our regional growth forecast, and public outreach has been underway for nearly a year. While the 2040 MTP/SCS will have a new horizon year of 2040, we are still using the existing transportation model which was developed to meet the specific requirements of SB 375, using most recent data sets (2012 California Household Travel Survey (CHTS), 2010 Census data and 2011 AMBAG Origin and Destination survey data). As you may know, such model development is not only takes huge staff time but also requires substantial financial commitment as well. AMBAG proposes to retain the same level of aggressiveness in our existing SCS, however, this will be very challenging to meet our previous GHG reduction results achieved in the 2035 MTP/SCS given that our region is currently facing a dire financial situation. Many of our jurisdictions are poor and the region as a whole is recovering slowly from the recession. There is a critical shortage of transportation funding to maintain even existing infrastructure and transit services let alone increase transportation services. For example, one of our major transit districts is suffering a $6 million structural deficit, which represents 25% of its direct cost budget and 15% of the total operating budget and is proposing to make massive cuts to transit service in Santa Cruz County effective September 2016. In addition, many projects were deprogrammed and delayed this spring due to a lack of state funding. Further transportation cuts are likely without an increase in state transportation funding, which appears unlikely in the near future.

At the June AMBAG Board meeting, our Board of Directors approved the revised goals, policy objectives and performance measures for the 2040 MTP/SCS. We delayed this action for over a year to continue to work with ARB staff on the target setting process but were unable to delay it any further as we are currently developing our project lists and begin scenario testing soon. As part of this item, the Board approved GHG reductions of 3% for 2020 and 6% reduction for 2035.

Most local jurisdictions in the AMBAG region have not received any financial support for their current SCS projects and future funding opportunities are extremely limited. In addition, our three counties are pursuing transportation sales tax measures which were included in our 2035 MTP/SCS
as future revenues. Unfortunately, one county measure failed to secure the two-thirds votes needed to pass. This requires us to make adjustments to the revenues available in the 2040 MTP/SCS. If the other two counties also fail to pass these measures, our revenue assumptions will be much lower than what were included in the 2035 MTP/SCS. Therefore, the ability of the region to develop an SCS with more aggressive targets than those achieved in the first SCS is basically nonexistent. We will continue to work with our jurisdictions but we would like to continue with our target as proposed and work for a better SCS which will not only allow us to achieve the targets but continue engage our local jurisdictions in SCS implementation and future SCS development.

AMBAG is developing the SCS Implementation Project which will provide various land use/mixed use, economic development and rural transportation toolkits and policy guidance to enable our local jurisdictions to take steps to adopt and implement the policies and strategies included in the SCS. While these strategies and recommended actions will be included in the SCS, we will not have identified resources to fund implementation to help us achieve greater GHG reductions.

Given the challenges and limitations facing our region, AMBAG proposes a 3% reduction for 2020 and a 6% reduction for 2035 as our new GHG reduction targets for our region’s second SCS which is scheduled to be adopted in June 2018.

We appreciate your advice and input and look forward to a continued collaboration with ARB in the ongoing implementation of SB 375.

If you have any questions, please do not hesitate to contact me.

Sincerely,
Maura

Maura F. Twomey
Executive Director
Association of Monterey Bay Area Governments
24580 Silver Cloud Court
Monterey, CA 93940
(831) 264-5100
mtwomey@ambag.org
Butte County Association of Governments
MEMORANDUM

TO: California Air Resources Board
FROM: Brian Lasagna, Regional Analyst
Butte County Association of Governments (BCAG)
DATE: September 2, 2016

SUBJECT: Documentation for BCAG’s Year 2035 Passenger Vehicle Greenhouse Gas (GHG) Reduction Target Recommendation

Background

In 2008, Senate Bill 375 (SB 375) was passed as the mechanism to implement passenger vehicle GHG reductions outlined in Assembly Bill 32 (AB 32). Under SB 375, BCAG is required by the state to prepare the region’s Sustainable Communities Strategy (SCS) as an additional component of the Regional Transportation Plan (RTP). The SCS demonstrates the integration of land use, housing, and transportation for the purpose of reducing GHG emissions from passenger vehicles and meeting targets established by ARB.

In 2010, ARB set GHG targets for the BCAG region from passenger vehicles as a 1% increase from 2005 emissions levels by 2020 and 2035. The targets apply to the BCAG region as a whole for passenger vehicles emissions, and not to individual cities or sub-regions.

BCAG’s 2012 RTP/SCS achieved a 2% reduction in per capita GHG emissions for the years 2020 and 2035. In order to achieve these reductions, BCAG focused its 2012 efforts towards land use by bringing together the recently completed general plans and laying out a pattern of development which balanced housing and employment growth within specified growth areas while protecting habitat and open space via consistency with the Butte Regional Conservation Plan.

ARB notified BCAG that passenger vehicle GHG reduction targets would be revised in 2016/2017 and solicited recommendations regarding a possible new target for the year 2035. In July 2016, BCAG staff recommended a -7% target for the year 2035 based on work being completed for the draft 2016 RTP/SCS. This recommendation was reviewed with BCAG’s various advisory committees and the BCAG Board of Director’s.

Information
contained in this memorandum is intended to provide additional details regarding that recommendation.

**Draft 2016 RTP/SCS**

In mid-August 2016, BCAG released the draft 2016 RTP/SCS. The 2016 RTP/SCS expands on the efforts of the 2012 plan by integrating BCAG’s new Long-Range Transit and Non-Motorized Plan and incorporating the latest regional growth forecasts. BCAG’s target recommendation for the year 2035 is based on the draft 2016 RTP/SCS, which is the most up-to-date information regarding future travel in the region.

The draft 2016 RTP/SCS includes an update of the 2012 RTP/SCS land use forecasts preferred “balanced” scenario. The forecast was updated with the latest local general plan, project specific, and school enrollment information. The latest growth forecasts for population, housing, and employment were then applied. The result of the updated land use forecast for the draft 2016 RTP/SCS is very similar to what was included for the 2012 plan, in that the overall land use pattern is unchanged. However, the amount of growth being distributed within that pattern has decreased in comparison to the 2012 plan.

In an effort to better capture the land use and transportation strategies contained in the RTP/SCS’s preferred scenario, BCAG improved and made several changes to the technical factors and modeling data within the forecasting models. These improvements account for the changes in terms of modeling output, such as reduced vehicle miles of travel (VMT) in comparison to the 2012 plan. Modeling changes include updated socio-economic data, application of the revised growth forecasts to the land use and transportation networks, implementing an auto operating cost sensitivity, improving the application of occupancy adjustments, incorporating state estimates of school enrollment, as well as revising the trip generation and distribution components.

A complete copy of the draft 2016 RTP/SCS, and the associated modeling information, is available online (http://www.bcag.org/Planning/RTP--SCS/index.html).

**Basic Assumptions**

Included in the table below is a comparison of the basic assumptions between the 2012 and 2016 RTP/SCS. Population, housing, and employment have decreased 7%-8%, which is consistent with updated California Department of Finance (DOF) projections. A significant change can be seen with the decrease of forecasted K-12 student populations. This change is reflective of the revised forecasting which now utilizes DOF estimates. Past methods of forecasting student populations assumed growth rates equal to population.
<table>
<thead>
<tr>
<th>SB 375 Base Year</th>
<th>2012 RTP/SCS (Adopted)</th>
<th>2016 RTP/SCS (Draft)</th>
<th>Difference (new-old)</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>2035</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Assumptions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>214,582</td>
<td>332,459</td>
<td>-25,861</td>
<td>-7.8%</td>
</tr>
<tr>
<td>Housing</td>
<td>85,478</td>
<td>143,948</td>
<td>-10,682</td>
<td>-7.4%</td>
</tr>
<tr>
<td>Jobs (Non-Farm)</td>
<td>73,400</td>
<td>112,279</td>
<td>-8,331</td>
<td>-7.4%</td>
</tr>
<tr>
<td>K-12 Students</td>
<td>30,782</td>
<td>49,409</td>
<td>-19,888</td>
<td>-40.3%</td>
</tr>
</tbody>
</table>

### Auto Operating Costs

With the draft 2016 RTP/SCS, BCAG chose to implement an auto operating cost sensitivity to the modeling for the purpose of improving the estimates of future travel on the transportation system. Auto operating costs include fuel price, maintenance costs, and tire replacement costs. For the BCAG model, an elasticity of -0.15 was chosen. This indicates that an increase in auto operating costs of 10 percent would result in a 0.015 percent decline in VMT. Included in the table below are the costs included in the latest model and applied to the draft 2016 RTP/SCS.

