September 20, 2024

Maura Twomey
Executive Director
Association of Monterey Bay Area Governments
24580 Silver Cloud Court
Monterey, CA 93940
Mtwomey@ambag.org

Dear Executive Director Twomey:

In accordance with the Sustainable Communities and Climate Protection Act of 2008, please find enclosed the California Air Resources Board's (CARB) Executive Order G-23-090 and CARB staff's evaluation of the Association of Monterey Bay Area Governments' (AMBAG) 2022 SB 375 Regional Transportation Plan/Sustainable Communities Strategy (2022 SCS). The Executive Order accepts AMBAG's determination that its 2022 SCS would, when fully implemented, achieve its target of a 6% per capita greenhouse gas (GHG) emissions reduction from automobiles and light trucks by 2035 relative to 2005 levels. CARB staff's evaluation report summarizes its assessment, findings, and recommendations relating to the determination on the 2035 target.

We would like to acknowledge some of the particularly positive aspects of the plan. CARB staff appreciates that AMBAG continues to work to increase transportation choices in the region with notable increases in the region's investments in transit, active transportation, and travel demand management in this plan.

Though the Executive Order accepts the 2022 SCS 2035 target determination based on a sufficient presentation of information that would support achievement if every strategy and measure were implemented, CARB staff is concerned that this plan will not be fully implemented as AMBAG envisions. More support will be needed to realize the land use and housing strategies at the assumed level. Nevertheless, the actions identified in the plan establish an important blueprint to guide future efforts.

Reducing VMT is more important than ever. As the 2022 Progress Report assessed progress toward the goals of Senate Bill 375, it was found that per capita VMT continues to increase statewide. The 2022 Scoping Plan Update, adopted by the CARB Board in December 2022, shows that new vehicle sales being 100% zero emission by 2035 will not be enough to achieve carbon neutrality by 2045. In addition to technology-based solutions, California needs to reduce VMT per capita by 25% by 2030 relative to 2019 levels, and 30% by 2045. Implementation of AMBAG's adopted 2022 SCS is an important element of achieving these ambitious goals. To support successful implementation, and the GHG benefits claimed, CARB staff includes specific recommendations in the SCS evaluation report and requests

AMBAG regularly monitor the implementation of the plan in consultation with CARB and other relevant agencies.

Looking to AMBAG's fourth cycle SCS, we encourage you to work closely with CARB staff as you prepare for the submittal of your next technical methodology prior to the start of your public participation process, as SB 375 requires. Doing so will ensure that the plan the AMBAG Board adopts appropriately demonstrates it meets the target and minimizes the back-and-forth with staff following plan adoption. CARB staff also encourage AMBAG's participation in CARB's process to update the SCS evaluation guidelines as we discuss potential changes to CARB's evaluation of quantification methodologies for subsequent cycles.

CARB staff appreciates AMBAG's continued work to advance environmental sustainability in a way that increases transportation choice and housing opportunities and looks forward to an ongoing partnership to implement this plan and develop the fourth cycle plan. If you have any questions or need further information, please contact me, at *Jennifer.Gress@arb.ca.gov*.

Sincerely,

Jennifer Gress

Jennifer Gress, Ph.D., Division Chief, Sustainable Transportation and Communities Division

Enclosures (2)

cc: Heather Adamson, Director of Planning, AMBAG
Hadamson@ambag.org

Bhupendra Patel, Director of Modeling, AMBAG
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Mary Ann Carbone, AMBAG President & Sand City Mayor
Maryann@sandcityca.org

State of California
Air Resources Board

Executive Order G-23-090

Association of Monterey Bay Area Governments' 2022 Sustainable Communities Strategy

CARB Acceptance of GHG Quantification Determination

Whereas, SB 375 (Steinberg, Chapter 728, Statutes of 2008), also known as the Sustainable Communities and Climate Protection Act, aims to reduce greenhouse gas (GHG) emissions from passenger vehicle travel through improved transportation and land use planning at the regional scale;

Whereas, SB 375 requires each of the State's 18 federally designated Metropolitan Planning Organizations (MPO), including the Association of Monterey Bay Area Governments (AMBAG), to develop a Sustainable Communities Strategy (SCS) or an Alternative Planning Strategy that meets the regional GHG emissions reduction targets for automobiles and light trucks set by the California Air Resources Board (CARB or Board);

Whereas, on September 23, 2010, the Board set targets for the AMBAG region of a 0 percent per capita reduction by 2020, and a 5 percent per capita reduction by 2035 relative to 2005 levels;

Whereas, on November 20, 2014, CARB accepted AMBAG's quantification of GHG emissions for automobiles and light trucks as meeting the applicable targets in its first SCS, adopted by the AMBAG Board of Directors on June 11, 2014;

Whereas, on November 19, 2018, CARB accepted AMBAG's quantification of GHG emissions reductions for automobiles and light trucks as meeting the applicable targets in its second SCS, adopted by the AMBAG Board of Directors on June 13, 2018;

Whereas, on March 22, 2018, the Board set updated targets for the AMBAG region of a 3 percent per capita reduction by 2020 and a 6 percent per capita reduction by 2035 relative to 2005 levels;

Whereas, in preparation for its 2022 SCS, AMBAG staff engaged the public via advisory committee meetings, stakeholder working group meetings, public workshops, and public hearings between May 2021 and January 2022;

Whereas, in November 2021, AMBAG published its draft 2022 SCS, which was available for public review through January 2022;

Whereas, on June 15, 2022, AMBAG's Board of Directors adopted the final 2022 SCS, known as the Monterey Bay 2045 Moving Forward, with a determination that the SCS would achieve the region's GHG targets, with a 3 percent per capita reduction by

2020 and a 6 percent per capita reduction by 2035 relative to 2005 levels;

Whereas, on July 20, 2022, AMBAG submitted the final 2022 SCS to CARB for review, as required by California Government Code section 65080, subdivision (b)(2)(J)(ii), and completed its submittal of supporting information on March 30, 2023;

Whereas, CARB staff performed an evaluation of the 2022 SCS's quantification of the GHG emissions reductions the strategy would achieve and the technical methodology used to obtain that result based on CARB's November 2019 document entitled *Final Sustainable Communities Strategy Program and Evaluation Guidelines*;

Whereas, CARB staff's evaluation found that AMBAG made a determination that its 2020 GHG emission reduction target was met in 2020 but did not include a determination of whether it continues to achieve the 2020 GHG emission reduction target;

Whereas, CARB staff's evaluation indicated that AMBAG used technical methodologies that would reasonably quantify GHG emissions reductions from the 2022 SCS for 2035;

Whereas, CARB staff's evaluation indicated that AMBAG's 2022 SCS included strategies, key actions, and investments to support its stated GHG emissions reductions for 2035;

Whereas, CARB staff's evaluation showed AMBAG's 2022 SCS, when implemented, would meet the applicable GHG emissions reduction target that the Board established for the region for 2035;

Whereas, CARB staff's technical evaluation of AMBAG's GHG emissions reduction determination is included in Attachment A, Evaluation of the Association of Monterey Bay Area Governments' SB 375 2022 Sustainable Communities Strategy, September 20, 2024;

Whereas, California Government Code section 65080, subdivision (b)(2)(J)(ii), calls for CARB to accept or reject an MPO's determination that the Sustainable Communities Strategy submitted would, if implemented, achieve the GHG emissions reduction targets established by the Board;

Whereas, California Health and Safety Code sections 39515 and 39516 delegate to the Board's Executive Officer, or as redelegated to the Executive Officer's subordinates, the authority to act on behalf of the Board in this manner;

Now, therefore, be it resolved that under California Government Code section 65080, subsection (b)(2)(J)(ii), AMBAG's determination that the SCS adopted by the AMBAG Board of Directors on June 15, 2022, would, when implemented, achieve the applicable GHG emissions reduction target for automobiles and light trucks of 6 percent per capita reduction by 2035, relative to 2005 levels, as established by CARB for the region is hereby accepted.

Now, therefore, CARB staff is directed to forward this executive order to the AMBAG Executive Director.

Executed at Sacramento, California, this 20th day of September 2024.

Jennifer Gress

Jennifer Gress, Ph.D., Division Chief, Sustainable Transportation and Communities Division

Attachment A: Evaluation of the Association of Monterey Bay Area Governments' SB 375 2022 Sustainable Communities Strategy

EVALUATION OF THE ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS' SB 375 2022 SUSTAINABLE COMMUNITIES STRATEGY

September 2024

Please note: formatting of some text and images in this document may change during remediation for accessibility before online posting.

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Overview

On June 15, 2022, the Association of Monterey Bay Area of Governments (AMBAG), which serves as the metropolitan planning organization (MPO) for the Monterey Bay Area region, adopted its 2022 Regional Transportation Plan/Sustainable Communities Strategy (2022 SCS), also known as Monterey Bay 2045: Moving Forward. The 2022 SCS is available on AMBAG's *Planning Website*. AMBAG provided a complete submittal of the 2022 SCS and all necessary supporting information for CARB staff's review on March 30, 2023. AMBAG's 2022 SCS estimates a 5.2% and a 6.3% decrease in per capita greenhouse gas (GHG) emissions from light-duty passenger vehicles by 2020 and 2035, respectively, compared to 2005. The region's per capita GHG emission reduction targets are 3% in 2020 and 6% in 2035, compared to 2005 levels, as adopted by the California Air Resources Board (CARB or Board) in Resolution 18-12 in March 2018. This report reflects CARB's evaluation of AMBAG's 2022 SCS and AMBAG's determination that it would meet the targets when fully implemented.

Based on a review of all available evidence in consideration of CARB staff's *Final Sustainable Communities Strategy Program and Evaluation Guidelines* (PDF download), referred to throughout this document as SCS Evaluation Guidelines, CARB staff accepts that AMBAG's 2022 SCS and supplemental materials reasonably demonstrate that the SCS would meet its 2035 target, when fully implemented. However, CARB staff identified concerns with the 2022 SCS, and this report offers recommendations to improve quantification methods, modeling, and tracking and implementation of actions to support achievement of SB 375's goals.

CARB's Evaluation

CARB's evaluation of the SCS consists of two components – the determination and reporting components – and is based on the general method described in CARB's SCS Evaluation Guidelines. The main body of this report summarizes CARB staff's findings from the determination component analyses in the following order: (1) Trend Analysis, (2) Plan Adjustment Analysis, (3) Policy Analysis, and (4) Investment Analysis. These analyses are supported by data and analysis contained in Appendices A-C. A summary of the reporting components for the 2022 AMBAG SCS is included in Appendix D.

Evaluation of SCS strategies, key supporting actions, and investments serves as the basis for CARB accepting or rejecting an MPO's SB 375 GHG determination. CARB staff's evaluation relied not only on a review of AMBAG's 2022 SCS but also on additional SCS submittal materials provided by AMBAG and information gathered in follow-up conversations with AMBAG staff. For a summary of strategies and quantification methods evaluated as part of AMBAG's 2022 SCS submittal see Appendix A: AMBAG's 2022 SCS Strategy Table.

I. Trend Analysis

Under the SCS evaluation process, an MPO should provide key performance metrics to demonstrate that the SCS will meet the GHG reduction target. For example, CARB staff look at the metrics to see whether the changes indicated by the metrics are directionally supportive of GHG reduction. CARB staff also use the metrics to identify the changes from AMBAG's 2022 SCS that are most critical to meeting the targets and look to see whether those changes are consistent with the strategies and supportive actions included in the SCS (see Policy Analysis section). The metrics that CARB staff analyzed are shown in Appendix B: Trend Analysis Results.

A. Findings

CARB staff found that the trend analysis metrics reported from AMBAG's travel model somewhat support that AMBAG will reduce GHG emissions and VMT in 2035, compared to 2005. The metrics indicate that AMBAG will reduce GHG emissions primarily through increases in transit ridership, which parallels household growth. Not including these transit changes, the other 2022 SCS performance indicators for 2035 do not show many significant changes between 2015 and 2035 and in some cases move in a direction inconsistent with GHG reduction.

