

October 11, 2023

Sean Tiedgen, Executive Director  
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RE: CARB Review of Shasta Regional Transportation Agency Draft 2022 Regional Transportation Plan/Sustainable Communities Strategy

Dear Director Tiedgen:

California Air Resources Board (CARB) staff appreciate the opportunity to review and engage with the Shasta Regional Transportation Agency (SRTA) staff on its draft 2022 Regional Transportation Plan/Sustainable Communities Strategy (draft RTP/SCS).

This work is more important than ever. CARB's second SB 150 progress report<sup>1</sup> shows that California as a whole, and the Shasta region, are not on track to meet the greenhouse gas (GHG) emission reductions expected under Senate Bill (SB) 375 and that vehicle miles traveled (VMT) is increasing. Governor Newsom signed Executive Order N-19-19 to redouble the State's efforts to reduce GHG emissions, explicitly focusing on lowering VMT. Because of the many benefits of VMT-reducing policies, the fact that the expected GHG and VMT benefits are not coming to pass suggests that the many community benefits projected by SCSs – such as health, equity, mobility, and lower household costs – are not being realized either. To achieve the State's climate goals, California needs significant and immediate changes to how we plan, fund, and build our communities and transportation systems. The SCS plays a critical role in supporting the State's climate efforts, as well as local objectives to create an economically vibrant region that responds to the needs of its diverse communities and provides better access to jobs and clean air for its residents.

In reviewing the draft RTP/SCS, CARB staff identified several specific questions, concerns, and requests for additional information. The information requested is ultimately needed for CARB to evaluate the final SCS. It is critical that CARB staff and SRTA staff reach an agreement on these items as soon as possible to avoid the risk of quantification issues arising during CARB's final SCS review. For CARB to accept or reject SRTA's final determination on whether the region achieves the GHG emission reduction target, CARB staff will have to be able to accurately evaluate the SCS actions planned for implementation

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<sup>1</sup> CARB's Draft 2022 Progress Report: California's Sustainable Communities and Climate Protection Act at: <https://ww2.arb.ca.gov/resources/documents/tracking-progress>

and accept the greenhouse gas emission reductions being quantified. If CARB staff is unable to do so, CARB will not be able to accept SRTA's determination that its SCS would meet the GHG emission reduction target, which could lead to the need for SCS revisions and further board approvals, the requirement to develop an alternative planning strategy under California Government Code §65080 (b) (2) (H), and/or ineligibility for certain State transportation funds. Please follow up with CARB staff on how SRTA will address these items prior to finalizing the SCS.

## **Induced travel**

SRTA's SCS technical methodology, dated March 29, 2023, did not include a discussion of whether and how SRTA's VMT and GHG estimations will account for the short- and long-run effects of induced travel for new roadway capacity projects. In CARB's technical methodology response letter dated July 3, 2023, CARB stated that "If there are going to be any new roadway capacity projects in SRTA's 2022 RTP/SCS, the VMT and GHG estimations must adequately account for the short- and long-term effects of induced travel."

The draft RTP/SCS includes several roadway expansion projects that will result in increased lane miles within the region, including 100 projects in the project list that are identified as "capacity increasing" projects and two expansion projects that are highlighted in the plan as being either future priorities for the region or notable accomplishments since 2018:

- North Redding Six-Lane Project (planned)
- I-5 Union Pacific Redding to Anderson Six Lane Project (recently completed)

In order to assess whether SRTA has adequately accounted for the short-and long-term effects of induced travel in its GHG calculations, CARB staff will need the following:

- Functional class and number of lane miles for each project for the base year, calendar year 2035, and horizon year of the plan;
- Documentation of the steps used to quantify induced VMT;
- A description of how the approach was validated; and
- A description of how the induced VMT has been factored into the GHG quantification.

Not calculating the effects of induced travel correctly leaves SRTA's SCS at risk of being found not to meet its GHG emission reduction targets. CARB can provide technical assistance with the induced travel analysis and encourages SRTA to work with CARB staff when estimating the VMT impacts of the 2022 SCS and roadway expansion projects.