<table>
<thead>
<tr>
<th>BCAG Auto Operating Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>2014</td>
</tr>
<tr>
<td>2020</td>
</tr>
<tr>
<td>2040</td>
</tr>
</tbody>
</table>

### Draft Modeling Results

The modeling results for the draft 2016 RTP/SCS estimate a passenger vehicle GHG emission reductions of 7% for the year 2035 from the 2005 base year. In comparison, the 2012 RTP/SCS achieved an emissions reduction of 2% for the year 2035, when adopted. The table below contains a comparison of the basic modeling results for each plan.
<table>
<thead>
<tr>
<th>Modeling Results</th>
<th>2005</th>
<th>2012 RTP/SCS (Adopted)</th>
<th>2016 RTP/SCS (Draft)</th>
<th>Difference (new-old)</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle Miles of Travel (VMT)</td>
<td>4,710,611</td>
<td>7,340,413</td>
<td>6,381,502</td>
<td>-958,911</td>
<td>-13.1%</td>
</tr>
<tr>
<td>VMT per Capita</td>
<td>21.95</td>
<td>22.08</td>
<td>20.81</td>
<td>-1.27</td>
<td>-5.7%</td>
</tr>
<tr>
<td>CO2 per Capita (lbs/day)</td>
<td>18.45</td>
<td>18.09</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EMFAC 2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Change from 2005</td>
<td>-</td>
<td>-1.9%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CO2 per Capita (lbs/day)</td>
<td>17.39</td>
<td>17.21</td>
<td>16.25</td>
<td>-0.96</td>
<td>-5.6%</td>
</tr>
<tr>
<td>EMFAC 2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Change from 2005</td>
<td>-</td>
<td>-1.0%</td>
<td>-6.6%</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Information presented contains adjustments to VMT and CO2 as include in BCAG Modification of ARB EMFAC Methodology to Calculate CO2 Adjustment to EMFAC Output for SB 375 Target Demonstrations Draft (4/1/2016).

As noted earlier, the modeling improvements combined with the reduced amount of forecasted growth in the region can be attributed to the greater reductions in VMT and greenhouse gas (GHG) emissions associated with the draft 2016 RTP/SCS.

As the 2016 RTP/SCS is still in a draft format, a complete analysis of each modeling factor has not yet been completed. It’s anticipated this work will be accomplished in the following months in preparation of ARB’s evaluation of the modeling work.

Please feel free to contact me with any questions of comments regarding the information provided in the memorandum. I may be contacted by phone at 530-809-4616 or by email at blasagna@bcag.org.

Sincerely

Brian Lasagna
Regional Analyst
CALIFORNIA AIR RESOURCES BOARD PASSENGER VEHICLE GREENHOUSE GAS REDUCTION TARGET – BCAG YEAR 2035 RECOMMENDATION

PREPARED BY: Brian Lasagna, Regional Analyst

ISSUE: Senate Bill (SB) 375 requires BCAG’s Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) to meet passenger vehicle greenhouse (GHG) reduction targets set by the California Air Resources Board (ARB). ARB is required to update the GHG targets no later than every 8 years. ARB first set targets for the region in 2010 and intends to update these targets in 2016.

DISCUSSION: In 2008, SB 375 was passed as the mechanism to implement passenger vehicle GHG reductions outlined in Assembly Bill 32 (AB 32). Under SB 375, BCAG is required by the state to prepare the region’s SCS as an additional component of the RTP. The SCS demonstrates the integration of land use, housing, and transportation for the purpose of reducing GHG emissions from passenger vehicles and meeting reduction targets established by ARB.

In 2010, ARB set GHG reduction targets for the BCAG region from passenger vehicles as a 1% increase from 2005 emissions levels by 2020 and 2035. The targets apply to the BCAG region as a whole for passenger vehicles emissions, and not to individual cities or sub-regions.

ARB has formally notified all Metropolitan Planning Organizations (MPOs), such as BCAG, that passenger vehicle GHG reduction targets will be revised in 2016 and has solicited recommendations regarding a possible new target for the year 2035. Based on work being completed for the 2016 RTP/SCS, BCAG staff recommends a -7% target for the year 2035. A -7% target recommendation would meet ARB’s mandate to establish an ambitious but achievable target given the state’s goal of reducing statewide GHG emissions to 40% below 1990 levels by the year 2030 (Executive Order B-30-15) and BCAG’s previous target of +1%.

BCAG staff has reviewed the proposed target with the Transportation Advisory Committee and Planning Director’s Group. Once submitted, the recommendation will be reviewed and evaluated by ARB staff and included in a draft proposal to the ARB. It is anticipated that ARB will take action on the new targets by the end of 2016. Once new targets are approved by ARB, they would apply to BCAG’s 2020 RTP/SCS.
BCAG Board of Directors Item #6
July 28, 2016
Page 2

BCAG staff will notify ARB of the recommended target prior to August 1, 2016 and continue to keep the Board informed regarding the development of the updated passenger vehicle GHG reduction target.

STAFF RECOMMENDATION: This item is presented for information.

Key staff: Iván García, Programming Manager
Brian Lasagna, Regional Analyst
Table 3: CO₂ Per Capita Results – Preliminary Scenario 3 w/ Jobs-Housing Variation + 30% Reduction in Auto Operating Costs vs. Updated TOD/Infill Scenario Preliminary Results

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Units</th>
<th>2005</th>
<th>2010</th>
<th>2020</th>
<th>2035</th>
<th>2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Scenario 3 w/ Jobs-Housing Variation + 30% Reduction in Auto Operating Costs (EMFAC2014)</td>
<td>VMT Total</td>
<td>Vehicle Miles</td>
<td>9,732,296</td>
<td>9,365,328</td>
<td>9,669,525</td>
<td>10,660,166</td>
</tr>
<tr>
<td></td>
<td>VMT/Capita</td>
<td>Vehicle Miles/Person</td>
<td>23.31</td>
<td>22.09</td>
<td>22.24</td>
<td>21.47</td>
</tr>
<tr>
<td></td>
<td>CO₂ per Capita (EMFAC2014)</td>
<td>Pounds per day</td>
<td>18.77</td>
<td>17.85</td>
<td>16.73</td>
<td>15.98</td>
</tr>
<tr>
<td></td>
<td>% Change from 2005</td>
<td>--</td>
<td>--</td>
<td>-10.9%</td>
<td>-14.9%</td>
<td>--</td>
</tr>
<tr>
<td>Updated TOD/Infill Scenario Preliminary Results (as shared on June 27, 2016) (EMFAC2014)</td>
<td>VMT Total</td>
<td>Vehicle Miles</td>
<td>9,732,296</td>
<td>9,365,328</td>
<td>9,431,525</td>
<td>10,336,166</td>
</tr>
<tr>
<td></td>
<td>VMT/Capita</td>
<td>Vehicle Miles/Person</td>
<td>23.31</td>
<td>22.09</td>
<td>21.69</td>
<td>20.82</td>
</tr>
<tr>
<td></td>
<td>CO₂ per Capita (EMFAC2014)</td>
<td>Pounds per day</td>
<td>18.77</td>
<td>17.85</td>
<td>16.28</td>
<td>15.44</td>
</tr>
<tr>
<td></td>
<td>% Change from 2005</td>
<td>--</td>
<td>--</td>
<td>-13.3%</td>
<td>-17.7%</td>
<td>--</td>
</tr>
<tr>
<td>Difference – Updated TOD/Infill Scenario Preliminary Results vs. Preliminary Scenario 3 w/ Jobs-Housing Variation + 30% Reduction in Auto Operating Costs</td>
<td>VMT Total</td>
<td>Vehicle Miles</td>
<td>--</td>
<td>--</td>
<td>-238,000</td>
<td>-324,000</td>
</tr>
<tr>
<td></td>
<td>VMT/Capita</td>
<td>Vehicle Miles/Person</td>
<td>--</td>
<td>--</td>
<td>-0.55</td>
<td>-0.65</td>
</tr>
<tr>
<td></td>
<td>CO₂ per Capita (EMFAC2014)</td>
<td>Pounds per day</td>
<td>--</td>
<td>--</td>
<td>-0.45</td>
<td>-0.54</td>
</tr>
<tr>
<td></td>
<td>% Change from 2005</td>
<td>--</td>
<td>--</td>
<td>-2.40%</td>
<td>-2.80%</td>
<td>--</td>
</tr>
</tbody>
</table>
San Luis Obispo Council of Governments
November 2, 2016

Teresa Roberts
Manager, Sustainable Communities Policy and Planning Section
California Air Resources Board Air Quality Planning and Science Division
9500 Telstar Avenue
El Monte, CA 91731

Dear Ms. Roberts,

SLOCOG staff thanks you and your staff for the opportunity to review and revisit our regional GHG reduction targets. We understand that your Board is required to update the targets at least every eight years. As you know, the targets established for the San Luis Obispo Council of Governments' (SLOCOG) region were an 8% decrease for both 2020 and 2035 relative to the 2005 levels. Our 2014 RTP/SCS was able to achieve a 9.4% per capita decrease from 2005 to 2020 and a 10.9% per capita reduction from 2005 levels to 2035. These achievements were based largely upon the anticipated level of funding (Federal, State, Local, and Extraordinary) reasonably anticipated in our twenty year plan.

At this time in SLOCOG’s RTP update cycle, new growth and financial forecasts are unavailable to develop new scenarios and targets based upon technical modeling tools and efforts. Over the next two and a half years, we will be developing our 2019 RTP. New growth forecasts are anticipated in February 2017; updated modeling information, methodology, and EMFAC2014 integration expected by June 2017; and updated financial projections are anticipated by December 2017. Ideally, new target recommendations would be grounded in these key foundational elements, using updated models.

The attached staff report, approved by the SLOCOG Board, more fully describes our challenge ahead and identifies the four primary issues that will hinder SLOCOG’s ability to achieve our original GHG reduction targets. In short, the SLOCOG Board recommends the original 8% reduction targets be maintained.

Thank you to you and your staff for your helpful, coordinated, and cooperative efforts to see the regions of the state succeed in these endeavors. We look forward to working with your agency in the future.