The SCS submittal included modeled data that shows transit ridership increasing by about 9% from 2015 to 2035, while transit as a mode of travel stays stagnant at around 1% of all trips happening in both 2015 and 2035. This suggests that transit service is expanding commensurate with increases in the region's households to maintain a similar share of travel, by better serving existing homes and workplaces and/or because some amount of new population, jobs, and housing growth would occur in existing and/or expanded transit areas. Travel time by transit in 2035 is also improving by about 5% for trip lengths that otherwise stay about the same. This is consistent with the plan's strategies for growth in high-quality transit corridors and transit system enhancements that include new bus rapid transit and express bus routes.

Bicycle and walking mode share remain relatively unchanged between 2015 and 2035, accounting for almost 13% of trips in both years. Maintaining this level of walk and bike mode share as the region grows is consistent with the plan's active transportation strategy.

Other modeled results show performance metrics going in the wrong direction or registering very minimal change to influence achievement of the 2035 GHG target. CARB staff are concerned about the modeled results showing driving trip lengths, driving times, and VMT per capita increasing by 2035 and further increasing by 2045 when compared to 2015 levels. Although VMT per capita is increasing, GHG emissions per capita is reported to be about the same in 2015 as in 2035. One possible reason for this discrepancy is that the modeled results only explain a portion

of the total per capita GHG emission reductions claimed, with strategies quantified off-model providing additional emission reductions. These additional off-model strategies include increases in teleworking, expanded transportation demand management programs (specifically agricultural worker vanpools), and increases in electric vehicle infrastructure. These strategies play a key role in achieving the plan's emissions reductions. Had the teleworking and transportation demand management strategies been evaluated using the model, then the performance metrics calculated using the model may have been more supportive of GHG emission reductions. Also, VMT per capita and GHG per capita in 2015 is already lower than 2005 VMT and GHG per capita in the AMBAG region. With the increases in transit and the off-model strategies, the 2022 SCS achieves the 2035 GHG reduction target even though most performance metrics are registering very little change between 2015 and 2035. Nevertheless, AMBAG should closely monitor the SCS strategies, especially the off-model strategies, to better track progress and ensure that the 2035 emissions reduction target is in fact met.

II. Plan Adjustment Analysis

Under the SCS evaluation process, an MPO should demonstrate what measures are being taken, as necessary, to correct course to meet an MPO's target if the region is not achieving the reductions anticipated through the prior SCS.

A. Findings

The travel disruption of the pandemic makes it difficult to assess the region's progress on transit ridership since the 2018 SCS. Housing type and auto ownership data for the AMBAG region were insufficient for understanding the region's progress since the 2018 SCS. Although CARB staff cannot assess the progress made since the 2018 SCS, plan adjustments are still needed because the region's 2035 GHG emissions reduction target has increased from a 5% reduction in the 2018 SCS to 6% in the 2022 SCS.

CARB staff found that the 2022 SCS shows evidence of changes and adjustments in the latest plan that are intended to help support the region's active transportation, transit ridership increase, and transportation demand management programs. In summary:

- The budget for transit/rail increased 37% to almost $5 billion from $3.6 billion between the 2022 and 2018 SCSs respectively.
- The bicycle and pedestrian improvements budgets increased 62% to $1.2 billion dollars from $756 million in the last SCS.

- Investment in transportation demand management has increased 216%, from $49 million in the 2018 SCS to almost $157 million in the SCS, making up 1% of total planned expenditures.

These actions suggest that the region is adjusting its transportation-related strategies and actively seeking new funding and strategies to increase the viability and use of transit in the region, to support active transportation, and transportation demand management programs.

III. Policy Analysis

Under the SCS evaluation process, CARB staff analyze whether SCS strategies for meeting the GHG emission reduction targets are supported by key policy, investment, and other commitments to advance their implementation. CARB staff's analysis is organized across four broad SCS strategy categories: (1) land use and housing, (2) transportation infrastructure and network, (3) local/regional pricing, and (4) electric vehicles and new mobility. In general, across all categories, CARB staff looked for:

- Whether the SCS provided policy actions that corresponded to each of its individual strategies.
- Whether the actions were clear with respect to scope, who will be involved, what will be done, and the anticipated implementation timeline.
- Whether the actions were measurable and included specific regional investment commitments in the RTP/SCS project list, policy and/or financial incentives; technical assistance; and if legislative or other entity action is needed, partnership activities to advance needed changes.

A. Findings

Overall, CARB staff's analysis found that AMBAG's 2022 SCS includes a set of strategies designed to achieve the GHG emission reduction targets and evidence of policy commitments for most of the strategies. However, CARB staff does have concerns about the implementation of some strategies, as noted below. The following sections summarize these strategies and CARB staff's findings regarding the presence of actions to advance implementation, which are organized under the four broad SCS strategy categories, as applicable.

1. Land Use and Housing Strategy Commitments

AMBAG's 2022 SCS includes three land use and housing strategies. These are encouraging new growth in existing communities and near commercial corridors, improving jobs-housing balance especially in communities that lack employment opportunities, and supporting growth in high-quality transit corridors. These are on-

model strategies that each contribute an unknown amount to the total 3.5% GHG per capita reductions coming from the model.[1] These land use strategies, together with the on-model transportation strategies discussed in the next section, account for just over half of AMBAG's total GHG per capita reduction of 6.29% from 2005 to 2035.

a) SCS Planned Outcomes

The SCS includes assumptions about the type and character of new land use and housing development that will take place in the region between 2015 and 2035. Specifically, the plan assumes the following outcomes, which is a subset of the information that can be found in Appendix C: Data Table:

- The addition of 33,692 new housing units and 48,510 new jobs.
- A 13% increase in the region's residential density. This is an increase from 2.5 housing units per acre in 2015 to 2.8 housing units per acre in 2035.
- Around 32% of population growth by 2045 in Monterey County's Opportunity Areas,[2] 22% in San Benito County, and 7% in Santa Cruz County. Figure 1, Figure 2, and Figure 3 below show the Opportunity Areas as copied from AMBAG's 2022 SCS Appendix I.
- A near doubling of the population and jobs within a half-mile of high-quality transit between 2015 and 2045. This increase is attributed to some amount of new growth assumed in existing and future high-quality transit areas and some amount of the existing homes and jobs being served by future high-quality transit. Figure 4 below shows the Transit Priority Areas for 2045.

[1] AMBAG estimates VMT changes from its land use strategies along with transportation strategies and network changes in aggregate, using its travel model. AMBAG uses these estimates to calculate the change in per capita GHG emissions. Therefore, the percent reflected here represents AMBAG's estimated reductions when implementing its land use and transportation strategies together, which often have synergistic effects when designed to support each other. CARB staff are unable to isolate the emission reductions associated with AMBAG's land use strategies only.

[2] AMBAG's 2022 ***SCS Appendix I*** defines Opportunity Areas as, "…places in the region with the highest chance for successful sustainable growth in the future; they are generally located where Transit Priority Areas (TPAs) and Economic Development Areas (EDAs) within the AMBAG region overlap. This analysis defines a Transit Priority Area as a location that has both supportive land use densities and high-quality transit service/connections. Economic Development Areas are locations that support future land use development opportunities, support a major employment center, and/or are areas with populations that would benefit from new economic opportunities. AMBAG worked with local jurisdictions to update the Opportunity Areas in the region for the 2045 MTP/SCS."