These calculations are critical because research has shown that adding highways and major roadways in densely populated, suburban, and rapidly growing areas generally only alleviates congestion in the short-term, while usually increasing VMT, congestion, low-density and car-oriented development, and GHG emissions in the long-term. Furthermore, investing in highway and major roadway projects that induce VMT often takes away resources from investments in high-quality rail, transit, bicycling, and pedestrian

infrastructure in both the short- and the long-term.<sup>2,3</sup> In other words, beyond the direct impact of inducing VMT, such projects can slow efforts to improve transportation options that facilitate mode shift, help reduce VMT, and provide safe and convenient ways to travel to key destinations, including for people who do not own vehicles or do not drive.

### **Supportive key actions for SCS strategy implementation**

CARB staff appreciates SRTA's efforts to include various strategies to meet the 2035 GHG reduction target, as detailed in the list of eight VMT-reducing strategies identified on page 55 of the draft RTP/SCS. To verify that SRTA's assumptions about the future outcomes of these strategies are reasonable, per the [Final Sustainable Communities Strategy Program and Evaluation Guidelines](#) (SCS evaluation guidelines), CARB staff will conduct a series of policy analyses of the final RTP/SCS to evaluate whether the strategies, key actions, investments from the RTP/SCS, and the implementation progress support the stated GHG emission reductions to determine whether the SCS would achieve the applicable GHG emission reduction targets. As part of this analysis, CARB will need to evaluate whether the strategies are supported by actions, policies, technical assistance, or funding commitments in the plan.

Table 2 of the [SCS Evaluation Guidelines](#) provides a non-exhaustive list of example RTP/SCS strategy types and possible key actions, and is attached to this letter for reference. Therefore, CARB staff request that SRTA provide details about planned supportive key actions for each of the eight strategies in the plan. These implementation commitments could include a variety of actions, from coordination and leadership by the MPO to ongoing or planned actions by other entities. Please provide CARB with this information as part of the final SCS submission. The table should include each of the eight strategies in the SCS and include a similar level of detail regarding the key actions for each strategy. Without this information, CARB cannot evaluate and/or accept the quantification of GHG emission reduction estimates.

CARB has developed some SCS submittal package resources for MPOs and Table 2 of the [SCS Submittal Package Example Tables](#) file can be used for this purpose. To enhance transparency to the public, CARB recommends that this table be included within the final RTP/SCS document.

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<sup>2</sup> California Department of Transportation. Transportation Analysis Framework, First Edition, pages 28-29. Available at: <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-09-10-1st-edition-taf-fnl-a11y.pdf>

<sup>3</sup> Handy, Susan, & Boarnet, Marlon G. 2014. "Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions." California Air Resources Board Policy Brief. Available at: [https://ww2.arb.ca.gov/sites/default/files/2020-06/Impact\\_of\\_Highway\\_Capacity\\_and\\_Induced\\_Travel\\_on\\_Passenger\\_Vehicle\\_Use\\_and\\_Greenhouse\\_Gas\\_Emissions\\_Policy\\_Brief.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-06/Impact_of_Highway_Capacity_and_Induced_Travel_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf)

## Emissions calculations for SCS strategies

CARB staff cannot confirm that the emissions calculations in the draft RTP/SCS are accurate because, in some cases, the assumptions used in the emissions calculations are either missing or seem to be unsubstantiated. In particular, CARB needs additional data or substantiating information for the following SCS strategies.

### SCS strategies with emissions calculated using an activity-based model

- Population and Employment shift to Strategic Growth Areas (SGAs). The draft RTP/SCS identifies the following percentage shift goals for SGAs in Anderson, Redding, Shasta Lake, and unincorporated Shasta County.

SGAs	% Shift of Housing to SGA	% Shift of Jobs to SGA
City of Anderson	10%	10%
City of Redding	6%	6%
City of Shasta Lake	10%	10%
Shasta County (unincorporated)	10%	10%

Source: Draft RTP/SCS (Appendix 2 Technical Methodology)

To determine whether these percent shift goals are feasible, CARB would need to evaluate (and requests that SRTA provide):

- The current share of population and jobs in SGAs; and
- The rationale for choosing these percentages.