Sincerely,

[Signature]

James Worthley, Planning Division Chief
1114 Marsh St., San Luis Obispo, CA 93401
805.781.2002 (w) | 805.503.8009 (cell)
SUMMARY
SLOCOG is required to prepare and adopt a Regional Transportation Plan (RTP) directed at achieving a coordinated and balanced regional transportation system. In addition, the RTP must be action-oriented, fiscally-constrained, and pragmatic, considering both short-term (1-10 years) and long-term (11-20 years) periods, and be internally consistent.

The California Air Resources Board (CARB) is charged with assigning and periodically updating regional targets for the reduction of per-capita greenhouse gas (GHG) emissions associated with automobiles and light trucks. The 2014 RTP (adopted April 2015) achieved and exceeded the CARB targets. CARB is soliciting recommendations from each MPO regarding a possible new target for the year 2035 and intends to formally adopt new targets by the end of 2016. The new target would be in effect for SLOCOG’s 2019 RTP. Ideally, new target recommendations would include key foundational information (growth and financial forecasts), an approved methodology, and using updated models. At this time in SLOCOG’s RTP update cycle, new growth and financial forecasts are unavailable to develop new scenarios and targets justified through technical modeling tools and efforts.

Staff recommends that our region’s 2020 target should be consistent with the original 8% reduction established for the region and met in our 2014 RTP/SCS. Meeting the 2020 target will be a challenge given the nature that 2020 scenario planning is based almost entirely on existing conditions rather than on differing land use scenarios and/or transportation investment packages. Staff recommends the 2035 target to also be consistent with the original 8% reduction due to recent transportation funding declines.

RECOMMENDATION
Staff: Review and Comment; Support Year 2020 and 2035 Greenhouse Gas Emission Reduction Target of -8%; and Direct Staff to Submit Reduction Target Recommendation to the California Air Resources Board (CARB) for Consideration.

TTAC: Support Staff Recommendation and desire to express to CARB their strong concerns of achieving this target given the four identified issues.

CTAC: Support Staff Recommendation and concurred with TTAC concerns.

DISCUSSION
As a Metropolitan Planning Organization (MPO), SLOCOG is required to prepare and adopt a Regional Transportation Plan (RTP). This long-range plan is directed at achieving a coordinated and balanced regional transportation system including, but not limited to, public transit, highway, rail, maritime and harbors, bicycle, pedestrian, goods movement and aviation. In addition, the RTP must be action-oriented, fiscally-constrained, and pragmatic, considering both short-term (1-10 years) and long-term (11-20 years) periods.

Through careful planning and coordination of land use with transportation, the RTP can help our local economy thrive and give everyone a chance to live in a healthy, vibrant community. The objective is to accommodate growth while still maintaining our quality of life. We can create choice to allow more trips to occur outside of a solo vehicle, benefitting the environment and the individual. Additionally, the state requires regional agencies like SLOCOG to achieve greenhouse gas (GHG) reductions from cars and light trucks through the coordination of land use and transportation planning.

The California Air Resources Board (CARB) is charged with assigning and periodically updating regional targets for the reduction of per-capita GHG emissions associated with automobiles and light trucks.
SLOCOG’s initial GHG reduction target (on a per-capita basis relative to 2005 levels) was -8% for 2020 and 2035. Although not all the variables and technical methodology were firmly established in 2009, SLOCOG had completed many early, foundational steps (including growth forecasts and initial modeling) toward ultimately adopting the 2010 RTP/pSCS (preliminary SCS). This early work served to inform CARB’s original (2010) targets for 2020 and 2035 for SLOCOG.

CARB is now soliciting recommendations from each MPO regarding a new target for the year 2035 and intends to formally adopt new targets by the end of 2016. The new target would be in effect for the SLOCOG 2019 RTP. According to CARB staff, updated targets for the next SCS cycle “should be consistent with the reductions that were achieved by [MPOs'] first SCSs.”

Development of the SLOCOG 2014 RTP/SCS was a collaborative, multi-year effort, requiring profuse staff hours, modeling tool refinements, testing of multiple scenarios, and culminated in adoption in April 2015. For 2035, the 2014 RTP/SCS resulted in a -10.9% per capita reduction relative to 2005, exceeding the -8% target.

The MPO must prepare an Alternative Planning Strategy (APS) if the SCS is unable to reduce GHG emissions to achieve the reduction targets established by the ARB. The APS shall be a separate document from the RTP, but it may be adopted concurrently with the RTP.

**RTP: Required Components and Issues**
The RTP must be an internally consistent document and include the: Policy Element, Sustainable Communities Strategy (SCS), Action Element, and a Financial Element.

**Policy Element**
A policy element describes the transportation issues in the region, identifies and quantifies regional needs, and describes the desired short-range and long-range transportation goals, and pragmatic objective and policy statements. It should also explain how the financial commitments are consistent with and support the land use pattern and personal mobility objectives of the RTP.

**Issue 1:** Goal and policy changes (from the adopted 2014 RTP/SCS) should be reflective of public, stakeholder, and Board input.

**Sustainable Communities Strategy (SCS)**
The Sustainable Communities Strategy (SCS) is now a required element of the RTP as a result of SB 375 (2008). The SCS must identify areas within the region sufficient to house all the population of the region, including all economic segments of the population, over the course of the planning period of the RTP, taking into account net migration into the region, population growth, household formation, and employment growth. An SCS identifies a “forecasted development pattern” for the region, which is informed by the inventory of existing land use throughout the region, along with the identification of sites where future development can be located, while still reducing VMT and GHG emissions. The law establishes an approach to ensure that cities, counties, and the public are involved in the development of regional plans to achieve targets set by CARB for reducing GHG emissions. An SCS must also be consistent with the general plans of the region’s jurisdictions.

**Issue 2:** The 2050 Regional Growth Forecast is underway. Modeling: methodology (approach and variables) must be submitted to, and approved by CARB (pending); and tool updates.

**Regional Growth Forecast** New population, housing, and employment forecasts are critical, foundational factors, to the SCS development. In preparation of the next RTP, SLOCOG has contracted with a consultant to prepare the new Regional Growth Forecast; adoption expected in February 2017. Since the 2011 forecast, new housing has met annual projections; averaging 564 new units per year (2011-2014). In order to continue to meet the past projections, new housing units must reach pre-recession levels of 1,300 new units per year. Any reduction in forecasted new growth impairs SLOCOG’s ability to replicate the previously achieved per-capita reduction. The following pose additional challenges in achieving GHG reductions:
• The extremely high cost of housing in the central and coastal sub-regions will continue to ‘drive’ the more affordable segments of our housing market further from the job centers – resulting in increased VMT;
• Funding, to provide transportation investments that lead to a modal shift, has deteriorated;
• Resource constraints, such as worsening drought conditions have some agencies metering building permits and even suspending new permit activity to reassess water supply reliability;
• Williamson Act funding was cut – a key program to limit sprawl;
• Redevelopment agencies were dissolved – they provided a revenue source for infill development.

Modeling methodology and tool updates  Adopted in April 2015, the development of SLOCOG’s 2014 RTP/SCS was a multi-year effort, requiring numerous staff hours, modeling tool refinements, developing and testing multiple scenarios grounded with an adopted growth forecast and available funding projections. Staff will submit to CARB its modeling methodology, tool integration, and assumptions for approval in Spring 2017. CARB staff have previously identified the SLOCOG Base model year (2010) as adequate for the next RTP/SCS. For the 2014 RTP/SCS, staff developed, and CARB accepted, the approach to estimate 2005 emission levels for target reduction scenario comparison purposes.

The GHG results from the 2019 RTP will be based upon new scenario modeling using integration between SLOCOG’s Regional Land Use Model (RLUM) and Regional Traffic Model (RTM) and CARB’s Air Quality model and any off-model tools. The RLUM, developed using CommunityViz software, underwent a major overhaul in preparation of the 2014 RTP/SCS. After minor updates, the RLUM is prepared to develop land use scenarios utilizing parameters such as: draft goals, public input, infrastructure limitations, and the adopted 2050 Regional Growth Forecast. Land use exports are used as inputs to the RTM. After minor updates/considerations including information from the new California Statewide Travel Demand Model, the RTM will be ready to develop VMT outputs resulting from the new growth projections, financially-constrained transportation investments, draft goals, and public input. RTM exports are then used in CARB’s new Air Quality model: EMFAC 2014 (the 2014 RTP used the prior version, EMFAC2011-SG). Staff still must review, test, integrate with RTM outputs, and update its modeling methodologies prior to submittal for CARB review.

The 2014 RTP/SCS included: Land use and transportation strategies to address regional GHG emissions, transportation planning and investment strategies incorporating the “D” Factors (built environment characteristics including: Design, Density, Diversity, Destination, and Distance to Transit), transportation demand management, target development areas (TDAs), and RTP policies that support sustainable growth and land use principles. To date, staff has not assessed off-model assumptions/tools or quantified their reduction on regional GHG. These could include the effects of: Electric vehicle penetration and electric charging stations, impacts of transportation network companies (i.e., Uber and Lyft), autonomous vehicles, or parking pricing strategies.

Any significant investment in improving or expanding the existing modeling tools is not cost-effective at this time. SLOCOG, with its partners AMBAG and SBCAG, received a state grant to build a new, state-of-the-practice, five-county, Activity Based Model (ABM). The ABM will be completed after the 2019 RTP is adopted.