Figure 1. Santa Cruz County Opportunity Areas

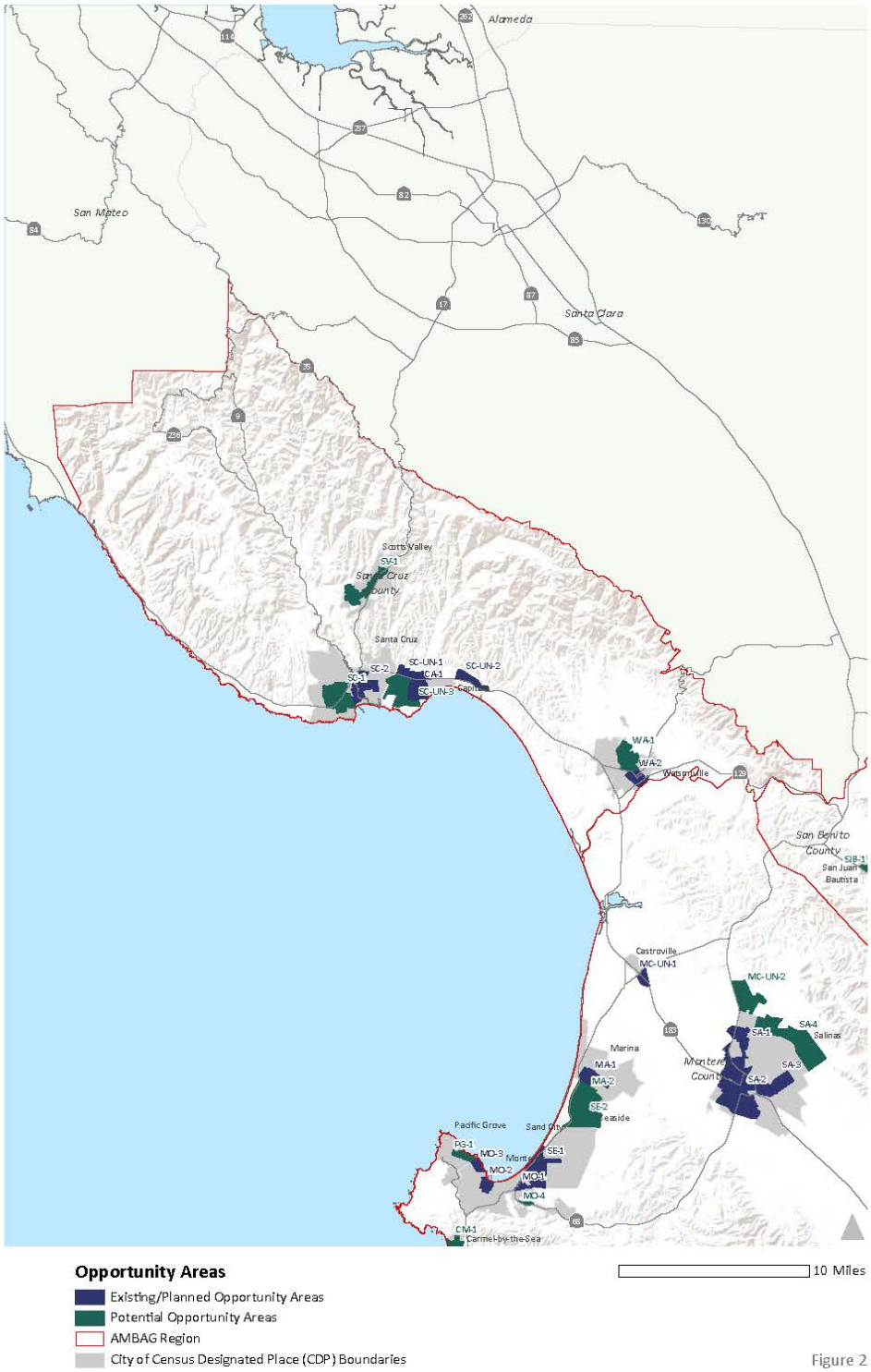

Figure 2

Figure 2. San Benito County Opportunity Areas

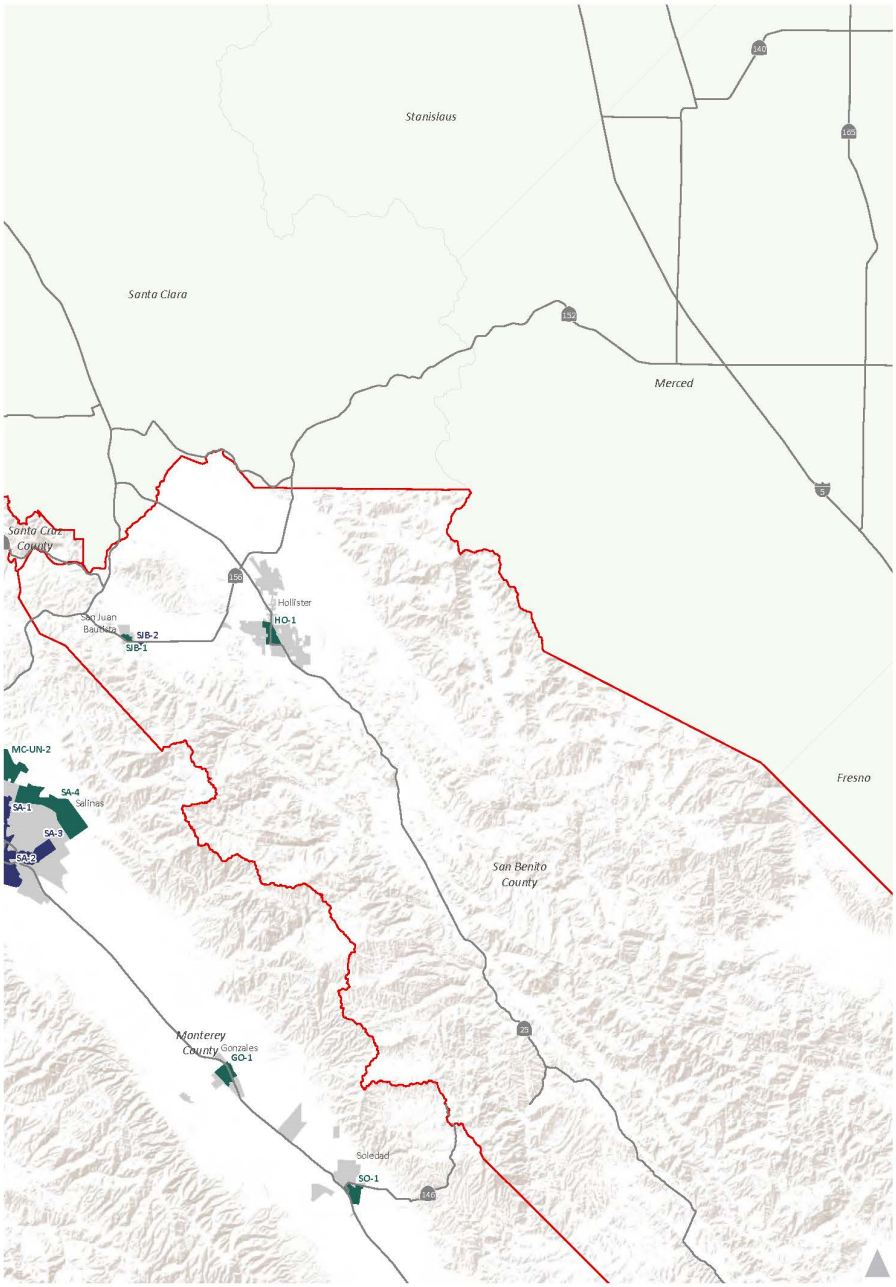

Figure 3. Monterey County Opportunity Areas

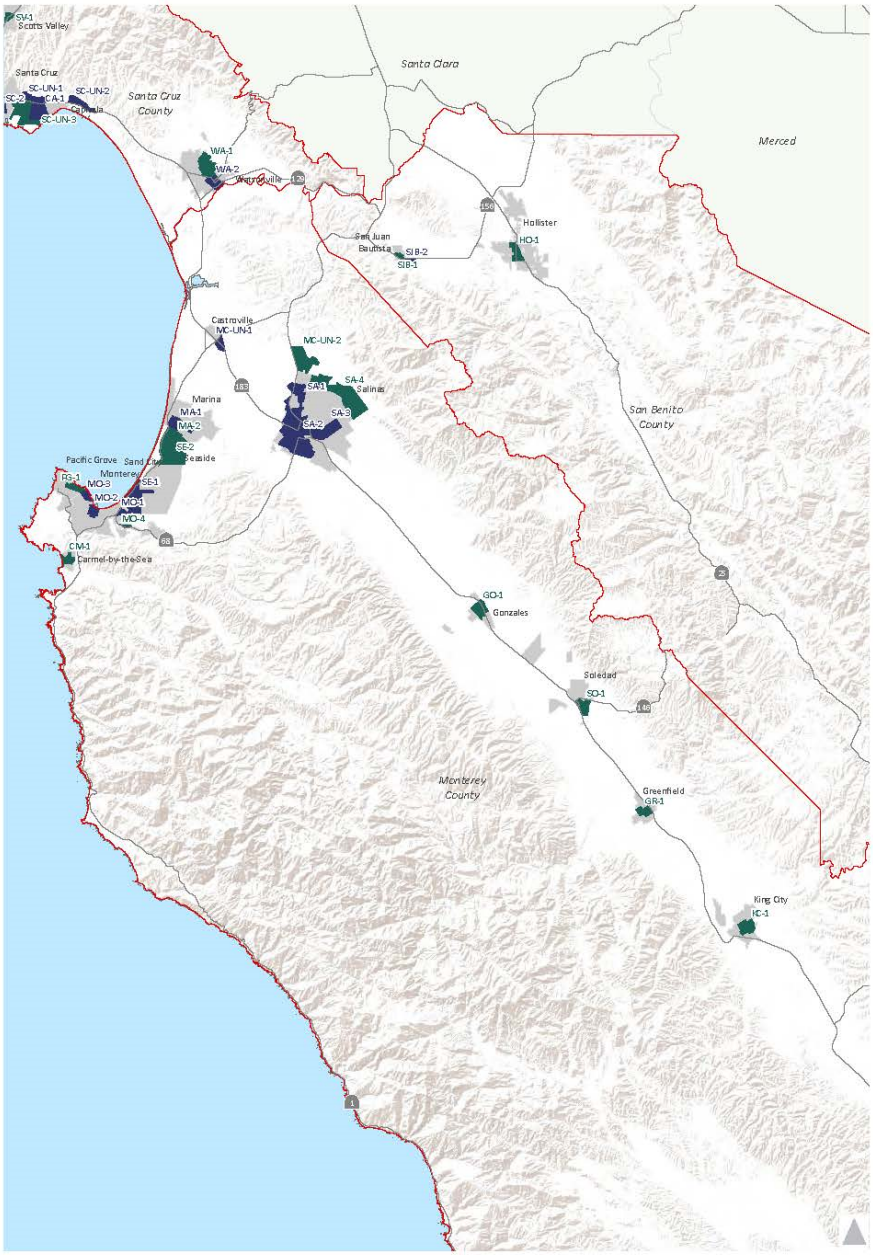

Figure 4

Figure 4. AMBAG Region 2045 Transit Priority Areas

b) Findings

CARB staff's analysis supports a conclusion that AMBAG's 2022 SCS would meet the target, if implemented. CARB staff are concerned that the SCS land use and housing strategies will not be fully implemented and realize the anticipated emissions

reductions because the SCS does not include commitments from those responsible for implementing the strategies and actions to support all the plan's assumptions.

CARB staff found the 2022 SCS land use and housing planned outcomes are not all completely supported by specific funding and planning program actions. The 2022 SCS contains established programs and commitments that partially support the land use and housing strategies. However, many of the actions outlined in the plan do not identify specific funding or timelines.

The most robust land use strategy in the 2022 SCS seems to be supporting growth in high-quality transit areas. AMBAG includes funding for transit and actions that say they will prioritize transportation investments along high-quality transit corridors. The 2022 SCS shows evidence of increased growth forecasted in these areas to complement the improved transit, though it is unclear how much housing growth is expected in these areas by 2035.

The plan does include several actions for how AMBAG will support local agencies to encourage new growth in existing communities. These actions include supporting policy and fee changes, providing education and technical assistance, information sharing, grant assistance, legislative support, and prioritizing projects consistent with the SCS. Notably, AMBAG has supported increased infill housing in the last few years with an influx of funds from the 2019 Regional Early Action Planning Grant funds. However, AMBAG has no authority over land use decisions, and the SCS lacks information on funding for the actions identified and implementation commitments from local agencies. CARB staff are also concerned that AMBAG did not clearly document how this strategy was employed in the model for 2035.

CARB staff identified one action supporting the jobs-housing balance strategy, but it lacks detail on funding, timing, and how AMBAG will support this.

2. Transportation Infrastructure and Network Strategy Commitments

AMBAG included six transportation strategies in the 2022 SCS. Four of the strategies (active transportation, transit system enhancement, transportation system management, and focus on maintenance and rehabilitation of the existing transportation system, with an emphasis on active transportation, public transit and safety) are on-model strategies that each contribute an unknown amount to the total 3.5% GHG per capita reductions coming from the model.[3]

[3] AMBAG estimates VMT changes from its land use strategies along with transportation strategies and network changes in aggregate, using its travel model. AMBAG uses these estimates to calculate the change in per capita GHG emissions. This represents AMBAG's estimated reductions when implementing its land use and transportation strategies together. CARB staff are unable to isolate the emission reductions associated with AMBAG's land use strategies only.

The other two transportation strategies are measured off-model and include increased working from home and transportation demand management (specifically agricultural worker vanpools). The strategy to increase work-from-home workers in the region is estimated to contribute 1.81% of AMBAG's total GHG per capita reduction. The agricultural vanpool program strategy is expected to result in a total of 0.88% of AMBAG's total GHG per capita reduction in 2035.

a) SCS Planned Outcomes

These strategies translate into assumptions about changes to the transportation infrastructure and network that will serve the region between 2015 and 2035.This data is reported to CARB as part of the SCS submittal. Figure 5, Figure 6, and Figure 7 show the 2045 regional transportation network identified by AMBAG and copied from the 2022 SCS. Specifically, the plan assumes the following outcomes:

- A 2% (99 miles) increase in the region's total lane miles, including the addition of 9 highway general purpose lane miles, 57 arterial/expressway lane miles, and 33 collector lane miles by 2035.[4]
- An 11% (almost 66,000 miles) increase in transit operational miles compared to 2015.
- A 21% (94 miles) increase in bike and pedestrian lane miles compared to 2015.
- An increase in the number of work-from-home workers with 6.7% of all 2035 workers (i.e., 20% of eligible workers) assumed to be working from home one day a week.
- An increase in the number of agricultural vanpool vans with 318 vans carrying 12 passengers each and reducing VMT by 139,920 miles per day.

[4] MPOs report these roadway categories based on the general functions in the SCS submittal data table. However, for the induced travel analysis discussed later in this report, only a subset of roadway categories is applicable based on federal functional classifications (i.e., Class 1 - interstate, Class 2 - other freeway or expressway, and Class 3 - principal arterial/major arterial), and only 46 miles of the regional total lane miles listed here (99) are used in that analysis.

Figure 5. Regional Highway Network

Source: AMBAG, 2022 RTP/SCS

Figure 6. Regional Transit Network

Source: AMBAG, 2022 RTP/SCS

Figure 7. Regional Bicycle Network

Source: AMBAG, 2022 RTP/SCS

b) Findings

CARB staff found that the 2022 SCS transportation planned outcomes are supported through direct investments in the project list adopted with the 2022 SCS. Specifically,

the 2022 SCS includes several positive project commitments that align with AMBAG's strategies to increase active transportation and improve the transit system. For example, supporting the four on-model transportation strategies, the plan includes significant expansion to the transit network including new express bus and bus rapid transit as well as significant plans and investments to improve and expand active transportation options.

CARB staff also found that the off-model adjustments for transportation demand management and the assumptions about the total amount of workers working from home are reasonable. AMBAG's transportation demand management strategy is based on current plans to expand the agricultural worker vanpool program as well as an increase in overall plan spending for transportation demand management. For the work-from-home strategy, AMBAG assumes that for eligible employment sectors, 20% of eligible employees would work from home one day per week. This means that 6.7% of a total of 2035 employees are assumed to be working from home. Based on the observed data from the American Community Survey, about 11% of the total employees in the region worked from home in 2021.