CARB staff will then assess whether these assumptions and the resulting emissions calculations are credible. If any of the factors or assumptions are found to be implausible, CARB will not be able to accept the quantification of GHG emission reduction estimates.

- Increased public transportation frequencies. The draft RTP/SCS says that, for this strategy, the 2022 model will use the “same assumptions as 2018 model.” However, the ShastaSIM 2.0 Supplemental Documentation (Appendix 1) says that “transit assumptions for the 2022 RTP/SCS have been updated based on [Redding Area Bus Authority (RABA)] route changes that occurred just prior to and during the COVID-19 pandemic.” CARB would like clarification on which of these statements is correct.

The ShastaSIM 2.0 documentation (p. 9) provides detail on transit route frequencies for the 2035/40 timeframe but without additional data (e.g., the number of days per week that the service operates, the hours per day that the service operates), CARB staff does not know the total amount of transit service provided in the base year and how much transit service is anticipated to grow in the future years. To determine this,

rather than having service frequency information, please provide data such as the *total*/existing and planned transit service hours or miles, or the percent increase in transit service between the baseline year and the horizon year. Without this information, CARB cannot evaluate and/or accept the quantification of GHG emission reduction estimates.

### SCS strategies with emissions calculated off-model

- Improved bus stops. In the off-model calculations (Appendix 2 to the draft RTP/SCS), SRTA did not identify the number of transit stops that are planned to be improved by 2035 as part of this strategy, the additional number of stops that are planned to be improved by 2040, or the scale/scope of the improvements that are planned for each stop, as measured by increased units in the bus stop index. These data points are necessary for this calculation because the study cited to justify the presumed ridership increase (Brown et al., 2006) says that “a unit increase in the bus stop index is associated with a 31% increase in ridership.” SRTA appears to have applied a 31% increase to the *total*/baseline transit ridership (2,155 trips per day) for 2035 and a 62% increase to the *total*/baseline transit ridership for 2040. Unless SRTA intends to upgrade every existing transit stop in the regional transit system by one unit in the bus stop index by 2035—and has identified actions and commitments in the RTP/SCS to support that strategy—then this calculation for 2035 is incorrect. A 31% increase in ridership should be applied only to the ridership at the select bus stops (or the percentage of bus stops) that are slated for improvements by one unit in the bus stop index by 2035. Furthermore, it is unclear why SRTA is applying a 62% increase to the total ridership for 2040. In citing the source of its calculations, SRTA does not indicate that any studies support the idea that increasing the bus stop index by two units will increase the ridership at a stop by 62% (2 bus stop index units x 31% per unit) nor demonstrating how it is increasing every bus stop by two index units, but that seems to be the assumption that SRTA is making. Please address each of these quantification issues and provide CARB staff with more detail on the planned improvements related to this strategy so that staff can assess the calculation of benefits. Without this information, CARB cannot evaluate and/or accept the quantification of GHG emission reduction estimates.

### **Differentiating active transportation strategies**

Please provide CARB staff with more detail demonstrating how the “accelerated delivery of active transportation investments” strategy, for which emissions benefits are calculated using the ShastaSIM 2.0 model, differs from the “Go Shasta Regional Active Transportation Plan” strategy, for which emissions are calculated off-model, so that CARB staff can confirm that there is not double-counting of emissions benefits. Without this information, CARB cannot evaluate and/or accept the quantification of GHG emission reduction estimates.

## Activity-based model assumptions

In CARB's July 3, 2023, comment letter on the technical methodology, CARB staff expressed concerns about the following activity-based model assumptions. It is unclear whether and how SRTA's emissions calculations have incorporated this feedback.