Action Element
The Action Element of the RTP must describe the programs and actions proposed to be completed within the twenty-plus year time frame of the RTP. All transportation modes are addressed: highways, local streets and roads, public transit, rail, maritime, bicycle, pedestrian and aviation facilities and services. It consists of short and long-term activities that address regional transportation issues and needs and assigns implementation responsibilities.

Issue 3: The collapse of available State Transportation Improvement Program (STIP) funding used to support major operational improvements, interchanges and intersection improvements (in 2016, the CTC deleted $7 million previously allocated to SLOCOG and programmed zero (0) new funding for the five-year cycle (ending 2020/21). This funding is critical not only for current congestion relief but to also address the transportation needs of future development.
Financial Element

The Financial Element is fundamental to the development and implementation of each RTP. This element distinguishes the federal, state, regional, and local revenues expected by the region over the next 20 years. Both federal regulations and state statutes require that the RTP be financially constrained – meaning the plan is based on realistic projections of revenue. Transportation funding is often required to provide necessary infrastructure to allow for growth within our target development areas. Any significant reduction of funding will impact the ability for SLOCOG to provide funds for new infrastructure – thereby reducing VMT to achieve lower emissions. The most pressing issue we face is that our ability to achieve our goals is now in jeopardy due to the changed state and federal funding landscape since the adoption of our 2014 RTP/SCS.

Issue 4: Results should be grounded in fiscal constraint taking into account recent (and pending) financial changes. Since the 2014 RTP/SCS, funding projections must be reassessed due to: Federal funds through the FAST Act, State revenues and changes to State fund distributions and priorities, local measures and impacts, and presumed extraordinary funds.

Federal Funds

The FAST Act: On December 4, 2015, Fixing America’s Surface Transportation (FAST) Act was signed into law. A $305 billion, five-year (2016 through 2020) program, it is the first federal law in over a decade to provide long-term funding certainty for surface transportation infrastructure planning and investment for highway, highway and vehicle safety, public transit, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs. After projecting revenues expected from the current 18.4 cents-per-gallon gas tax (last adjusted in 1993), Congress had to backfill $75 billion (25%) primarily using Federal Reserve fund transfers.

State Funds

- Gas tax fund reductions (declining cents/gallon and consumption) and future changes to transportation funding;
- State formula funds for highway/roadway improvements (STIP), funding reduced and delayed by years (in May 2016);
- Cap-and-trade funds are competitive and not formula-based making revenue assumptions unstable;
- State has shifted away from fair-share formula funds to competitive/grant funds with a focus of funding toward “Disadvantaged Communities” and to areas with high matching funds;
- Primary focus of recent State transportation legislation is on “Fix-It-First” (road and highway maintenance) exclusive of congestion relief;
- No legislation passed to address funding issues.

Local Funds

- Atascadero General Fund Sales Tax increase (approved by voters Nov. 2014, following 2014 RTP/SCS assumptions); all other six cities were included.
- Measure J – Self-Help Local Transportation Investment Plan (voters to consider in Nov. 2016; requires 2/3rd voter approval);
- Future pending reduction of local general funds attributable to closure of PG&E’s Diablo Canyon Nuclear Power Plan (estimated for 2025).

Extraordinary Funds

The 2014 RTP/SCS assumed $528 million of extraordinary funds (State or Federal), primarily for SR 46E widening and long-term U.S. 101 improvements. This amounted to 24% of the total $2.2 billion dollars projected to be available for transportation expenditures between 2015 and 2035. The likelihood of such funding is dismal with Congress disallowing earmarked projects and minimal funding projected on the State-competitive Interregional Transportation Improvement Program (ITIP) that funded widening sections of SR 46E.

Target Recommendations:

Staff shall strive to achieve and exceed these targets as it did in the adopted 2014 RTP/SCS. With projected funding of $2.2 billion to 2035, the 2014 RTP/SCS modeled a -10.9% GHG reduction. Newly restored State funding is needed to approach that reduction level in 2035. Staff believes it is imperative
that CARB parallel our efforts to secure adequate financial resources for RTP project development either supported through the Cap-and-trade program or other means.

1. Recommend the 2020 target to be maintained at the original reduction target (-8% per-capita basis relative to 2005 levels) established for the region by CARB. Meeting the 2020 target will be a challenge given the nature that 2020 scenario planning is based almost entirely on existing conditions rather than on differencing land use scenarios and/or transportation investment packages.

2. Recommend the 2035 target be maintained at the original 8% per capita reduction established for the region by CARB. Meeting the 2035 target will be challenging given the recent transportation funding declines. The timing of the request to identify a higher, achievable, GHG reduction target is ill-timed as it is in advance of scenario testing using integrated modeling tools grounded with foundational information including an adopted 2050 Regional Growth Forecast.

**Environmental Impact Report**

A program Environmental Impact Report is required to analyze the environmental impacts of implementing their RTP. The purpose of the program EIR is to enable the MPO to examine the overall effects of the RTP (i.e., broad policy alternatives, program-wide mitigation, growth-inducing impacts and cumulative impacts can be considered at a time when the agency has greater flexibility to avoid unnecessary adverse environmental effects). Additionally, environmental documents subsequently prepared for the individual projects contained in the RTP can be “tiered-off” of the program EIR, thus saving time and reducing duplicative analysis. The 2010 RTP/pSCS EIR consultant cost was $101,000. The 2014 RTP/SCS EIR Addendum consultant cost was $10,700.

**BACKGROUND**

Past and recent legislation is summarized below.

<table>
<thead>
<tr>
<th>SB 32 (2016):</th>
<th>Require greenhouse gas emissions to be 40% below 1990 levels by 2030, a more aggressive set of mandates than those established by California’s landmark climate change law, AB 32, enacted in 2006.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB 197 (2016):</td>
<td>Require new oversight of the state’s ARB, and require future rules to be designed with an eye toward the impact on low-income communities.</td>
</tr>
<tr>
<td>Executive Order B-32-15 (July 2015):</td>
<td>Issued by Gov. Brown to prioritize California’s transition to a more efficient and less polluting freight transportation system. This transition of California’s freight transportation system is essential to supporting the State’s economic competitiveness in the coming decades while reducing greenhouse gas emissions and air quality impacts.</td>
</tr>
<tr>
<td>SB 743 (2013):</td>
<td>Requires an update in the metric of transportation impact used in CEQA from Level of Service and vehicle delay to one that promotes the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. Per ARB Vision Model results, reductions in VMT growth are needed to achieve sufficient greenhouse gas emissions reduction for climate stabilization, as reflected in executive orders on 2030 and 2050 greenhouse gas targets.</td>
</tr>
<tr>
<td>SB 375 (2008):</td>
<td>SB 375 brings the RTP and the Regional Housing Needs Allocation (RHNA) process together to create a link between housing and transportation that will help reduce VMT and reduce the generation of GHG emissions per-capita.</td>
</tr>
<tr>
<td>AB 32 (2006):</td>
<td>California originally passed first-of-its-kind legislation on climate change and gave broad authority to ARB to develop programs to achieve reduction goals.</td>
</tr>
<tr>
<td>AB 197 (2016):</td>
<td>Lawmakers gave their final stamp of approval to both measures in September. Gov. Jerry Brown signed the legislation, a significant victory for supporters after it appeared unlikely that the issue would gain traction in the final month of the legislative session. More steps may be pursued next year to safeguard cap-and-trade from a lawsuit that claims the program is an unconstitutional tax.</td>
</tr>
<tr>
<td>Executive Order B-32-15 (July 2015):</td>
<td>Directed State agencies to develop an integrated action plan by July 2016 that established clear targets to improve freight efficiency, transition to zero-emission technologies, and increase the competitiveness of California’s freight system. It is suggested that regional transportation planning agencies consult the California Sustainable Freight Action Plan when developing the freight-related strategies in their respective RTPs.</td>
</tr>
<tr>
<td>SB 743 (2013):</td>
<td>The regulatory language (CEQA Guidelines changes) to implement the law are pending (as of Fall 2016), though VMT has been identified by the Governor’s Office as the preferred metric to determine significant impacts. A future update of the RTP Guidelines will capture any “shoulds” or “shall”s resulting from the formal rulemaking process.</td>
</tr>
<tr>
<td>SB 375 (2008):</td>
<td>Expanded the overall scope of the RTP requiring the inclusion of a SCS that includes a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the GHG emissions from automobiles and light trucks to achieve, if feasible, the GHG emission reduction target approved for the region by CARB.</td>
</tr>
</tbody>
</table>
October 12, 2017

Teresa Roberts  
Manager, Sustainable Communities Policy and Planning Section  
California Air Resources Board Air Quality Planning and Science Division  
9500 Telstar Avenue  
El Monte, CA 91731

Dear Ms. Roberts,

**SLOCOG staff strongly requests a reduction of its GHG targets.**

SLOCOG staff thanks you and your staff for the opportunity to review our regional GHG reduction targets. The targets originally established for SLOCOG were an 8% decrease for both 2020 and 2035. SLOCOG’s 2014 RTP/SCS achieved these targets achieved through an “aggressive but achievable” approach that guided ten years (2010 to 2020) of new job and housing growth into target development areas (infill) and used an intermodal investment approach. Over the past year, staff has initiated efforts toward the 2019 RTP (adoption anticipated in June 2020) with new growth forecasts, initial modeling results, and new draft funding projections. Now in the middle of the update to our second-round SCS, staff has identified significant obstacles to achieve the prior targets.