CARB notes the SCS does not include commitments from those responsible for implementing the work-from-home strategy, and the MPO does not have such authority. AMBAG should provide evidence about the level of participation and the region's actions to support this strategy in the next SCS. Additionally, some research has begun to raise questions, as it highlights the potential for VMT to increase and offset the reductions even with continued telework from this strategy due to other trips made by work-from-home workers.[5] As such, CARB staff would like to see strong actions from the region and its employers as well as ongoing monitoring of telework participation in the region.

The 2022 SCS includes projects that expand roadway capacity. These include expansions of US 101, State Route 25, and State Route 156 as well as new or expanded collector and arterial roads. AMBAG stated these are included to address safety concerns and freight movement in the region. Capacity expansion projects increase VMT and work against achieving the State's climate and air quality goals.[6] As part of its SCS submittal, AMBAG concludes that its model is sensitive to the effects on VMT and land use due to the roadway capacity expansion projects within the SCS and that there are no significant impacts to VMT from these projects. However, AMBAG did not provide any quantitative analysis of long-term induced travel and associated VMT and GHG estimates. AMBAG's documentation concludes that although the regional travel demand model does not specifically evaluate induced travel from the perspective of longer trips, mode choice, route changes, or newly

[5] O'Brien, W., & Aliabadi, F. Y. (2020). Does telecommuting save energy? A critical review of quantitative studies and their research methods. Energy and Buildings, 225, 110298.

[6] CARB. *Highway Capacity and Induced Travel Brief.* (September 2014).

generated induced trips, at the regional level, these effects would be minor compared to overall travel growth.

However, CARB staff analyzed the induced travel effects for the 46 miles of additional class 2 and 3 roadways planned in the region using a hybrid approach similar to other MPOs. This has resulted in an additional VMT of approximately 135,000 miles (0.74%)[7,8] to AMBAG's 2035 VMT. In other words, this would increase the per capita VMT from 21.7 to 21.86 miles/day/person. Most of this is in San Benito County on State Route 25 and State Route 156. CARB staff found that AMBAG is still likely to achieve its 2035 GHG reduction target even under this analysis of induced travel effects, however, by a small margin.

As a result, CARB staff are concerned about the roadway expansion projects in the region and their long-term impacts on land use and VMT. Given that the proposed four-lane expressways on State Route 25 and State Route 156 in San Benito County are the largest of the state highway capacity projects proposed in the region, AMBAG should proactively work with Caltrans and the San Benito Council of Governments to analyze the proposed projects appropriately for long-term induced travel effects at the project level and ensure those impacts are appropriately mitigated in the next SCS.

AMBAG will also need to be vigilant about monitoring, implementation, and deployment of transit and active transportation projects as well as efforts to support transportation demand management and telework through 2035 to ensure planned reductions and SB 375 goals are achieved. Delays or removals of transit and active transportation projects could prevent AMBAG from meeting its regional targets. AMBAG should work with its members to prioritize funding for transportation projects that align with the region's adopted SCS land use strategies and help to reduce VMT. For example, AMBAG might develop project prioritization criteria as well as a regional implementation monitoring system. It should also work with local agencies and key regional employers to monitor and support implementation of the transportation demand management and work-from-home strategies.

3. Local and Regional Pricing Strategy Commitments

AMBAG did not include any pricing strategies in the 2022 SCS.

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[7] Volker, Jamey, and Susan L. Handy. Updating the Induced Travel Calculator. No. NCST-UCD-RR-22-34. National Center for Sustainable Transportation (NCST)(UTC), 2022, *https://escholarship.org/uc/item/1hh9b9mf*.

[8] Duranton and Turner (2011) and Cervero and Hansen (2002) contributed to this estimate. For state highways and other major roads besides interstates, Duranton and Turner's elasticity estimates range between 0.66 and 0.90 using ordinary least squares regression. Similarly, Cervero and Hansen estimated a VMT elasticity of 0.79 for lane mile additions to class 1-3 roadways in California.

4. Electric Vehicles and New Mobility Strategy Commitments

AMBAG included one strategy related to electric vehicles (EV) and new mobility services, which is to support public charging infrastructure for EVs. This strategy seeks to support EVs in the region by providing infrastructure to help drivers switch to using electric miles. This strategy is estimated off-model to result in a total of 0.11% reduction in per capita GHG emissions in 2035.

a) SCS Planned Outcomes

This strategy translates into assumptions about the availability of EV-supportive infrastructure that will serve the region between 2015 and 2035. Specifically, Appendix F of the 2022 SCS reports the following outcome:

- 961 new EV chargers by 2035 for a total of daily 34,980 miles shifted to electric VMT (eVMT) regionwide in the AMBAG region.

b) Findings

CARB staff found that AMBAG's 2022 SCS EV assumptions are supported by new actions identified in this plan update. These actions include coordinating with the Central Coast Community Energy (CCCE) and Monterey Bay Air Resources District (MBARD) to provide programs that install charging stations for workplaces and multi-unit housing communities and monitoring the region's EV efforts, including the number of charging stations, greenhouse gas reductions, energy use, air quality and pollution impacts, and. CARB staff also found that the number of chargers assumed in the off-model calculations is reasonable based on previous performance from the CCCE and MBARD incentive programs. Although specific future funding projections are not available, both CCCE and MBARD are committed to continuing these programs and supporting EV implementation in the region. One guaranteed source of funding for MBARD's EV programs is a result of Assembly Bill 2766. This law allows MBARD to allocate $4.00 per vehicle registration surcharge towards grant projects that reduce motor vehicle emissions. However, it is important to note that these funds are available for a wide range of emissions-reducing activities, and it is not known how much is expected to support the EV incentive specific programs assumed in AMBAG's SCS.

While CARB staff's analysis supports a conclusion that AMBAG's 2022 SCS would meet the target, when implemented, it is important that AMBAG track EV charger installations to show that the EV strategy is being implemented at the assumed levels and availability in the 2022 SCS.

Looking across all four policy analysis categories, CARB staff found that the 2022 SCS will achieve its GHG reduction target, if implemented but have concerns that the jobs-housing balance, growth in existing communities, and telecommuting/work-from-home strategies lack evidence of funding or other commitments from other agencies where it is needed. CARB staff also have concerns about the planned road expansion

projects, including the fact that the 2022 SCS did not analyze induced travel effects of those projects.

IV. Investment Analysis

CARB staff evaluated whether the planned investments in the project list adopted with the 2022 SCS support the expected GHG emission reductions by 2035. CARB staff also qualitatively assessed the risk of delay to delivering projects that advance SCS goals based on assumed available revenue sources. CARB's analysis of the 2022 SCS planned investments is shown below in Figure 8, Figure 9, and Figure 10. Figure 8 shows the total investment by mode in the 2022 SCS compared to the 2018 SCS. Figure 9 shows investment by mode as a percentage of total plan investment for both the 2022 SCS and the 2018 SCS. Figure 10 shows the total investment by mode for the 2022 SCS for the time period before 2035 (2022 to 2035) and after 2035 (2035 to 2045).

Figure 8. Investments by Mode in AMBAG's 2022 SCS Compared to the 2018 SCS (dollars)

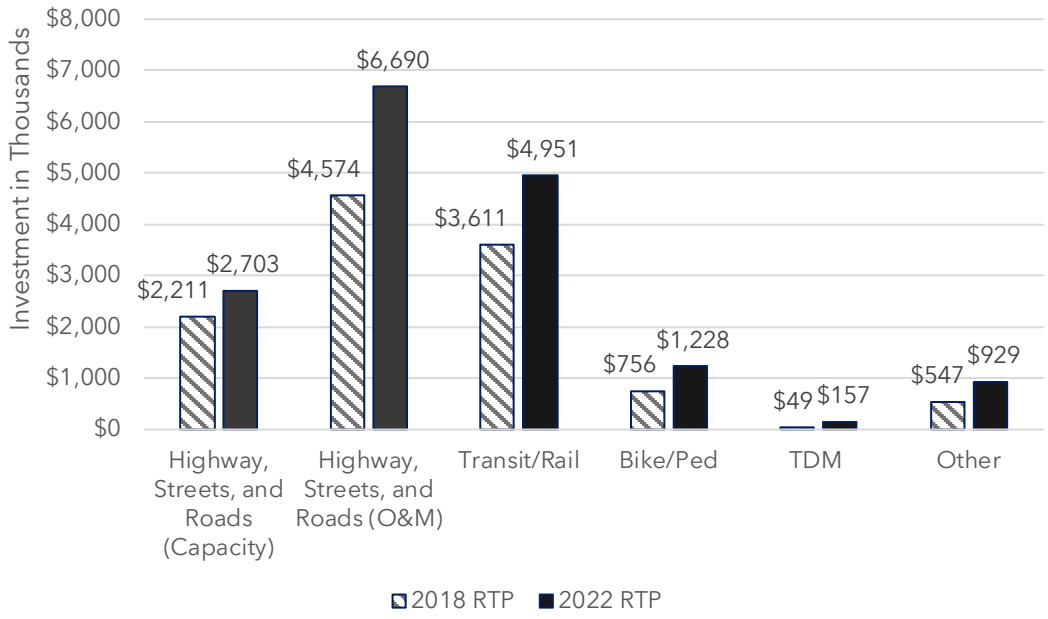

Figure 9. Investment by Mode in AMBAG's 2022 SCS Compared to the 2018 SCS (Percent of Total Investment)

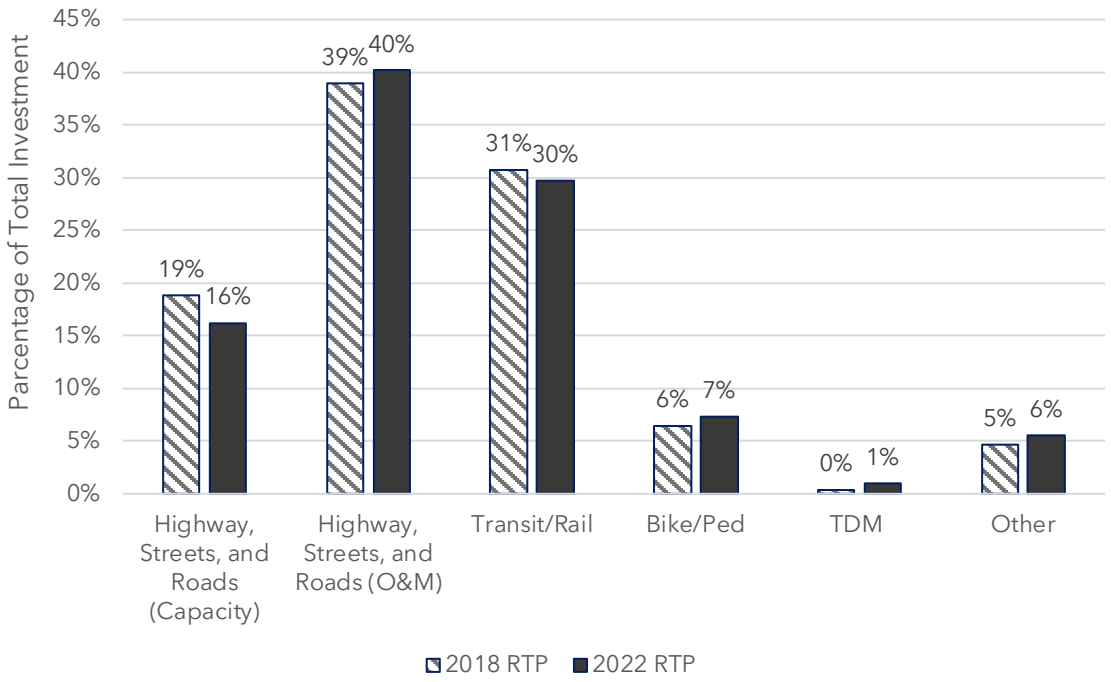

Figure 10. AMBAG 2022 SCS Investment Breakdown by Expenditure Category and Fiscal Year

Expenditure Category	Years 2022-2035	Years 2022-2035 (%)	Years 2036-2045	Years 2036-2045 (%)	Total 2022-2045
Highway, Local Streets, and Roads	$3,972,492,000	62%	$3,662,641,000	52%	$7,635,133,000
Transit	$1,358,130,000	21%	$2,665,840,000	38%	$4,023,970,000
Active Transportation	$636,126,000	10%	$347,681,000	5%	$998,515,000
Transportation Demand Management	$81,109,000	1%	$46,130,000	1%	$127,238,000

Transportation System Management	$92,868,000	1%	$16,384,000	0.2%	$109,252,000
Other	$282,000,000	4%	$363,624,000	5%	$645,626,000
Total	*$6,422,727,000*	*100%*	*$7,102,300,000*	*100%*	*$13,539,734,000*

Note: All expenditures are in today's dollars. Source: AMBAG SCS Submittal

A. Findings

Based on CARB staff's review of AMBAG's project list, CARB staff found that the 2022 SCS includes funding that would advance implementation of the SCS by 2035. CARB staff compared the planned investments by mode between the 2018 and 2022 SCS and found that planned investments are increasing for all modes given that the overall revenue estimated for the 2022 SCS is higher than the 2018 SCS (as shown in Figure 8). In the 2022 SCS, total planned expenditures (in future year dollars) are almost $16.7 billion, compared to about $11.7 billion in total planned expenditures in the 2018 SCS. CARB staff compared investment by mode both as a percentage of the total revenues assumed (Figure 9) and in actual dollar amounts (Figure 8).