- AOC assumptions: Please provide the auto operating cost (AOC) values that are being used as input into the activity-based model to CARB staff for our verification. CARB is not currently able to evaluate and/or accept the quantification of GHG emission reduction estimates without this information.
- Regional growth forecast and the decision to use "recession adjustment" factors: There is language in the technical methodology that suggests SRTA plans to continue to use "recession adjustment" factors in its activity-based model, as was done in the 2015 and 2018 RTP/SCSs. Please clarify the rationale for proposing not to return to "normal" development activity and land use vacancy rates until 2030 to CARB staff for our verification. Without this information, CARB cannot evaluate and/or accept the quantification of GHG emission reduction estimates.
- EMFAC adjustment factors: In SRTA's technical methodology dated March 29, 2023, SRTA committed to using the same version of EMFAC (EMFAC 2014) for the ShastaSIM 2.0 model calculations (2022 SCS) as was used for the ShastaSIM 1.2 model calculations (2018 SCS). However, SRTA did not explicitly state that it would also use the same adjustment factors, which is also required. In CARB's technical methodology response letter dated July 3, 2023, CARB asked SRTA to clarify whether the same EMFAC adjustment factors of -1.02 percent for 2020 and -2.71 percent would be used for 2035 in accordance with CARB's SCS Evaluation Guidelines. On page 57 of the draft RTP/SCS, SRTA has indicated that "Emissions for 2035 includes a CARB-directed straight adjustment factor (-2.71%) [...] to baseline data generated by the prior version (2011) of EMFAC." In order to verify that the adjustment factor was applied correctly, please clarify whether the adjustment factor was applied to EMFAC 2011 or EMFAC 2014. Please also clarify whether the adjustment factor was applied to just the ShastaSIM 2.0 model emissions results or if it was applied to the off-model emissions results as well. Without this information, CARB cannot evaluate and/or accept the quantification of GHG emission reduction estimates.
- Adjustment factors for off-model calculations: Please note that the off-model calculations must not have an adjustment factor applied because those need to be calculated using the latest available version of EMFAC.

**If CARB cannot evaluate and/or accept the quantification of GHG emission reduction estimates, then CARB will not be able to accept SRTA's final GHG emission reduction determination.**

## Next steps

CARB staff is available to provide technical assistance and answer any questions that you may have about these comments or any other issues on which we can offer assistance in

Sean Tiedgen  
October 11, 2023  
Page 7

support of SRTA's 2022 SCS development process. If you have any questions, please contact me at [carey.knecht@arb.ca.gov](mailto:carey.knecht@arb.ca.gov).

Sincerely,

/s/

Carey Knecht, Chief  
Transportation Systems Planning Branch

#### Attachment

cc: (via email)

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**Table 2. RTP/SCS Strategy and Key Action Examples**

Strategy Category	Strategy Examples	Key Action Examples
<b>Land Use and Housing</b>	Focus housing and job growth in urban areas near existing infrastructure to support connections to transit.	<ul style="list-style-type: none"> <li>• Allocate resources to update local plans and zoning to increase density in targeted areas.</li> <li>• Fund affordable housing near transit and jobs.</li> </ul>
<b>Transportation</b>	Increase transportation access by providing additional reliable and efficient mobility options.	<ul style="list-style-type: none"> <li>• Coordinate with the local public transportation providers on the unmet transit needs assessments to better identify areas that would benefit from expanded and/or more frequent service.</li> <li>• Partner with bike and scooter share programs to provide alternative mobility services in low-income communities.</li> <li>• Incentivize trip reduction programs or vanpool with subsidies.</li> <li>• Continue to provide employers with tools to coordinate carpool and ride matching programs.</li> </ul>
<b>Local/Regional Pricing</b>	Relieve congestion and support pooling and transit usage	<ul style="list-style-type: none"> <li>• Provide incentives to local governments who reduce local parking requirements with zoning updates.</li> <li>• Establish bike share programs close to new multi-family housing units or provide an incentive funding source to developers to purchase bicycles for renters.</li> <li>• Provide policy guidance for implementing local toll lanes</li> </ul>
<b>New Mobility</b>	Foster new mobility within the region that provides more transportation options to support use of public transportation and alternative modes.	<ul style="list-style-type: none"> <li>• Subsidize shared/pooled transportation network company (TNC) rides.</li> <li>• Partner with local agencies to provide electric vehicle car share programs and infrastructure to low-income communities.</li> <li>• Coordinate with locals on regional policies which support use of app-based active transportation programs without compromising public safety.</li> </ul>
		<ul style="list-style-type: none"> <li>•</li> </ul>

Source: CARB Final SCS Program and Evaluation Guidelines (November 2019), Table 2 RTP/SCS Strategy and Key Action Examples