As detailed in Attachment 1, no reduction was found from the initial 2020 modeling runs and an average of less than 2% reduction was identified by other MPOs using off-model tools and assumptions. While additional analysis of 2035 scenarios are yet to be developed, its successes will be similarly challenged. The primary obstacles to achieving the prior targets are:

1. Unadjusted negative impacts from using new or updated data sources and information,
2. Slow growth over an extremely short duration (by 2020) cannot notably alter existing conditions,
3. The realities of transportation funding, and
4. The applicability and expectations of off-model results in the San Luis Obispo region.

**Target recommendations:** SLOCOG staff will develop aggressive but achievable scenarios, and, working with ARB staff, shall strive to achieve and exceed its reasonable targets.

- For 2020, a GHG reduction target of 2% per capita is an aggressive target for the San Luis Obispo region.
- For 2035, a GHG reduction target of 4% per capita is an aggressive target for the San Luis Obispo region.

Please review Attachment 1 which provides additional information for these recommendations. Thank you for the opportunity to provide this input to the target-setting process. Please contact James Worthley, Regional Planning Division Chief, at (805) 788-2002 directly if you have any questions.

Ronald L. DeCarli  
Executive Director  
San Luis Obispo Council of Governments
Attachment 1

1. Unadjusted negative impacts from using new or updated data sources and information.
   - SLOCOG’s 2014 RTP/SCS used 2010 as the base year, the 2040 Regional Growth Forecast (August 2011), and projected employment based on the InfoUSA data source.
   - For the 2019 RTP, SLOCOG updated models to reflect 2015 existing land uses, and adopted the 2050 Regional Growth Forecast (June 2017), based upon the EDD data source.

   The new Regional Growth Forecast identifies a significantly higher employment estimate for existing years, including 2015, when compared to the prior forecast. A 12.6 percent difference for 2015 (114,300 vs 101,300), permeating through all projected years, is difficult to overcome. To be clear, this is not solely new growth of employment and offset with a similar population growth, but a result of using a differing data source to quantify employment. This is a common problem when improving base information of modeling tools. CARB’s EMFAC tools, 2011 and 2014, produce differing results using the same data inputs. For EMFAC, process has been employed to adjust for its incongruities. Result: incomparable increase of work-related trips and VMT with no process for adjustment.

2. Slow growth over an extremely short duration cannot notably alter existing conditions.
   The region grows and changes very slowly. Between 2015 and 2020, SLOCOG’s 2050 Regional Growth Forecast projects 5,513 new units, a 4% change over existing. Absent a significant uptick in housing production, this figure is excessively optimistic given the estimated two-year total new units (1,352) built between January 2015 and January 2017 in the region. In developing a 2020 scenario, only two years of housing (and population) growth remain to be allocated or distributed in a scenario beyond what is built or under construction. Reducing the flexibility of scenario development further, two significant developments, consistent with the currently adopted SCS, were recently approved by the City of San Luis Obispo with a total of 1,300 housing units.

   Result: With such a small increment of growth in housing between 2015 (or fall 2017) and 2020, there is no strategic allocation that will significantly alter the existing land use pattern and its resulting VMT and GHG impacts.

   Noting the difficulty in changing the existing land use pattern (and its related impacts) that developed over many decades and focusing on the results solely from new growth, staff calculated the impacts of various per capita reduction levels for VMT (noting that it is not GHG) while holding constant the VMT from 2005 and population for 2005 and 2020. Our results find that:
   - A 10% per capita reduction results in none of the over 26,000 new residents that arrived between 2005 to 2020 could drive — ever.
   - However, 2005, 2010, and 2015 have since passed. The 2019 RTP’s 2020 scenario has less than five years of “new growth” to distribute. In order to achieve a 2% per capita reduction, none of the estimated 10,000 new residents that arrive between 2015 and 2020 can drive at all, and additional reductions must also occur throughout the population.

   Result: Mathematically, it is not possible — or realistic — to achieve a VMT target above 0% by 2020 through land use allocations.

   Over the past several months, staff updated its regional land use and traffic models with the most current information available. Based on initial modeling efforts conducted in August 2017, the 2020 scenario model run resulted in no reduction of CO₂ emissions. This is due in part to the impact of added employment and the “less than significant” impact that occurs with slow growth and a short duration.

   SLOCOG, with its partners at AMBAG and SBCAG, received a state grant to develop a new, state-of-the-practice, five-county Activity-Based Model (ABM). The ABM will be completed after the 2019 RTP is adopted. Therefore, any significant investment to improve or expand the existing modeling tools is not cost-effective.
3. Transportation funding realities
The SLOCOG Board recently reviewed funding assumptions, supported an intermodal investment strategy, and adopted draft funding projections. The 2019 RTP’s total budget is nearly $3 billion; however, if a recall of SB 1 occurs, then the 25-year plan budget falls to about $2 billion. This is nine (9) percent below the 2015 RTP’s $2.2 billion over 20 years (or 27 percent less when adjusted to a similar length duration). As with past RTPs, SLOCOG supports an intermodal investment strategy. This includes an expenditure distribution for a variety of improvements for bike, pedestrian, TDM, ITS, and maintains existing transit with some additional funding for minor expansions.

Result: Intermodal investment strategy supported by our Board.

With SB 1, significant funding is provided to the cities and county for road maintenance ($10 million per year), and over $200 million is assumed (of state grant funds) for the state-priority to complete the SR 46 East widening.

Result: No VMT improvements through these funds.

SLOCOG regularly competes for Active Transportation Program grant funds. Competitive funds prioritized to State-defined Disadvantaged Communities challenging to secure in a region with no State-defined Disadvantaged Communities. The region does not anticipate securing more than one project every two years even with the addition of SB-1 funds.

Result: Little change to regional VMT should be expected through additional SB 1 funds.

While transit funding remains very constrained with minimal expansions projected, SB 1 provides an additional $1.5 million per year for transit. This could fund three new regional transit runs (or one or two replacement buses). Staff estimated, three new runs serving 120 new riders – that were previously single-occupant vehicle drivers – traveling 60 miles each day, 7,200 miles of travel would be reduced (or less than 0.1 percent - 0.001- of regional VMT).

Result: Little change to regional VMT should be expected through additional SB 1 funds for transit.

Without SB 1, pavement conditions will deteriorate in all jurisdictions, transit services will remain at today’s levels through 2045 with no funds to expand (with a funding decrease for capital replacements) and a reduction of active transportation funding would also occur in the region.

Result: Fewer improvements to reduce VMT from Transit or multi-modal improvements.

For a 2020 scenario, only minimal funding is available to continue low-cost, system-efficient efforts such as regional rideshare programs, park-and-ride lots (with no expansions), 511 programs, and existing transit services. Most new transportation improvements will not be completed in 2020 through the use of recently-awarded grant funds, SB 1 funds, or state/federal formula funds.

Result: Fewer improvements to reduce VMT from existing land uses toward a 2020 target.

In 2016, the State deleted or reprogrammed over $1.5 billion; these funds would have completed projects by 2020. In 2016, the CTC deleted $7 million previously allocated to SLOCOG and programmed zero (0) new funding for the five-year cycle (ending FY 2020/21). This funding is critical not only for current congestion relief but to also address the transportation needs of future development.

Result: A two-year delay in the STIP payback is too late to help achieve a 2020 target.

In 2016, SLOCOG prepared and presented a Self-Help, half-percent, sales tax measure for transportation (multimodal purposes) to the voters. The measure failed to achieve the two-thirds requirement with 66.3% of voters in support. A scenario will be developed with a future measure considered, but "proposed" measures are not deemed within financial constraint.

Result: A future self-help measure would have no impact to 2020.
4. Applicability and expectations of off-model tools

Reviewing the Off-Model Strategies Adopted by California MPOs, SLOCOG staff acknowledges there may be some applicability of strategies to identify reductions off-model. Of the nine MPOs included, off-model tools averaged less than a 2% reduction and two of the nine found no reduction benefit in 2020.

Result: As yet unknown.

2020 Target Recommendation: Taking into account the obstacles and opportunities of off-model tools, a GHG reduction target of 2% per capita is a very aggressive target for the San Luis Obispo region.

2035 Scenario development

Almost all of the aforementioned obstacles for 2020 are also obstacles for 2035. SLOCOG’s 2019 RTP is a multi-year effort, requiring numerous staff hours, modeling tool refinements, input from cities, county, and public, development and testing of multiple scenarios grounded with an adopted growth forecast and available funding projections. The SLOCOG Board recently adopted the 2019 RTP’s Public Involvement Plan. The first round of public engagement is underway with its results to be valuable in developing scenario growth alternatives.

Result: 2035 scenario results should be grounded in financial constraint and inclusive of goal-setting and public engagement. Initial modeling results from 2035 scenarios will be available in June 2018.

A longer period is afforded, however, still coupled with slow-growth.
Scenarios for 2035 will similarly be challenged as the region approaches a naturally decreasing population. The region has long been slow growth, especially in recent years. From 2005 to 2017, there has been an average of just 855 new housing units built per year in the region, an increase of 0.77 percent per year. These numbers have been even lower since the recession. From 2012 to 2017, there has been an average of just 595 new housing units built per year in the region, an increase of 0.50 percent per year.