As a percentage of total expenditures, the investment in highway, streets, and roads capacity projects is 16% in the 2022 SCS, down from 19% of total expenditures in the 2018 SCS. However, it should be noted that although the share of funding has decreased, the total investment in capacity projects is increasing since the total revenues assumed is greater in this plan. The total investment in highway, streets, and roads capacity projects has increased from about $2.2 billion in the 2018 SCS to about $2.7 billion in the 2022 SCS. Maintenance for highway, streets, and roads (including some complete streets projects) is 40% of the overall planned expenditures, compared to 39% in the 2018 SCS. But because of the increase in overall assumed revenue, it increases to almost $6.7 billion from $4.6 billion in the 2018 SCS.

The budget for transit/rail increased 37% to almost $5 billion from $3.6 billion between the 2022 and 2018 SCSs, respectively. While the portion of the investment dedicated to transit went down slightly from 31% of total investment in the 2018 SCS to 30% in the 2022 SCS, the transit category had the second-highest increase in actual dollars. The slightly lower percentage is largely due to the increase in road maintenance spending, which is also important to support the transit and active transportation investments.

The budgets for bicycle and pedestrian improvements increased 62% to $1.2 billion dollars from $756 million in the last SCS. Lastly, investment in transportation demand

management has increased 216%, from $49 million in the 2018 SCS to almost $157 million in the 2022 SCS, making up 1% of total planned expenditures. The increases in planned investments for transit, bike and pedestrian improvements, and transportation demand management are aligned with AMBAG's assumptions around increased transit ridership and forecasted declines in VMT and GHG emissions.

CARB staff also looked at the distribution of planned investments by mode across the 2022 to 2035 period, as well as assumed available revenue sources to fund the planned investments. CARB found that the plan's investments for transit, bike and pedestrian improvements that will support the 2035 target are planned for an appropriate timeline to achieve the planned outcomes for these strategies, with upwards of 50% of investments planned to occur in the 2022-2035 period (as shown in Figure 10). A higher percentage of these investments is in Santa Cruz County and Monterey County, which is consistent with the growth forecast for 2035. CARB staff did not identify any significant concerns with risk of delay to these projects based on the plan's assumed revenue sources.

Overall, CARB staff found that the 2022 RTP/SCS project investments support the 2022 SCS transportation strategies and achievement of the SCS's estimated GHG reduction benefits, if implemented.

CARB's Determination and Recommendations

Accept (with concerns regarding implementation and quantification methods)

Based on the policy evaluation of the 2022 SCS, CARB staff concludes that the plan includes some near-term supportive policy actions and active transportation, transit, and other SCS-supportive project investments that, if fully implemented, will lead the Monterey Bay Area region to achieve its 2035 GHG reduction target.

CARB staff, however, has concerns about whether key strategies in the 2022 SCS will be fully implemented as described and realize the anticipated emission reductions because the SCS does not include commitments from those responsible for implementing key strategies and lacked sufficient information to analyze the region's performance over time, especially for the jobs-housing balance, growth in existing communities, and telecommuting/work-from-home strategies. These strategies will require additional partnership and funding commitments from locals and/or businesses to be implemented. Also, there is no clear action to monitor implementation progress for these strategies in the SCS.

AMBAG also did not analyze induced travel. Although CARB staff's estimates show that even with induced travel, the region could meet the 2035 target, this does not nullify the need for AMBAG to analyze the effects of induced travel in the next SCS.

To support successful implementation of the SCS and achievement of SB 375's goals, and to continue fully supporting the GHG benefits claimed in the 2022 SCS, AMBAG and its local members will need to undertake additional actions to deliver and monitor its SCS strategies, as well as adjust its strategies for any emission reductions that need to be replaced or mitigated. To address these concerns, CARB staff has the following recommendations and requests AMBAG set up regular monitoring of the implementation actions associated with its SCS strategies in consultation with CARB and other relevant agencies.

Recommendations

I. Identify Further Actions to Support Implementation of the Land Use and Housing Strategies

AMBAG's SCS provides important growth assumptions regarding jobs/housing balance, infill development, and growth around transit linked to its identified opportunity areas in the SCS. These land use and housing SCS strategies require strong local jurisdiction support for implementation. CARB recommends that AMBAG consider additional actions to support implementation of these strategies by its local member agencies. This could include encouraging and securing commitments from

local agencies to support SCS implementation through their land use decisions as well as highlighting local programs that support SCS implementation. For example, the next SCS presents an opportunity to highlight and incorporate local jurisdictions' commitment to SCS implementation through the Regional Early Action Planning Program and recent updates to local housing elements. AMBAG's SCS includes an action to continue working with local jurisdictions on long-range land use planning and refining the land use typologies for the region. As part of this effort, CARB encourages AMBAG to also consider monitoring and analyzing regionally significant land use and housing projects. This will support SCS implementation as well as make it easier track progress on the land use strategies and provide more supporting data on the development forecast, both of which will be important in AMBAG's next SCS submittal.

Additionally, AMBAG could develop and facilitate partnerships between local jurisdictions, employers, and affordable housing developers to encourage new development consistent with the 2022 SCS and could consider pursuing itself or promoting to local agencies additional funding sources for infill development such as Infill Infrastructure Grant Program (IIG)[9] and Permanent Local Housing Allocation (SB 2's PLHA).[10] Additionally, supporting local agencies to seek the Prohousing[11] designation will help their competitiveness in these programs and others. As part of actions already highlighted by AMBAG to support development in existing communities and jobs-housing balance through partnerships, research, and technical assistance, AMBAG could consider highlighting examples from local agencies, such as the commercial linkage fee used by the City of San José to tie increases in employment directly to the creation of workforce housing.[12]

CARB encourages the region to take further steps to strengthen the land use and housing strategies within the SCS. One of AMBAG's supporting land use actions in the SCS is to work with local agencies to strengthen the regional growth pattern. CARB staff strongly support this work and recommend AMBAG use that opportunity to further explore where this additional development is projected, by when, and if there are other strategies such as phasing development or greater infill opportunities that can minimize the GHG impact. Additionally, AMBAG could consider whether

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[9] For more information about IIG visit: *https://www.hcd.ca.gov/grants-and-funding/programs-active/infill-infrastructure-grant*

[10] For more information about SB 2 Planning Grants visit: *https://www.hcd.ca.gov/grants-and-funding/programs-active/sb-2-planning-grants*

[11] For more information about Prohousing visit: *https://www.hcd.ca.gov/planning-and-community-development/prohousing-designation-program*

[12] San José's Commercial Linkage Fee is an impact fee levied on commercial development to help fund affordable housing. For further information, see the San José website here: *https://www.sanjoseca.gov/your-government/departments-offices/housing/developers/commercial-linkage-fee*.

there are existing policies or practices that support agricultural or natural resources lands that could also support infill development.

AMBAG's land use and housing strategies are somewhat supported in the 2022 SCS. To maintain similar assumptions and strategies in the next SCS, CARB staff will look for documented evidence in the next SCS submittal that shows how the plan supports these strategies and demonstrates adequate progress is being made to help implement these strategies.

II. Update Estimates of GHG Benefits from the Telecommute/Work-From-Home Strategy

The 2022 SCS includes assumptions about the GHG benefits that may come from increased telecommute / work-from-home participation in the region. In the next SCS, CARB staff expect to see additional documentation, including assumptions, research, and/or any other information that supports relevant assumptions associated with estimating the impacts of telework as part of the SB 375 GHG emissions quantification. CARB staff continue to monitor ongoing research on the effects of telework and anticipate updating our SCS Evaluation Guidelines on this topic. Some research has begun to raise questions, as it highlights the potential for VMT to increase and offset the reductions even with continued telework due to an increase in non-commute trips made by telecommuting workers. As such, CARB staff will look for more information about how the rebound effect is accounted for in the next SCS.

As part of the technical methodology prepared for the next SCS, please identify data sources, assumptions, variables, and other relevant factors considered for CARB staff to review. Please include documentation verifying that the rebound effect is accounted for. CARB staff will not be able to evaluate and/or accept an SCS GHG quantification without this information.

AMBAG also needs to consider how it will support any assumptions about the future level of VMT reduction from the telecommute strategy with additional funding for education and outreach. This could include things such as developing a strategic implementation plan and/or a regional TDM ordinance that requires employers to implement, monitor, and report on telecommuting within the region.

III. Update Estimates of GHG Benefits from Electric Vehicle Strategies

CARB recently adopted the Advanced Clean Cars II Regulations, which require all new passenger cars, light-duty trucks, and SUVs sold in California to be zero emissions from 2035. SB 375 law excludes counting of emissions reductions from State programs that improve vehicle emissions standards, changes in fuel composition, and other State measures that reduce GHG emissions toward

demonstration of regional target achievement. As AMBAG prepares its next SCS, please work with CARB staff to appropriately account for any emission reductions associated with its electric vehicle strategies in the region. In the SB 375 program, it is important to appropriately identify GHG credits for zero-emission vehicle (ZEV) provisions that are above and beyond State and federal regulations and incentives to account for improved ZEV and PHEV technology and updated projections in ZEV incremental costs above conventional vehicles and to avoid double-counting between credits provided for infrastructure and vehicle incentives.

As part of the technical methodology prepared for the 4th cycle SCS, please fully reflect the policy, technological, and ZEV market changes that have occurred since the prior SCSs were adopted in the quantification of electric vehicle strategies. For example, methodologies need to account for the ZEV regulation requirement of increasing sales up to 100% in 2035; other incentive credits, including the Federal Inflation Reduction Act (IRA) tax incentives for ZEV up to $7,500; and market observations, including CARB technology assessments in ACCII showing Battery Electric Vehicle (BEV) cost declines (staff ISOR Appendix G) and cost parity for some vehicle types beginning in 2031. As such, among other factors, please consider the following in updating the off-model ZEV quantification methods:

- Existing or currently planned incentives such as the federal IRA tax incentives, California's Clean Vehicle Rebate Project, and the California Clean Fuel Reward.
- Number of ZEVs and PHEVs required under state and federal regulations, also considering that under ACCII, for model years 2026–2035, PHEVs can only account for 20% of a manufacturer's ZEV requirement.
- The cost differential between ZEV and non-ZEV and impending cost parity in 2031.
- PHEVs must have an all-electric range of at least 50 miles under real-world driving conditions.

If this strategy is carried over for inclusion in the next SCS, this information must be provided as part of the technical methodology prepared for the next SCS for CARB to make its determination. If AMBAG needs technical assistance with the EV strategies, please get in touch with CARB staff.