Result: Mathematically, for our slow-growth region to achieve a 5% per capita VMT reduction by 2035, each new resident can drive a maximum of 0.25 miles per day.

Off-Model tools may be applicable for 2035

Reviewing the Off-Model Strategies Adopted by California MPOs, SLOCOG staff acknowledges there may be some applicability of strategies to identify reductions off-model. Of the nine MPOs included, off-model tools averaged less than a 3% reduction 2035.

Result: As yet unknown.

Additional challenges for funding

The following pose additional challenges in achieving GHG reductions:

- Williamson Act funding was cut – a key program to limit sprawl;
- Redevelopment agencies were dissolve. They once provided a revenue source for infill development matching with SLOCOG funding.
- State has shifted away from fair-share formula funds to competitive/grant funds with a focus of funding toward “Disadvantaged Communities” and to areas with high matching funds;
- The pending closure of PG&E’s Diablo Canyon Nuclear Power Plant (estimated for 2025) will impact multiple sectors including employment levels (about 1,600 jobs directly and 3,000 total jobs) and local general funds.

Result: As yet unknown.

2035 Target Recommendation: Taking into account the obstacles and opportunities of off-model tools, a GHG reduction target of 4% per capita is a very aggressive target for the San Luis Obispo region.
Santa Barbara County Association of Governments
During the June 27, 2016 teleconference meeting with California Air Resources Board (ARB) staff, SBCAG staff presented preliminary results from the updated Fast Forward 2040 Regional Transportation Plan-Sustainable Communities Strategy (RTP-SCS) land use and transportation scenarios developed to inform SBCAG’s RTP-SCS update process. These scenarios were crafted based on close consultation with Joint Technical Advisory Committee (JTAC) and SBCAG member agency planning and public works departments, as well as transit operators, and represent updated land use and transportation scenarios evaluated in the adopted 2013 RTP-SCS.

For purposes of the June discussion, the preliminary modeling results presented to ARB staff focused on two future year scenarios:

- **Scenario 1 (Future Baseline):** Based on existing, adopted General Plan land uses, it assumes that current sub-regional growth trends will continue, consistent with the 2012 Regional Growth Forecast.
- **Scenario 3 (TOD/Infill with Enhanced Transit Strategy):** The preferred scenario in the adopted 2040 RTP-SCS, which selectively increases residential and commercial land use capacity within existing transit corridors, reflecting local planning discussions about possible future land use and General Plan and Community Plan updates, and also addresses jobs/housing balance issues by emphasizing job growth in the North County and housing growth in the South County.

EMFAC2014 results indicated that Scenario 3 would perform similarly to the adopted 2013 RTP-SCS Preferred Scenario, but would achieve even greater projected per capita GHG reductions versus the year 2005 baseline: -13.3% in 2020 and -17.7% in 2035 for the preliminary TOD/Infill with Enhanced Transit Strategy scenario versus -10.5% in 2020 & -14.9% in 2035 for the adopted Preferred Scenario (see Table 1). Stated differently, the preliminary TOD/Infill with Enhanced Transit Strategy scenario decreased per capita CO₂ emissions by an additional 2.8% for 2020 and 3.0% by 2035 compared to the adopted 2013 RTP-SCS preferred scenario. Reasons for the improved performance versus the 2013 RTP-SCS include lower interregional trip VMT as a result of SCS adoption and implementation in neighboring SLOCOG and SCAG regions, changes to the underlying transit routes and frequencies, changes to the constrained transportation project lists, minor changes to land use assumptions and growth allocation, recoding in the regional travel demand model of segments of U.S. 101 between unincorporated Santa Maria and the Gaviota Coast from a Principal Arterial to a Freeway, and EMFAC 2014.

In discussing ARB’s intention to update the greenhouse gas reduction targets with SBCAG based on preliminary modeling results, ARB staff indicated openness to considering a range of projected emissions reductions to account for different parameters. SBCAG staff has explored two different parameters within the travel demand model that inform projected reductions. These two parameters include:
1. Revisiting the jobs/housing balance assumptions in the preliminary TOD/Infill with Enhanced Transit Strategy scenario in light of actual growth trends informed by SBCAG’s report on Development Trends & RTP-SCS Implementation Progress.¹ This scenario variation continues to concentrate growth within transit corridors, but places fewer jobs in the Lompoc and Santa Maria Valleys and less housing on the South Coast market area. This review of development trends indicates that since the 2013 RTP-SCS adoption, a larger proportion of both residential and non-residential development has continued to occur in the North County than on the South Coast. However, compared to past trends, the rate of future residential development in the South Coast has increased, providing more opportunities for local workers. Although the preferred scenario continues to assume aggressive correction of jobs-housing imbalance consistent with underlying allowable land uses, the actual allocation of future growth is dependent on variables such land values and similar econometric factors that are beyond SBCAG’s control. While their interplay with auto operating costs is complex, housing affordability and land values will continue to play an important role in the location decisions of households and firms. Further, these factors may inhibit realization of the adopted RTP-SCS preferred scenario growth allocation, as so far borne out by the Development Trends & RTP-SCS Implementation Progress Report. The modeling results of this scenario variation are shown in Table 2.

2. Additionally, reducing automobile operating costs by 30% for target year 2035 (13.951¢/mile vs 19.93¢/mile) to reflect the significant increases in fuel efficiency assumed in ARB’s Mobile Source Strategy.² This reduction is based on discussions with SCAG modeling staff and is shown in Table 3.

Allocating fewer jobs to the Lompoc/Santa Maria Valleys and less housing on the South Coast market area results in per capita GHG emission reductions of -10.9% in 2020 and -15.9% in 2035 versus -13.3% in 2020 & -17.7% in 2035 for the preliminary TOD/Infill with Enhanced Transit Strategy scenario. Stated differently, the jobs/housing scenario variation increases per capita CO₂ emissions by 2.4% for 2020 and 1.8% by 2035 compared to the preliminary TOD/Infill with Enhanced Transit Strategy scenario.

Building on the jobs/housing allocation scenario variation, the additional 30% reduction in auto operating costs for target year 2035 results in per capita GHG emission reductions of -14.9% versus -17.7% in 2035 for the preliminary TOD/Infill with Enhanced Transit Strategy scenario. Stated differently, the jobs/housing scenario variation increases per capita CO₂ emissions by 2.8% for 2035 compared to the preliminary TOD/Infill with Enhanced Transit Strategy scenario.

Based on the results from the above testing, SBCAG staff believes that the range of projected per capita CO₂ emissions reductions versus the year 2005 baseline should be between -10.9% to -13.3% for target year 2020 and between -14.9% to -17.7% for target year 2035. SBCAG staff believes that this stated range is defensible when taking into account the uncertain nature of future modeling tools, demographics, and market forces, among other factors.

¹ [http://meetings.sbcag.org/Meetings/SBCAG/2016/06%20June/Item%207%20RTP%20SCS%20Implementation%20Progress.pdf](http://meetings.sbcag.org/Meetings/SBCAG/2016/06%20June/Item%207%20RTP%20SCS%20Implementation%20Progress.pdf)
² [https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.pdf](https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.pdf)
### Table 1: VMT and CO2 Per Capita Results – Updated TOD/Infill Scenario Preliminary Results vs. Adopted Scenario 3

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Units</th>
<th>2005</th>
<th>2010</th>
<th>2020</th>
<th>2035</th>
<th>2040</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adopted TOD/Infill Preferred Scenario (EMFAC2011 &amp; EMFAC2014)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VMT Total</td>
<td>Vehicle Miles</td>
<td>9,406,707</td>
<td>9,052,017</td>
<td>9,444,018</td>
<td>10,302,621</td>
<td>10,513,881</td>
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<tr>
<td>VMT/Capita</td>
<td>Vehicle Miles/Person</td>
<td>22.53</td>
<td>21.35</td>
<td>21.72</td>
<td>20.75</td>
<td>20.66</td>
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<tr>
<td>CO₂ per Capita (EMFAC2011)</td>
<td>Pounds per day</td>
<td>18.40</td>
<td>17.23</td>
<td>16.46</td>
<td>15.57</td>
<td>--</td>
</tr>
<tr>
<td>% Change from 2005</td>
<td>--</td>
<td>--</td>
<td>-10.5%</td>
<td>-15.4%</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>CO₂ per Capita (EMFAC2014)</td>
<td>Pounds per day</td>
<td>18.35</td>
<td>17.32</td>
<td>16.42</td>
<td>15.65</td>
<td>--</td>
</tr>
<tr>
<td>% Change from 2005</td>
<td>--</td>
<td>--</td>
<td>-10.5%</td>
<td>-14.7%</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

**Updated TOD/Infill Scenario Preliminary Results (as shared on June 27, 2016) (EMFAC2014)**

| VMT Total | Vehicle Miles | 9,732,296 | 9,365,328 | 9,431,525 | 10,336,166 | 10,594,756 |
| VMT/Capita | Vehicle Miles/Person | 23.31 | 22.09 | 21.69 | 20.82 | 20.82 |
| CO₂ per Capita (EMFAC2014) | Pounds per day | 18.77 | 17.85 | 16.28 | 15.44 | -- |
| % Change from 2005 | -- | -- | -13.3% | -17.7% | -- | -- |

**Difference – Updated TOD/Infill Scenario Preliminary Results vs. Adopted TOD/Infill**

| VMT Total | Vehicle Miles | 0 | 0 | -238,000 | -210,791 | -132,214 |
| VMT/Capita | Vehicle Miles/Person | 0 | 0 | -0.55 | -0.42 | -0.26 |
| CO₂ per Capita (EMFAC2014) | Pounds per day | 0 | 0 | -0.45 | -0.35 | -- |
| % Change from 2005 | -- | -- | -2.40% | -1.80% | -- | -- |

### Table 2: CO₂ Per Capita Results – Preliminary Scenario 3 w/ Jobs-Housing Variation vs. Updated TOD/Infill Scenario Preliminary Results

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Units</th>
<th>2005</th>
<th>2010</th>
<th>2020</th>
<th>2035</th>
<th>2040</th>
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<tbody>
<tr>
<td>Preliminary Scenario 3 w/ Jobs-Housing Variation (EMFAC2014)</td>
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<td></td>
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<tr>
<td>VMT Total</td>
<td>Vehicle Miles</td>
<td>9,732,296</td>
<td>9,365,328</td>
<td>9,669,525</td>
<td>10,546,957</td>
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<tr>
<td>VMT/Capita</td>
<td>Vehicle Miles/Person</td>
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<tr>
<td>CO₂ per Capita (EMFAC2014)</td>
<td>Pounds per day</td>
<td>18.77</td>
<td>17.85</td>
<td>16.73</td>
<td>15.79</td>
<td>--</td>
</tr>
<tr>
<td>% Change from 2005</td>
<td>--</td>
<td>--</td>
<td>-10.9%</td>
<td>-15.9%</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

**Updated TOD/Infill Scenario Preliminary Results (as shared on June 27, 2016) (EMFAC2014)**

| VMT/Capita | Vehicle Miles/Person | 23.31 | 22.09 | 21.69 | 20.82 | 20.82 |
| CO₂ per Capita (EMFAC2014) | Pounds per day | 18.77 | 17.85 | 16.28 | 15.44 | -- |
| % Change from 2005 | -- | -- | -10.9% | -15.9% | -- | -- |

**Difference – Updated TOD/Infill Scenario Preliminary Results vs. Preliminary Scenario 3 w/ Jobs-Housing Variation**

| VMT Total | Vehicle Miles | 0 | 0 | -238,000 | -210,791 | -132,214 |
| VMT/Capita | Vehicle Miles/Person | 0 | 0 | -0.55 | -0.42 | -0.26 |
| CO₂ per Capita (EMFAC2014) | Pounds per day | 0 | 0 | -0.45 | -0.35 | -- |
| % Change from 2005 | -- | -- | -2.40% | -1.80% | -- | -- |
Shasta Regional Transportation Agency
STAFF REPORT

MEETING DATE: June 28, 2016
SUBJECT: Recommend Year 2035 Greenhouse Gas Emission Reduction Target for consideration by the California Air Resources Board
AGENDA ITEM: 9
STAFF CONTACT: Daniel Wayne, Senior Transportation Planner

SUMMARY:
The California Air Resources Board (CARB) is charged with assigning and periodically updating regional targets for the reduction of per-capita greenhouse gas (GHG) emissions associated with automobiles and light trucks. In response, metropolitan planning organizations (MPOs) are required to develop a Sustainable Communities Strategy (SCS) demonstrating how the region intends to meet CARB’s targets. CARB has solicited recommendations from each MPO regarding a possible new target for the year 2035. Staff recommends a -6% target based on reasonably anticipated revenues. Further reductions could be achieved with increased state and federal funding support, potentially enabling the region to meet a target of up to -12%.

STAFF RECOMMENDATION:
It is recommended that the board of directors propose a per-capita greenhouse gas emission reduction target of -6% for the year 2035.

DISCUSSION:
The 2015 Regional Transportation Plan (RTP) included the region’s first SCS, as required by the Sustainable Communities and Climate Protection Act of 2008 (commonly known as Senate Bill 375). An SCS demonstrates how the region intends to meet CARB-assigned targets for per-capita greenhouse gas emissions associated with automobiles and light trucks for the year 2020 and 2035, based on a 2005 baseline year. Periodically, CARB may update regional targets in consultation with the respective MPO.

In July 2010, the SRTA Board of Directors recommended a 0% change in per-capita GHG emissions for both target years, which CARB subsequently accepted. Policies and programs in the 2015 RTP enabled the region to exceed this goal, netting a forecast -4.9% for 2020 and weakening to -0.5% for 2035 due to a return to post-recessionary economic activity and more dispersed growth in the outlying years.

In preparation for the 2018 RTP update, CARB has asked SRTA to provide a new recommendation for the 2035 target. Staff recommends that the board of directors propose a target of -6% for 2035, which is midway between the region’s current target (0%) and the maximum feasible target (-12%) premised on the attached scenario of strategies and assumptions. The target range and cost to implement the described strategies are estimated based on information developed for recent grant applications. Additional technical analysis will need to be performed as part of the 2018 RTP.
It should be noted that the attached scenario is a forecast and not a commitment on the part of SRTA or partner agencies to implement. The actual strategies, and the degree to which they are implemented, will vary based on real-world conditions and updates of RTP policies every four years. In addition, many of the strategies included in the scenario will result in GHG reductions that fall outside of the passenger vehicle and light truck emissions specifically called-out within Senate Bill 375. CARB is willing to consider such reductions, especially when the cost/benefit ratio is favorable and an adequate range of conventional strategies have been employed.

A -6% target recommendation would help SRTA and local agencies’ build a stronger case for future grants. For example, both SRTA and local agencies would be able to point to the regional GHG target to justify and add weight to requests for active transportation infrastructure grants, public transportation operating and capital grants, infill and redevelopment grants, and so forth. A -6% target recommendation would also be viewed more favorably than the region’s current 0% target given the state’s ambitious goal of reducing statewide GHG emissions to 40% below 1990 levels by the year 2030 (Executive Order B-30-15). The threat of not meeting the proposed target is limited, since the region’s target will be routinely revisited and updated.

In addition to the -6% target recommendation, the board of directors may consider providing information stating that the region could achieve per-capita GHG emission reductions as great as -12% if a substantial increase state and federal funding is made available through existing and new programs. The intent of the secondary information is to remind the state of their obligation to back up aspirational goals with the programs and resources required to achieve them.

**ALTERNATIVES:**
The board of directors may choose to: 1) take no action and leave the decision to CARB; 2) propose different targets for CARB consideration; or 3) refer the matter back to staff for additional information. To ensure the board of directors’ recommendation is considered, a target recommendation should to be provided to CARB no later than July 29, 2016.

**OTHER AGENCY INVOLVEMENT:**
The Technical Advisory Committee (TAC) supports the staff recommendation.

**FINANCING:**
There is no direct fiscal impact associated with the target recommendation. The recommended -6% target is based on approximately $120 million in state and federal funding support through the year 2035, obtained primarily through continued local and regional grant-getting efforts.

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Daniel S. Little, AICP, Executive Director

<table>
<thead>
<tr>
<th>GHG Emission Reduction Strategies</th>
<th>Forecast factors and additional strategies needed to achieve per-capita GHG reductions</th>
<th>Estimated Moderate/Maximum</th>
</tr>
</thead>
</table>
| Land Use                         | • An additional 5% of future growth in unincorporated areas will occur within the urban sphere of influence in response to market influences such as the rising cost of transportation.  
  • SRTA will obtain additional grant funds to continue the agency’s Infill & Redevelopment Incentive Pilot Program.  
  • SRTA will continue to support local agencies and developers in successfully competing for capital grants through the Affordable Housing & Sustainable Communities Program.  
  • Targeted active transportation and public transportation investments will encourage growth in Strategic Growth Areas. | -0.2% (mod) -0.5% (max)  
- $30M (-6%)  
- $60M (-12%) |
| Alternative Fuel Vehicles        | • Plug-in electric vehicles (PEVs) market share will increase to 2%, led in part by policies and program that support fleet conversion.  
  • Local agencies will obtain PEV charging station grants.  
  • Local agencies will adopt policies and programs encouraging the installation of charging stations for certain types of development. | -2% (mod) -3.3% (max)  
- $10M (-6%)  
- $20M (-12%) |
| Technology-Enabled Travel Demand Management & Transportation System Management | • Recent and emerging mobility-enhancing technologies will be commonplace in the Shasta Region by 2035, resulting in increased system efficiency. Examples include ‘Waze’ real time traffic info sharing; ride-sharing applications such as ‘Uber’ and ‘Lyft’; vehicle-to-vehicle communication; and autonomous vehicles.  
  • Advances in virtual communication will supplant trips and increase remote working.  
  • Local agencies will employ transportation system management strategies to increase network efficiency, including signal control management and vehicle-to-infrastructure communication. | -0.7% (mod) -1.5% (max)  
- $10M (-6%)  
- $20M (-12%) |
| Active Transportation            | • SRTA and local agencies will jointly plan and implement a network of active transportation expressways with connections to the roadway network and trip destinations.  
  • SRTA’s active transportation programs will continue to successfully leverage Active Transportation Program (ATP) and other grants with Transportation Development Act and State Transportation Improvement Program funds. | -0.7% (mod) -1.5% (max)  
- $20M (-6%)  
- $30M (-12%) |
| Local Public Transportation      | • RABA and Community Transportation Service Agency (CTSA) buses will transition to alternative fuels as older vehicles are retired.  
  • Public transportation mode share will increase to 3% as a result of targeted on-demand public transportation service, access to real-time fixed-route transit information, increased service area, extended service hours, and Sunday service.  
  • With SRTA’s support, public transportation providers will receive grant funds for alternative fuel vehicles and fueling infrastructure. | -1% (mod) -2% (max)  
- $20M (-6%)  
- $40M (-12%) |
| Intercity Public Transportation  | • SRTA will obtain capital and operating grant funds to implement intercity express bus service to/from Sacramento and Bay Area. | -0.9% (mod) -1.6% (max)  
- $20M (-6%)  
- $30M (-12%) |
| Sustainable Freight Movement     | • SRTA will lead a coordinated freight efficiency program to include a possible consolidated freight hub; industry clustering; alternative fuel infrastructure; greater utilization of freight rail; and the relocation of Union Pacific Railroad switching to eliminate the physical and operational constraints in Downtown Redding. | -0.5% (mod) -1.6% (max)  
- $10M (-6%)  
- $20M (-12%) |