IV. Improve Estimate of Long-Term Induced Travel Impacts

CARB staff is concerned that the region's RTP/SCS continues to include road expansion projects, which can lead to long-term induced travel in the region and that AMBAG did not provide quantitative results from its induced travel analysis. In the next SCS, CARB staff expect to see a more robust quantitative analysis of induced travel as part of the SB 375 GHG emissions quantification.

As part of the technical methodology for the 4th cycle SCS, please work with CARB staff to develop an approach and the steps to quantify induced VMT, how the proposed method will be validated, and how the induced VMT will be factored into the ultimate GHG quantification. Please plan to quantify the full impact on GHG emissions from induced travel for capacity-increasing projects that are roadway classes 1, 2, and 3 that are assumed to be built by 2035. Please also plan to provide a comprehensive mapping and tabulated list of all these projects by functional classification with the number of lanes added, specifying lane types such as general purpose, HOV, HOT/Express, tolled, and auxiliary lanes. This information will be needed as part of the RTP/SCS for CARB staff to evaluate the final GHG emission reduction quantification. CARB staff will not be able to evaluate and/or accept an SCS GHG quantification without this information. Please consider also analyzing the full impact of induced travel demand from capacity-increasing projects that are assumed to be built by the horizon year of the next RTP/SCS to ensure GHG emission reductions are not backsliding after the 2035 GHG emission reduction target is achieved.

If AMBAG needs technical assistance with the induced travel analysis and estimating the VMT impacts of roadway expansion projects, please get in touch with CARB staff. Induced travel demand analysis will be required with AMBAG's next SCS submittal for CARB to make its determination.

CARB also recommends that AMBAG engage with Caltrans and the San Benito Council of Governments to fully analyze the transportation and land use impacts on the proposed roadway expansion projects in San Benito County and assist in identifying alternatives or appropriate mitigation measures.

V. Prioritize Funding for Transportation Projects that Advance SCS Implementation and Goals

To support both the region and the State's ability to meet their respective climate and air quality goals, future regional investments need to be well-aligned with the region's adopted SCS land use and housing strategy. One of AMBAG's supporting land use actions in the SCS is to work with local agencies to strengthen the regional growth pattern. It will be important to analyze how proposed transportation projects align with this to allow regional, State, and local partners to identity which projects are well-aligned with the region's adopted SCS land use and housing strategies and could be prioritized over projects that are not well-aligned to help reduce VMT.

VI. Develop and Monitor an SCS Implementation Plan of the Adopted SCS Strategies, Actions, and Transportation Project List

AMBAG will need to be vigilant about implementing the balance of strategies and transportation projects through 2035 to ensure SCS planned GHG reductions are

achieved. Delays or removals of transit and active transportation projects or strategies could prevent AMBAG from meeting its GHG emission reduction target. CARB recommends amendments to the project list be accompanied by recalculation and discussion of whether and how SCS target achievement is maintained. Please inform CARB staff of these amendments.

AMBAG carries over some strategies from its previous 2014 and 2018 SCSs, however, it is unclear how successful implementation of these strategies has been. To help with this, CARB recommends AMBAG develop an implementation plan for its 2022 SCS that identifies the actions, steps, and funding that AMBAG has and is pursuing in partnership with other public agencies, along with non-profit organizations and businesses, to advance SCS implementation. Detailing the steps necessary and the staffing and funding needed to accomplish it, such as in AMBAG's Overall Work Program for example, helps AMBAG and its local and state partners understand the concrete actions and shared commitments needed to implement each SCS strategy.

As part of this work, CARB encourages AMBAG and its member agencies to develop a regional database with metrics and milestones to track, report, and assess implementation of its identified strategies. These points of information are fundamental for CARB to review as part of the next SCS. Per the SCS Evaluation Guidelines, CARB staff will conduct a series of policy analyses of an MPO's SCS to evaluate whether the strategies, key actions, investments from the SCS, and the implementation progress to date support the stated GHG emission reductions and achieve the applicable GHG emission reduction targets.

The SCS Evaluation Guidelines outline how CARB staff will review whether a region is falling behind on implementation and, if so, what measures are being taken to correct course, such as a change to the RTP/SCS strategy and/or the addition of measures to accelerate implementation. Tracking strategy implementation will help inform AMBAG, its member agencies, and the public on what strategies are performing well, what strategies need to be adjusted, or if strategies need to be removed. This will also help inform what types of projects and investments the region could consider making to achieve the SB 375 GHG emission reduction targets. For example, if there are areas where the region is falling behind on implementation of a strategy, describe how the region is making the necessary adjustments in either the quantification of benefits, or policy commitments and investments in the RTP/SCS to maintain current assumptions. CARB staff will not be able to evaluate and/or accept the SCS GHG quantification without this information.

VII. Provide All Trend Analysis Metrics and Development Forecast Data

AMBAG's SCS submittal lacks data on seat utilization which is part of the performance indicators that CARB staff analyzes for the trend analysis. This information is necessary

to demonstrate the growth in public transit ridership and mode shift to transit and active transportation.

Additionally, AMBAG's SCS submittal was missing critical housing information, including housing by type for all years and for key geographies such as infill areas and transit priority areas. This information is critical to CARB's understanding of the proposed land use and housing strategies as well as the VMT and GHG reductions modeled. This information must be provided in AMBAG's next SCS for CARB to make its determination.

VIII. Improve Modeling and Data

CARB staff strongly recommends that AMBAG utilize an activity-based model for the next SCS to facilitate a better representation of on-the-ground conditions and be able to provide a greater level of detailed data that CARB needs to make its determination. For example, the current model significantly underestimates commute travel time, which needs to be validated using the latest observed data. Further, this will improve the capability to analyze the impact of land use policies such as smart growth strategies, transit-oriented development, and bike/pedestrian-friendly developments on travel.

AMBAG is working with SLOCOG and SBCAG to develop a Central Coast activity-based model (CCABM). However, if AMBAG is unable to utilize an activity-based model for the next SCS, it should recalibrate and validate the model to the latest observed data. It will be critical that AMBAG find other data and/or tools to be able to provide the data and analysis that CARB needs to make its determination. This includes but is not limited to housing units by type, infill area boundaries, and induced demand quantification.

As AMBAG works with SLOCOG and SBCAG on the CCABM, CARB staff recommends that AMBAG improve the sensitivity of the model for biking and walking strategies. AMBAG staff will need to conduct the sensitivity analysis for these and all modeled strategies such as from transit and changes in auto operating costs. CARB staff recommends that the model incorporate different auto operating cost values for each year based on fuel efficiency and cost instead of a fixed value. Transportation network companies and autonomous vehicles should also be part of the mode choice model of the CCABM.

IX. Update Auto Operating Cost Assumptions and Values

Auto operating cost (AOC) is crucial in forecasting travel behavior changes and influencing GHG emission reductions in the SCS. CARB staff recommends that AMBAG continue using the methodology in the SCS Evaluation Guidelines for the 4th cycle SCS with updated fuel price, efficiency, and non-fuel cost. Please ensure that alternative fuels are reflected appropriately in the AOC calculation. This information

must be provided as part of the technical methodology prepared for the next SCS for CARB to make its determination. Please provide a complete technical methodology to CARB staff as early as possible to allow time for the necessary review and iteration needed for CARB to conclude that the technical methodology operates accurately before AMBAG starts the public participation process for the 2026 SCS. If AMBAG needs technical assistance with the AOC calculation, please get in touch with CARB staff.

X. Update Calculations and Emissions Factors for Off-Model Strategies

In the next SCS, CARB staff will expect to see updated calculations for off-model strategies to reflect current conditions. In accordance with CARB's SCS evaluation guidelines, MPOs must use the latest EMFAC model with updated emissions factors to estimate GHG emission reductions from off-model strategies. Using the latest EMFAC model improves emissions estimation accuracy by reflecting the latest vehicle fleet mix in the region.

As part of the technical methodology prepared for the next SCS, please clearly list each potential strategy along with the complete off-model quantification steps with identified data sources, assumptions, variables, and other relevant factors for CARB staff to review. In the listing of quantification steps, please include the GHG quantification step and indicate the emission factors from the EMFAC model that will be used when calculating GHG emission reductions from all off-model strategies for the next SCS. CARB staff will not be able to evaluate and/or accept the TM without this information. Please provide a complete technical methodology to CARB staff as early as possible to allow time for the necessary review and iteration needed for CARB to conclude that the technical methodology operates accurately before AMBAG starts the public participation process for the 2026 SCS.

XI. Estimating Impacts of Autonomous Vehicles

In the next SCS, CARB staff expect to see accounting for the potential effects of autonomous vehicles. Autonomous vehicles are currently operating in California and it is reasonable to expect that they will become common in the region during the next RTP/SCS planning period and will have transformative effects on transportation. CARB staff continue to monitor ongoing research on the effects of autonomous vehicles and anticipate updating our SCS Evaluation Guidelines on this topic. Even if accuracy is low, regional transportation plans need to begin to anticipate the effects of autonomous vehicles on the transportation system, VMT, and GHG emissions. In the TM for the next SCS please discuss what assumptions the region will make about autonomous vehicles in the plan and provide any supporting data, evidence, or documentation for any assumptions made for CARB staff to review.

Appendix A: AMBAG's 2022 SCS Strategy Table

This is a summary table based on AMBAG's submittal that compares the key land use and transportation strategies between the 2018 and 2022 SCSs. This table also illustrates how GHG emissions were estimated for each strategy.

Category: 2022 SCS Strategy Name	**New/Carryover Strategy from 2018 SCS**	**Analysis Type**	**Estimated GHG Emission Reduction in 2035**
Land Use & Economic Development: • Job/Housing Balance • Growth in Existing Communities • Growth Near Transit *Transportation:* • Transit System Enhancements • Active Transportation Combined Strategies	All Strategies are Carryover	On-Model	-3.49%
Transportation: Telecommuting	Carryover	Off-Model	-1.81%
Transportation: Transportation Demand Management (Agricultural Worker Vanpools)	Carryover	Off-Model	-0.88%
Electric Vehicles: Public Charging Infrastructure for Electric Vehicles	Carryover	Off-Model	-0.11%
Total Reduction	**All strategies**	**On and off-model**	**-6.29%**[13]

[13] This reflects estimated GHG emission reductions as reported by AMBAG and does not include the potential impact from CARB's induced analysis referenced on page 17.

Appendix B: Trend Analysis Results

This table summarizes CARB staff's analysis of key plan performance indicators provided by AMBAG to support the 2022 SCS's stated greenhouse gas (GHG) and vehicle miles traveled (VMT) reductions. CARB staff requested data on the following eight performance indicators: 1) household vehicle ownership, 2) mode share, 3) average travel time by mode, 4) daily transit ridership, 5) average trip length by mode, 6) seat utilization, 7) VMT per capita, and 8) GHG per capita. AMBAG provided data for 7 of the 8 requested performance indicators. AMBAG did not provide seat utilization data, so CARB staff could not review the trend for those data.

Performance Indicator	**Forecast Change[14] 2015 to 2035[15]**	**Trend Analysis**
Average Trip Length by Mode	Light-duty Vehicle Drive Alone (+3.4%) Shared Ride (+5.9%) Transit (-0.5%) Bike (-0.3%) Walk (~0%)	AMBAG's 2022 SCS forecasts an increase in average light-duty vehicle trip length from 7.43 miles/day in 2015 to 7.68 miles/day in 2035. Trip length is forecasted to go up even further to 7.75 miles/day in the plan's horizon year of 2045. Similarly, the average trip length for shared rides is forecasted to increase from 6.79 miles/day in 2015 to 7.19 miles/day in 2035 and 7.23 miles/day in 2045. There is very little to no change forecasted for the average trip lengths for transit, bike, and walk trips by 2035. CARB staff found these trends inconsistent with the plan's forecasted VMT and GHG emission reductions, as compared to 2005. However, this does not reflect the impact of AMBAG's off-model strategies. Please see Appendix C: Data Table for more details.
Average Travel Time by Mode	Commute (+1.2%) Non-Commute (+3.6%) Transit (-5.0%)	AMBAG's 2022 SCS forecasts an increase in both commute and non-commute trip lengths with commute trip lengths increasing from 15.33 minutes in 2015 to 15.52 minutes in 2035 and to 15.59 minutes by 2045. The forecast shows an increase in the average travel time experienced by all modes except transit, which shows a decrease from 33.53

[14] Change shown as: (-) decreasing, (+) increasing, (~) no change.
[15] AMBAG used a 4-step travel demand model. The output from this modeling included the performance indicators used for the trend analysis. AMBAG was not able to provide modeled output for 2005 for all metrics, but did provide output for calendar year 2015, the base year of the plan.