**Estimated Total** | -6% (mod) -12% (max)  
- $120M (mod)  
- $220M (max) |
Tahoe Regional Planning Agency
The purpose of this memorandum is to present TRPA/TMPO’s 2017 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) greenhouse gas (GHG) target analysis, explain the main differences between 2012’s and 2016’s analysis, and provide background for updating future GHG reduction targets.

BACKGROUND:
Pursuant to the California Air Resources Board (CARB) recommended approach contained in the “Description of Methodology for ARB Staff Review of Greenhouse Gas Reductions from Sustainable Communities” TRPA/TMPO fulfilled CARB’s requirements of utilizing a technical methodology for evaluating the reductions in GHG emissions attributable to an SCS and to determine whether the SCS, if implemented, would meet the targets for passenger vehicles set by CARB. On May 16, 2016, TRPA/TMPO submitted for CARB review, the draft methodology for calculating GHG emissions per-capita for the Lake Tahoe Region (attached). On June 16, 2016 CARB responded to the methodology (attached) indicating that they would request supporting information from TRPA/TMPO as it becomes available. This memorandum serves as the supporting information requested consistent with the recommended CARB approach.

MODEL DOCUMENTATION:
As part of the TRPA 2012 Regional Plan Update and the 2012 TMPO RTP/SCS, staff started the process of compiling the appropriate documentation to update the TransCAD Tour Based Model. Since that time, additional updates to the model and associated documentation have been completed and is attached for reference herein titled; Methodology for estimating Vehicle Miles Traveled and Greenhouse Gas Reductions in the 2016 Regional Transportation Plan Update, TRPA-TMPO, Nov. 2016. Consistent with CARB’s recommendation, TRPA/TMPO underwent an independent peer review of both the static and dynamic model validation performance (attached). As
indicated, the model was determined to meet all static and dynamic validation tests consistent with the Caltrans Regional Transportation Plan Guidelines.

**DOCUMENTATION OF OFF-MODEL TOOLS OR METHODS USED:**
The TRPA/TMPO maintains a Trip Reduction Impact Analysis (TRIA) spreadsheet tool to evaluate the trip and vehicle miles travelled (VMT) reduction impacts of various transportation policies and programs that are considered under the RTP/SCS effort. The purpose of the TRIA is to provide planning-level, order of magnitude comparative analysis of the impacts such as the construction of new bike trails and sidewalks, transit improvements, traveler information systems and other programs have on the reduction of auto trips, VMT and GHG emissions.

**2016 RTP/SCS TARGET ANALYSIS RESULTS:**
A key element of the Tahoe Region RTP/SCS is to demonstrate that the transportation and land-use changes proposed in the plan will allow the Region to reach its major environmental thresholds in conjunction with the goals of Senate Bill 375. Based on its authority under SB 375, the California Air Resources Board requires the Tahoe Region to create a plan to reduce GHG emissions from cars and light trucks by 7 percent per-capita by 2020, and 5 percent per-capita by 2035, as compared to 2005 levels. To determine if the Tahoe Region will meet these GHG reduction targets, TRPA/TMPO analyzed the impacts that planned land-use patterns identified in the TRPA Regional Plan and planned transportation strategies will have on Lake Tahoe’s baseline vehicle trips and resulting GHG emissions.

The results of the analysis are shown in the following table which identifies that drivers within the California portions of the Lake Tahoe Basin generated approximately 445 tons of GHG emissions per day in 2005. The table also shows that investments in sustainable transportation systems and the land-use patterns are sufficient to reduce GHG emissions on the California side of the basin by the targeted amount. Despite a gradual increase in total vehicle miles traveled as a result of modest resident population growth and continued increased visitation, per-capita GHG emissions would be reduced from 2005 values by 8.8 percent by 2020 and by 5 percent by 2035. It is important to note that the GHG reductions are greater in 2020 than in 2035 because the Tahoe Region is expected to reach build-out prior to the 2030 timeframe, at which time the resident population is projected to remain static while visitor VMT will continue to increase as the population in the surrounding regions continue to grow.

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2 The greenhouse gas reductions per capita are greater in 2020 than in 2035 because the Tahoe Region is expected to reach build-out around 2030. At that time, the population will remain the same but visitor vehicle miles traveled will continue to increase slightly as the population in the surrounding regions continues to grow.
Table 1: 2017 RTP/SCS Greenhouse Gas Emission Results

<table>
<thead>
<tr>
<th>Population Forecasts</th>
<th>2005</th>
<th>2020</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>41,377</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43,341</td>
<td></td>
<td></td>
<td></td>
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<td>45,166</td>
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<table>
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<tr>
<th>Air Resources Board Targets</th>
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</thead>
<tbody>
<tr>
<td>Reduction in CO₂ per capita from 2005 values (ARB Targets)</td>
<td>7.0%</td>
<td>5.0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sustainable Communities Strategy Forecast</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Daily VMT</td>
<td>1,041,890</td>
<td>1,038,998</td>
<td>1,149,601</td>
</tr>
<tr>
<td>Total Daily CO₂ equivalents (tons) from Daily VMT</td>
<td>445</td>
<td>430</td>
<td>469</td>
</tr>
<tr>
<td>Total Daily CO₂ equivalents reduced by additional use of electric vehicles</td>
<td>428</td>
<td>461</td>
<td></td>
</tr>
<tr>
<td>CO₂ per capita (lbs.)</td>
<td>21.5</td>
<td>19.8</td>
<td>20.4</td>
</tr>
<tr>
<td>% Reduction in CO₂ per capita from 2005 values – Linking Tahoe forecast</td>
<td>8.8%</td>
<td>5.0%</td>
<td></td>
</tr>
</tbody>
</table>

Comparison of 2012 and 2016 GHG Analysis:
As part of the 2012 TRPA/TMPO RTP/SCS submittal, staff forecasted that per-capita GHG reduction values would be 12.1 percent in 2020 and 7.2 percent by 2035 below the 2005 base year. As shown above, our most recent forecast for 2020 indicates an 8.8 per-capita reduction and 5 percent per-captia reduction for 2035 below the 2005 base year. A significant factor between the two forecasts is due to the update to our TransCAD socio-economic database. Early in 2013, TRPA/TMPO started to compile updated Census and Employment data to better reflect our spatial and demographic changes. The resulting update coupled with better coordination of the forecasted growth from adjacent counties at our external stations increased our VMT forecast for 2020 by 113,848. This updated data and the use of the EMFAC2014 model resulted in a more up-to-date 2016 projected per-capita reductions. Though the anticipated percentage reductions are lower than predicted in 2012, this does not reflect a change in policy direction or project prioritization. TRPA/TMPO is committed to planning, funding, and encouraging implementation of a sustainable transportation system that improves the environment through coordinated land-use and transportation strategies that reduce reliance on the automobile, enhance multi-modal options, encourage the use of zero emission vehicles, and reduce congestion through dynamic traffic flow control.

Background on Updating GHG Targets:
TRPA estimates that prior to the 2035 time frame, the percent of VMT associated with visitors to the region will increase beyond 51 percent of all VMT in the Region. While these visitor miles must be included in the per-capita GHG emissions calculation, the accounting of the population associated with that VMT is not. Equally important to note, is the increasing number of vacation rentals that are occurring around the Region that
were previously occupied by year-round residents and the recent amount of approved growth located just outside the basin that increases visitor VMT but does not increase the overall resident population. Future target recommendations from TRPA will be based on the current 2017 RTP analysis described above. As CARB works with MPOs to develop the next round of GHG targets, we would welcome a discussion of possibility adjusting the role that visitor travel has on tourist areas like the Tahoe Region and the calculation of future GHG targets. TRPA anticipates providing updated target recommendations to CARB in the spring of 2017.

**Next Steps:**

TRPA/TMPO plans to release the draft 2017 Regional Transportation Plan and associated environmental document in February of 2017. The agency will use the release of this plan to begin the public and agency stakeholder outreach process of vetting the current GHG reduction target analysis to determine future reduction targets. This work should be conducted in tandem with CARB on working to identify strategies to better reflect the unique travel patterns and population considerations of the Lake Tahoe Region.

We look forward to continuing our work with CARB, the public, and agency stakeholders on establishing future GHG reduction targets. Please contact me or my staff with additional questions at 775-589-5256 or nhaven@trpa.org.