	Bike (+0.7%) Walk (+0.4%)	minutes in 2015 to 31.84 minutes in 2035 and 31.61 minutes in 2045. The reduction in transit travel times supports reduced VMT. CARB staff found increased commute trip travel time – especially when combined with longer trip lengths for auto modes as seen above – by driving, shared rides, walking and biking directionally inconsistent with the relationship shown in the empirical literature that show reductions in travel time and trip length are supportive of reducing VMT and GHG emissions. However, this does not reflect the impact of AMBAG's off-model strategies. Please see Appendix C: Data Table for more details.
Mode Share	Single-occupancy vehicle (SOV) (+0.4%) Shared Ride (-0.2%) Transit (~0%) Walk (-0.2%) Bike (~0%)	AMBAG's 2022 SCS forecasts no significant change in mode share for trips by any mode. CARB staff found this neither supportive or in contrast to reducing GHG. It suggests that as the population increases, travel modes remain proportionally consistent with how people travel today. However, this does not reflect the impact of AMBAG's off-model strategies. Please see Appendix C: Data Table for more details.
Daily Transit Ridership	+9.4%	AMBAG's 2022 SCS forecasts that daily transit ridership increases from 34,225 in 2015 to 37,439 in 2035. CARB staff found this trend directionally supportive and consistent with the relationship shown in the empirical literature that increasing transit ridership will reduce GHG emissions. However, ridership appears to be growing at the same rate as household growth, as transit ridership per household is the same in 2015 (0.14) and 2035 (0.14). However, this does not reflect the impact of AMBAG's off-model strategies. Please see Appendix C: Data Table for more details.
Household Vehicle Ownership	+1.5%	AMBAG's 2022 SCS forecasts that average vehicle ownership per household is 2.06 in 2015, 2.09 in 2035, and 2.1 in 2045. CARB staff found the trend from 2015 to 2035 not supportive of lower GHG emissions and inconsistent with the relationship shown in the empirical literature that lower vehicle

		ownership is associated with lower GHG emissions. Please see Appendix C: Data Table for more details.
VMT per Capita Reduction Between 2005 and 2035	-2.5%	AMBAG's 2022 SCS forecasts VMT to decrease from 19.36 VMT per capita in 2005 to 18.88 VMT per capita in 2035. CARB staff found this trend supportive and consistent with the relationship shown in the empirical literature that reducing VMT per capita will reduce GHG emissions. However, it is important to note that AMBAG's 2022 SCS forecast for VMT per capita in 2015 is 18.24. CARB staff are concerned that while VMT per capita is going down from the 2005 base year, it is increasing from the 2015 base year. However, this does not reflect the impact of AMBAG's off-model strategies. Please see Appendix C: Data Table for more details.
GHG per Capita Reduction Between 2005 and 2035	-6.29%	The GHG per capita reduction forecasted by AMBAG meets the target of -6% established by CARB. Please see Appendix C: Data Table for more details.
Seat Utilization	AMBAG did not provide data.	

Appendix C: Data Table

Modeling Parameters	2005	2015 Base Year	2020	2035	Plan Horizon Year (2045)	Data Sources
Modeled Population	740,048	762,241	774,729	842,189	869,776	2022 AMBAG Regional Growth Forecast
Vehicle Operating Costs (cents/mile)[16]	Not available (N/A)	21.27	21.17	18.93	18.27	CARB Auto Operating Cost Calculator Spreadsheet
Average Toll Price ($/mile)	N/A	N/A	N/A	N/A	N/A	N/A
Average Median Household Income ($/year)	N/A	$86,841	$112,134	N/A	N/A	ACS
Total Number of Households	N/A	238,862	243,863	269,175	276,730	2022 AMBAG Regional Growth Forecast
Total Number of Jobs	N/A	377,335	406,280	425,845	442,824	2022 AMBAG Regional Growth Forecast

[16] *Vehicle operating costs = auto operating costs / VMT*

Modeling Parameters	2005	2015 Base Year	2020	2035	Plan Horizon Year (2045)	Data Sources
Total Developed Acres	N/A	106,115	106,218	106,218	113,787	2022 MTP/SCS Placetypes
Total Housing Units	N/A	262,660	267,812	296,352	304,900	2022 AMBAG Regional Growth Forecast
Total Single-Family Housing Units (du)	N/A	N/A	N/A	N/A	N/A	N/A
Share of Single-Family Housing Units (%)	N/A	N/A	N/A	N/A	N/A	N/A
Total Multi-Family Housing Units (du)	N/A	N/A	N/A	N/A	N/A	N/A
Share of Multi-Family Housing Units (%)	N/A	N/A	N/A	N/A	N/A	N/A
Total Housing Units Within ½ Mile of a High-Quality Transit Station	N/A	N/A	N/A	N/A	N/A	N/A
Total Jobs Within ½ Mile of a High-Quality Transit Station	N/A	45,309	48,931	101,178	109,824	Travel Demand Model input/GIS

Modeling Parameters	2005	2015 Base Year	2020	2035	Plan Horizon Year (2045)	Data Sources
Freeway and General-Purpose Lanes - Mixed Flow, auxiliary, etc. - net new (lane miles)	N/A	230	230	239	258	Travel Demand Model input
Freeway Tolled Lanes - net new (lane miles)	N/A	N/A	N/A	N/A	N/A	N/A
Freeway HOV Lanes - net new (lane miles)	N/A	0	0	0	0	Travel Demand Model input
Arterial/Expressway - net new (lane miles)	N/A	2,230	2,232	2,287	2,287	Travel Demand Model input
Collector - net new (lane miles)	N/A	1,774	1,778	1,807	1,807	Travel Demand Model input
Average Transit Headway (minutes)	N/A	96.44	96.44	120.09	119.45	Travel Demand Model input
Total Transit Operation Miles	N/A	609,912	632,275	675,868	685,620	Travel Demand Model input
Transit Total Daily Vehicle Service Hours	N/A	19,619	20,365	22,122	22,441	Travel Demand Model input

Modeling Parameters	2005	2015 Base Year	2020	2035	Plan Horizon Year (2045)	Data Sources
Bike and Pedestrian Lane (class I, II, & IV) Miles – net new miles	N/A	455	455	549	1,330	RTPA's RTP for 2022
Household Vehicle Ownership	N/A	2.06	2.07	2.09	2.10	Travel Demand Model output
Average Trip Length (miles/day)						
Drive Alone	N/A	7.43	7.61	7.68	7.72	Travel Demand Model output
Shared Ride	N/A	6.79	7.17	7.19	7.23	Travel Demand Model output
Public Transit	N/A	3.90	3.93	3.88	3.90	Travel Demand Model output
Bike	N/A	2.91	2.90	2.90	2.92	Travel Demand Model output
Walk	N/A	1.23	1.22	1.23	1.12	Travel Demand Model output
Average Travel Time by Mode (minutes)						
Commute Trip	N/A	15.33	15.39	15.52	15.59	Travel Demand Model output
Non-Commute Trip	N/A	12.36	12.75	12.81	12.87	Travel Demand Model output
Drive Alone	N/A	16.01	16.05	16.20	16.26	Travel Demand Model output

Modeling Parameters	2005	2015 Base Year	2020	2035	Plan Horizon Year (2045)	Data Sources
Drive Alone (TNC)	N/A	N/A	N/A	N/A	N/A	Travel Demand Model output
Shared Ride	N/A	16.01	16.05	16.20	16.26	Travel Demand Model output
Shared Ride (pooled TNC)	N/A	N/A	N/A	N/A	N/A	Travel Demand Model output
Public Transit	N/A	33.53	33.86	31.84	31.61	Travel Demand Model output
Bike	N/A	9.58	9.61	9.65	9.66	Travel Demand Model output
Walk	N/A	19.07	19.11	19.15	19.14	Travel Demand Model output
Average Travel Time for Low-Income Populations (minutes)	N/A	N/A	N/A	N/A	N/A	Travel Demand Model output
Mode Share						
Drive Alone	N/A	38.36%	38.71%	38.75%	38.82%	Travel Demand Model output
Drive Alone (TNC)	N/A	N/A	N/A	N/A	N/A	Travel Demand Model input
Shared Ride	N/A	45.73%	45.64%	45.56%	45.62%	Travel Demand Model output

Modeling Parameters	2005	2015 Base Year	2020	2035	Plan Horizon Year (2045)	Data Sources
Shared Ride (pooled TNC)	N/A	N/A	N/A	N/A	N/A	Travel Demand Model input
Public Transit	N/A	1.31%	1.31%	1.31%	1.28%	Travel Demand Model output
Bike	N/A	2.18%	2.17%	2.17%	2.16%	Travel Demand Model output
Walk	N/A	11.57%	11.35%	11.39%	11.30%	Travel Demand Model output
Seat Utilization	N/A	N/A	N/A	N/A	N/A	N/A
Transit Ridership (Average daily boarding)	N/A	34,225	34,864	37,439	39,939	Travel Demand Model output
Total VMT per weekday (all vehicle class) (miles)	16,073,487	16,007,118	17,331,954	18,278,130	20,032,142	Travel Demand Model output
Total VMT per weekday for passenger vehicles (CARB vehicle classes LDA, LDT1, LDT2, and MDV)[17]	14,328,882	13,906,314	15,011,391	15,897,131	17,110,918	Travel Demand Model output

[17] *The total excludes off-model VMT reductions and x-x VMT.*

Modeling Parameters	2005	2015 Base Year	2020	2035	Plan Horizon Year (2045)	Data Sources
Total II VMT per weekday for passenger vehicles (miles)	9,280,532	9,119,844	9,658,416	10,566,193	10,842,585	Travel Demand Model output
Total IX/XI VMT per weekday for passenger vehicles (miles)	5,048,350	4,786,470	5,352,974	5,330,937	6,268,333	Travel Demand Model output
Total XX VMT per weekday for passenger vehicles (miles)	441,229	544,700	600,670	612,550	845,558	Travel Demand Model output
SB 375 VMT per capita	19.36	18.24	19.38	18.88	19.67	Calculated: (II + IX/XI passenger VMT) / population
Total CO_2 emissions per weekday (all vehicle class) (tons/day)	7,271.59	7,703.83	7,498.41	5,418.75	5,540.81	EMFAC model output
Total SB 375 CO_2 emissions per weekday for passenger vehicles (CARB vehicle classes LDA, LDT1, LDT2, and MDV) (tons/day)	6,482.34	6,476.30	6,906.89	7,159.37	7,695.93	EMFAC model output

Modeling Parameters	2005	2015 Base Year	2020	2035	Plan Horizon Year (2045)	Data Sources
Total II CO_2 emissions per weekday for passenger vehicles (tons/day)	4,198.48	4,247.20	4,443.93	4,758.55	4,876.64	EMFAC model output
Total IX/XI CO_2 emissions per weekday for passenger vehicles (tons/day)	2,283.86	2,229.10	2,462.96	2,400.82	2,819.29	EMFAC model output
Total XX CO_2 emissions per weekday for passenger vehicles (tons/day)	N/A	N/A	N/A	N/A	N/A	N/A
SB 375 CO_2 per capita (lbs./day)[18]	18.68	17.0	17.8	17.0	17.7	Calculated: (II + IX/XI CO_2) / population / 2000 lbs./ton
EMFAC Adjustment Factor (if applicable)	N/A	N/A	N/A	N/A	N/A	N/A

[18] *The 2005 CO2 emissions were backcast using the 2005 population estimates from the Census Bureau and lane miles from the California public road data derived from the Highway Performance Monitoring System.*

Modeling Parameters	2005	2015 Base Year	2020	2035	Plan Horizon Year (2045)	Data Sources
RTP/SCS Strategy 1 – Off Model 1: Work at Home Workers	N/A	N/A	-2.71%	-1.81%	N/A	MPO estimated
RTP/SCS Strategy 2 – Off Model 2: TDM Strategies (Agriculture Worker Vanpools)	N/A	N/A	-0.67%	-0.88%	N/A	MPO estimated
RTP/SCS Strategy 3 – Off Model 3: ZEV Strategies	N/A	N/A	-0.03%	-0.11%	N/A	MPO estimated

Appendix D: MPO Reporting Components

This section summarizes the three reporting components called for in the SCS Evaluation Guidelines: tracking implementation, incremental progress, and equity. The three reporting components are included to identify the effectiveness of prior SCS implementation and increase overall transparency of the SCS for the public and other stakeholders.

I. Tracking Implementation

The purpose of this section is to report on the progress the AMBAG region made in implementing its previous SCS's planned outcomes. Specifically, CARB staff compared observed data for transportation, housing, and land use performance metrics to the outcomes modeled in the region's previous plan to determine whether the region is on track to meet its targets. CARB staff chose performance metrics based on the availability of observed data from CARB's 2022 Progress Report. The tracking implementation analysis allows CARB staff to understand whether the region was on track to meet its previous SCS's expected plan outcomes, and whether and how the latest adopted SCS needs to be adjusted to get the region on track with desired plan outcomes, which is then used to inform CARB staff's Plan Adjustment analysis.

CARB staff's analysis of observed data to outcomes modeled in the region's previous 2018 plan is as follows:

- **Regional average household vehicle ownership** increased by 6% in AMBAG from 2010 to 2019. The 2018 SCS assumed no change in vehicle ownership from 2015 to 2035.
- **Daily transit ridership** varied year to year with a low of about 36,500, a high of almost 41,500, and an average of about 38,500 between 2005 and 2019. No data were provided for daily transit ridership in the 2018 SCS.
- **Commute trip travel time** was about 26 minutes in 2010 which further increased from the year 2016 to 2019. However, the 2018 SCS forecasted average home-based work trips travel time to be just over 15 minutes for 2015 and slightly increasing in 2035. While the observed trend and 2018 SCS forecasted trend directionally align, both are going in the wrong direction to support VMT and GHG emissions reduction.
- **New homes built by type** shows that multi-family housing has represented a large share of the new housing units built between 2005 and 2015. However there have been significant increases in single-family housing units built from 2018-2020. AMBAG did not provide information for the type of housing forecasted in the 2018 SCS.

Reported data from CARB's 2022 Progress Report shows that all reported indicators are tracking in the wrong direction to support VMT and GHG emissions reduction. Not enough

data was provided in the 2018 SCS to compare the observed trends to the expected plan outcomes. To view CARB's 2022 Progress Report and observed data trends, please visit CARB's *Tracking Progress Webpage*.

II. Incremental Progress

Based on the SCS Evaluation Guidelines, the incremental progress reporting component is not applicable to AMBAG and no analysis was done.

III. Equity

MPOs may report to CARB a summary of how they conducted equity analyses as part of the development of their SCSs in accordance with the CTC's *2017 Regional Transportation Plan Guidelines for Metropolitan Planning Organizations*.[19] AMBAG's 2022 SCS includes a discussion on equity, plan impacts and information on AMBAG's Title VI/Environmental Justice Policy and Program. The 2022 SCS also includes Appendix D Public Participation Summary, and Appendix G Performance Measures, which includes an investment analysis, access to transit analysis, and explains which communities were considered. CARB staff did not evaluate or analyze this information.

A. Public Outreach and Engagement

AMBAG held 10 community workshops in cities throughout the greater Monterey Bay region in Santa Cruz, Monterey, and San Benito counties. Additionally, AMBAG hosted one-on-one meetings with various stakeholders throughout the process. AMBAG also launched an online hub for information, which included a Regional Data Viewer providing regionwide land use and transportation maps. Many of the outreach materials were made available in English and Spanish and translation services were provided at many of the workshops.

B. Identifying Communities for Environmental Justice and Social Equity Analysis

For the environmental justice and social equity analysis, AMBAG identified four community characteristics using the 2015 5-year American Community Survey Data. As defined by AMBAG, this includes, "low income," "racial minority," "low mobility (zero car households and aged populations)," or "low community engagement (linguistic isolation and education attainment)," and is shown in Figure 11 and Figure 12 which are copied from the 2022 SCS. The 2022 SCS compared the distribution of investments and access to transit for each of these geographies.

[19] The RTP Guidelines for MPOs were updated in January 2024, however the 2022 SCS was developed under the 2017 version.

Figure 11. AMBAG Region "Low Income and Minority Areas"

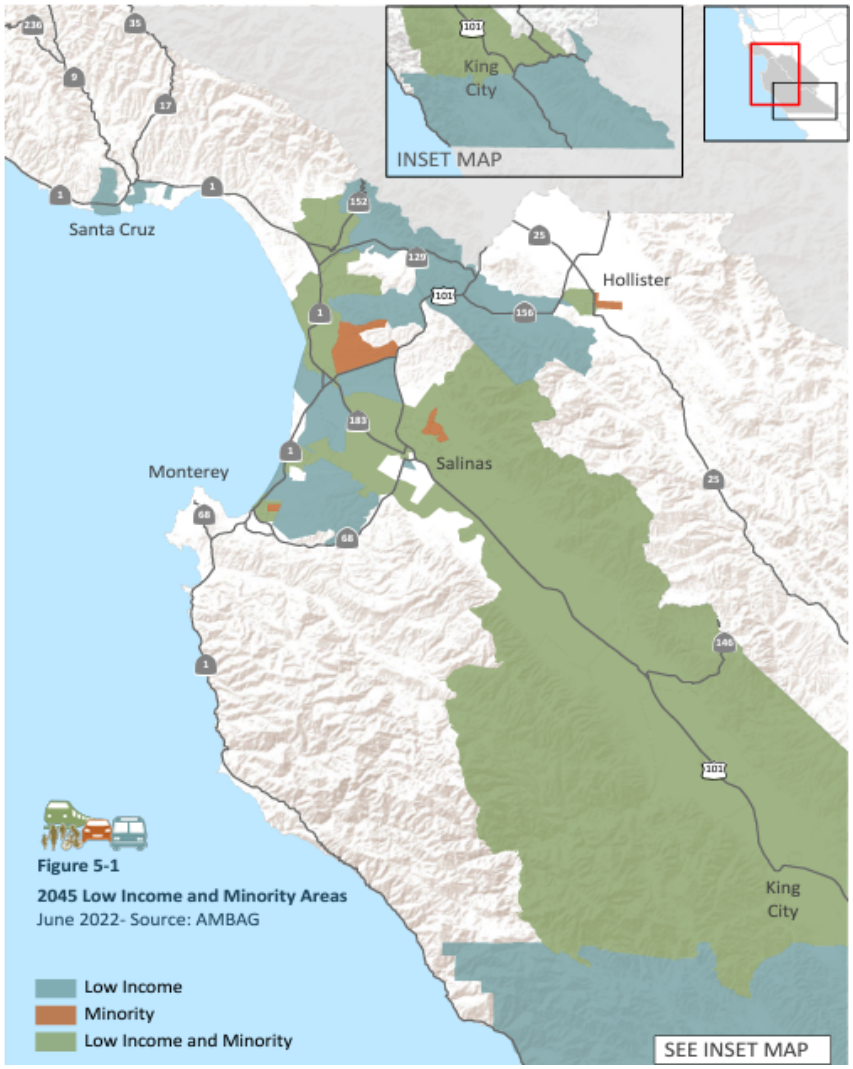
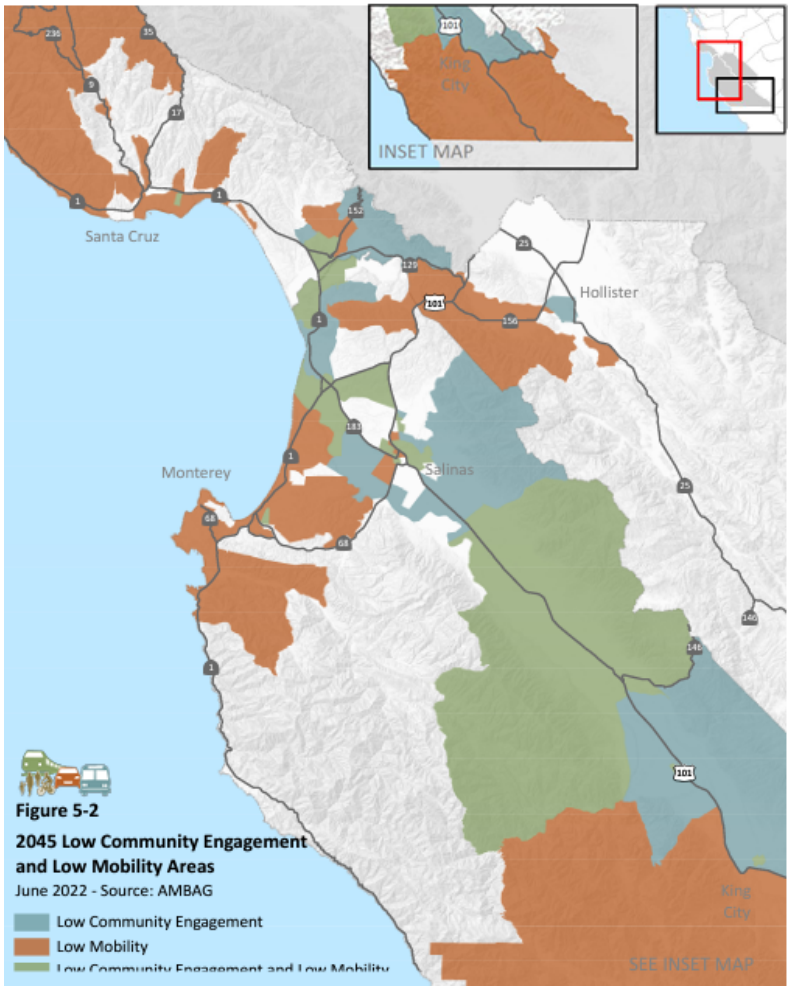


Figure 12. AMBAG Region "Low Community Engagement (linguistic isolation and education attainment)" and "Low Mobility Areas (zero car households and aged populations)"



C. Equity Performance Measures

In AMBAG's 2022 SCS, social equity refers to the equitable distribution of transportation impacts (benefits, disadvantages and costs) regardless of income status or race and ethnicity. The 2022 SCS includes an analysis of the distribution of transportation investments and concluded that the investments were equal, if not greater, in "low income and minority areas" compared to other areas by 2045. In 2035, almost 42% of investments are in "low income" and "minority" areas, compared to just over 72% of investments in "non low income" and "non minority" areas. The percentage of investments in "low mobility" areas is 52.9% in 2035 and 71.5% in 2045. The percentage of investments in "low community engagement" areas is 32.6% in 2035 and 67.9% in 2045.

The 2022 SCS reports access to transit increases by nearly five percent for "low income and minority areas". More specifically, approximately 10% of "low income" areas have access to transit within a half-mile in 2015 and this increases to 14.3% in 2035 and 14.4% in 2045. Access to transit within a half-mile for "minority" areas increased from 16.7% in 2015 to almost 20% in 2035 and 2045. Access to transit within a half-mile for "low mobility" areas is increased from 0.6% having access in 2015 to 1.6% in 2035 and 2045. Access to transit within a half-mile for "low community engagement" areas is increased from 1.2% in 2015 to 1.4% in 2035 and 2045. This is shown in Figure 13, which is copied from the 2022 SCS.

Figure 13. Transit Access